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United States Census of Agriculture: 1954

Volume III **SPECIAL REPORTS**

Part 9

Farmers and Farm Production in the United States **(A Cooperative Report)**

Chapter I

Wheat Producers and Wheat Production

CHARACTERISTICS OF FARMERS and FARM PRODUCTION •
PRINCIPAL TYPES OF FARMS •



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PREFACE

The purpose of this report is to present an analysis of the characteristics of farmers and farm production for the most important types of farms as shown by data for the 1954 Census of Agriculture. The analysis deals with the relative importance, pattern of resource use, some measures of efficiency, and problems of adjustment and change for the principal types of farms.

The data given in the various chapters of this report have been derived largely from the special tabulation of data for each type of farm, by economic class, for the 1954 Census of Agriculture. The detailed statistics for each type of farm for the United States and the principal subregions appear in Part 8 of Volume III of the reports for the 1954 Census of Agriculture.

This cooperative report was prepared under the direction of Ray Hurley, Chief of the Agriculture Division of the Bureau of the Census, U. S. Department of Commerce, and Kenneth L. Bachman, Head, Production, Income, and Costs Section, Production Economics Research Branch, Agricultural Research Service of the U. S. Department of Agriculture.

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The list of chapters and the persons preparing each chapter are as follows:

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Chapter II-----	Cotton Producers and Cotton Production Robert B. Glasgow, Production Economics Research Branch, Agricultural Research Service, United States Department of Agriculture.	Chapter VII---	Cash-grain and Livestock Producers in the Corn Belt Edwin G. Strand, Production Economics Research Branch, Agricultural Research Service, United States Department of Agriculture.
Chapter III----	Tobacco and Peanut Producers and Production R. E. L. Greene, University of Florida.	Chapter VIII--	Part-time Farming H. G. Halcrow, University of Connecticut.
Chapter IV----	Poultry Producers and Poultry Production William P. Mortenson, University of Wisconsin.	Chapter IX----	Agricultural Producers and Production in the United States—A General View Jackson V. McElveen, Production Economics Research Branch, Agricultural Research Service, United States Department of Agriculture.
Chapter V-----	Dairy Producers and Dairy Production P. E. McNall, University of Wisconsin.		

The editorial work for this report was performed by Caroline B. Sherman, and the preparation of the statistical tables was supervised by Margaret Wood.

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UNITED STATES CENSUS OF AGRICULTURE: 1954

REPORTS

Volume I.—Counties and State Economic Areas. Statistics for counties include number of farms, acreage, value, and farm operators; farms by color and tenure of operator; facilities and equipment; use of commercial fertilizer; farm labor; farm expenditures; livestock and livestock products; specified crops harvested; farms classified by type of farm and by economic class; and value of products sold by source. Data for State economic areas include farms and farm characteristics by tenure of operator, by type of farm, and by economic class. Volume I is published in 33 parts.

Volume II.—General Report. Statistics by Subjects, United States Census of Agriculture, 1954. Summary data and analyses of the data for States, for Geographic Divisions, and for the United States by subjects.

Volume III.—Special Reports

Part 1.—Multiple-Unit Operations. This report will be similar to Part 2 of Volume V of the reports for the 1950 Census of Agriculture. It will present statistics for approximately 900 counties and State economic areas in 12 Southern States and Missouri for the number and characteristics of multiple-unit operations and farms in multiple units.

Part 2.—Ranking Agricultural Counties. This special report will present statistics for selected items of inventory and agricultural production for the leading counties in the United States.

Part 3.—Alaska, Hawaii, Puerto Rico, District of Columbia, and U. S. Possessions. These areas were not included in the 1954 Census of Agriculture. The available current data from various Government sources will be compiled and published in this report.

Part 4.—Agriculture, 1954, a Graphic Summary. This report will present graphically some of the significant facts regarding agriculture and agricultural production as revealed by the 1954 Census of Agriculture.

Part 5.—Farm-Mortgage Debt. This will be a cooperative study by the Agricultural Research Service of the U. S. Department of Agriculture and the Bureau of the Census. It will present, by States, data based on the 1954 Census of Agriculture and a special mail survey conducted in January 1956, on the number of mortgaged farms, the amount of mortgage debt, and the amount of debt held by principal lending agencies.

Part 6.—Irrigation in Humid Areas. This cooperative report by the Agricultural Research Service of the U. S. Department of Agriculture and the Bureau of the Census will present data obtained by a mail survey of operators of irrigated farms in 28 States on the source of water, method of applying water, number of pumps used, acres of crops irrigated in 1954 and 1955, the number of times each crop was irrigated, and the cost of irrigation equipment and the irrigation system.

Part 7.—Popular Report of the 1954 Census of Agriculture. This report is planned to be a general, easy-to-read publication for the general public on the status and broad characteristics of United States agriculture. It will seek to delineate such aspects of agriculture as the geographic distribution and differences by size of farm for such items as farm acreage, principal crops, and important kinds of livestock, farm facilities, farm equipment, use of fertilizer, soil conservation practices, farm tenure, and farm income.

Part 8.—Size of Operation by Type of Farm. This will be a cooperative special report to be prepared in cooperation with the Agricultural Research Service of the U. S. Department of Agriculture. This report will contain data for 119 economic sub-

regions (essentially general type-of-farming areas) showing the general characteristics for each type of farm by economic class. It will provide data for a current analysis of the differences that exist among groups of farms of the same type. It will furnish statistical basis for a realistic examination of production of such commodities as wheat, cotton, and dairy products in connection with actual or proposed governmental policies and programs.

Part 9.—Farmers and Farm Production in the United States. The purpose of this report is to present an analysis of the characteristics of farmers and farm production for the most important types of farms as shown by data for the 1954 Census of Agriculture. The analysis deals with the relative importance, pattern of resource use, some measures of efficiency, and problems of adjustment and change for the principal types of farms. The report was prepared in cooperation with the Agricultural Research Service of the U. S. Department of Agriculture.

The list of chapters (published separately only) and title for each chapter are as follows:

Chapter I—*Wheat Producers and Wheat Production*

II—*Cotton Producers and Cotton Production*

III—*Tobacco and Peanut Producers and Production*

IV—*Poultry Producers and Poultry Production*

V—*Dairy Producers and Dairy Production*

VI—*Western Stock Ranches and Livestock Farms*

VII—*Cash-Grain and Livestock Producers in the Corn Belt*

VIII—*Part-Time Farming*

IX—*Agricultural Producers and Production in the United States—A General View*

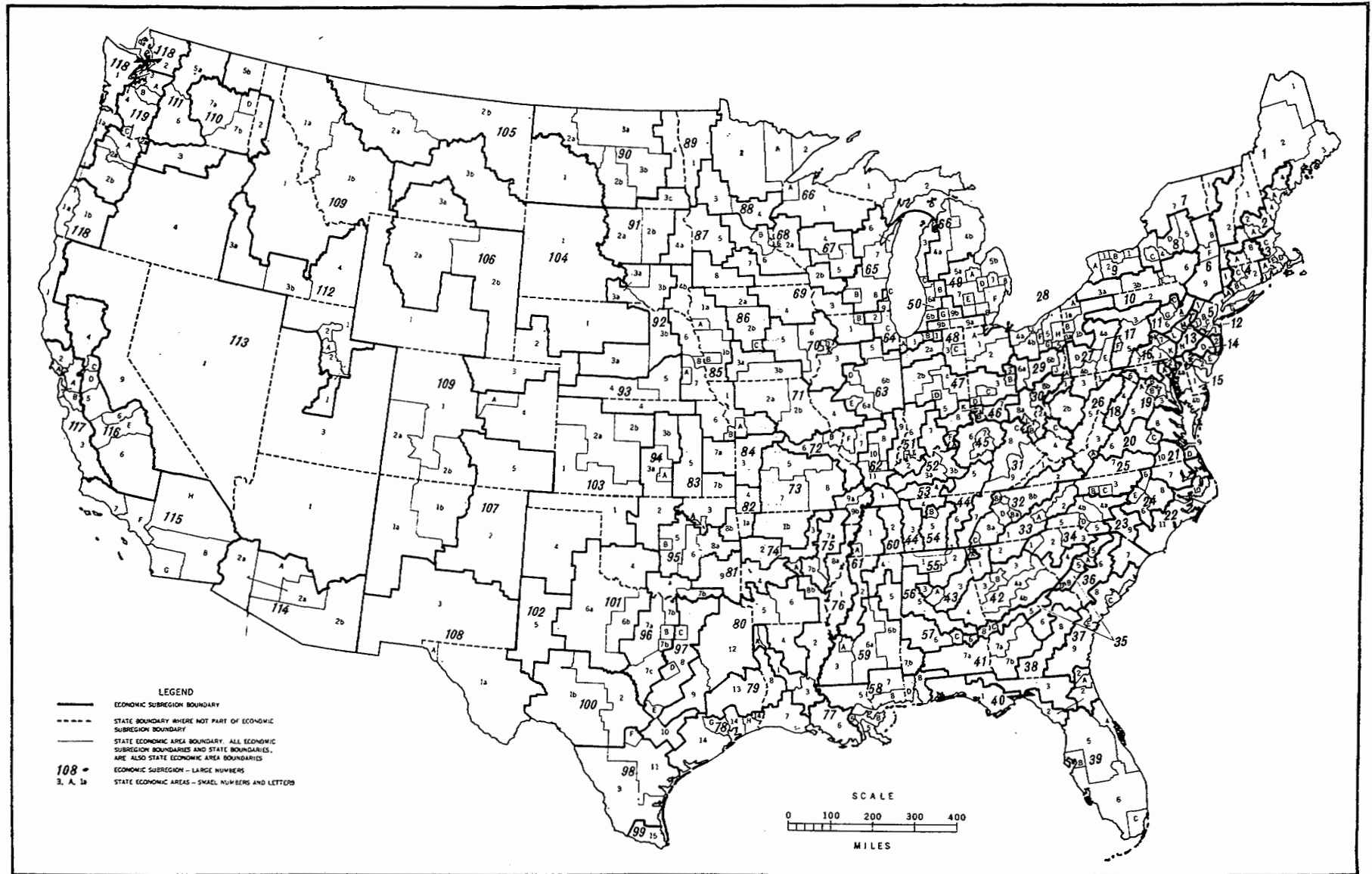
Part 10.—Use of Fertilizer and Lime. The purpose of this report is to present in one publication most of the detailed data compiled for the 1954 Census of Agriculture regarding the use of fertilizer and lime. The report presents data for counties, State economic areas, and generalized type-of-farming areas regarding the quantity used, acreage on which used, and expenditures for fertilizer and lime. The Agricultural Research Service cooperated with the Bureau of the Census in the preparation of this report.

Part 11.—Farmers' Expenditures. This report presents detailed data on expenditures for a large number of items used for farm production in 1955, and on the living expenditures of farm operators' families. The data were collected and compiled cooperatively by the Agricultural Marketing Service of the U. S. Department of Agriculture and the Bureau of the Census.

Part 12.—Methods and Procedures. This report contains an outline and a description of the methods and procedures used in taking and compiling the 1954 Census of Agriculture.

INTRODUCTION

ECONOMIC SUBREGIONS AND STATE ECONOMIC AREAS



INTRODUCTION

Purpose and scope.—American agriculture is exceedingly diverse and is undergoing revolutionary changes. Farmers and their families obtain their income by producing a large variety of products under a large variety of conditions as well as from sources other than farming. The organization of production, type of farming, productivity, income, expenditures, size, and characteristics of operators of the 4.8 million farms in the United States vary greatly. Agriculture has been a dynamic, moving, adjusting part of our economy. Basic changes in farming have been occurring and will continue to be necessary. Adjustments brought by technological change, by changing consumer wants, by growth of population, and by changes in the income of nonfarm people, have been significant forces in changing agriculture since World War II. The transition from war to an approximate peacetime situation has also made it necessary to reduce the output of some farm products. Some of the adjustments in agriculture have not presented relatively difficult problems as they could be made by the transfer of resources from the production of one product to another. Others require substantial shifts in resources and production.

Moreover, a considerable number of farm families, many of whom are employed full time in agriculture, have relatively low incomes. Most of these families operate farms that are small when compared with farms that produce higher incomes. The acreage of land and the amount of capital controlled by the operators of these small farms are too small to provide a very high level of income. In recent years, many farm families on these small farms have made adjustments by leaving the farm to earn their incomes elsewhere, by discontinuing their farm operations, and by earning more non-farm income while remaining on the farm or on the place they farmed formerly.

One objective of this report is to describe and analyze some of the existing differences and recent adjustments in the major types of farming and farm production. For important commodities and groups of farms, the report aims to make available, largely from the detailed data for the 1954 Census of Agriculture but in a more concise form, facts regarding the size of farms, capital, labor, and land resources on farms, amounts and sources of farm income and expenditures, combinations of crop and livestock enterprises, adjustment problems, operator characteristics, and variation in use of resources and in size of farms by areas and for widely differing production conditions. Those types of farms on which production of surplus products is important have been emphasized. The report will provide a factual basis for a better understanding of the widespread differences among farms in regard to size, resources, and income. It will also provide a basis for evaluating the effects of existing and proposed farm programs on the production and incomes of major types and classes of farms.

Income from nonfarm sources is important on a large number of farms. About 1.4 million of the 4.8 million farm-operator families, or about 3 in 10, obtain more income from off-farm sources than from the sale of agricultural products. More than three-fourths of a million farm operators live on small-scale part-time farms and ordinarily are not dependent on farming as the main source of family income. These part-time farmers have a quite different relation to adjustments, changes, and farm problems than do commercial farmers. A description of and facts regarding these part-time farms and the importance of nonfarm income for commercial farms are presented in Chapter 8.

Except for Chapter 8, this report deals with commercial farms (see economic class of farm). The analysis is limited to the major types of agricultural production and deals primarily with geographic areas in which each of the major types of agricultural production has substantial significance.

Source of data.—Most of the data presented in this report are from special compilations made for the 1954 Census of Agriculture, although pertinent data from research findings and surveys of the U. S. Department of Agriculture, State Agricultural Colleges, and other agencies have been used to supplement Census data. The detailed Census data used for this report are contained in Part 8 of Volume III of the reports of the 1954 Census of Agriculture. Reference should be made to that report for detailed explanations and definitions and statements regarding the characteristics and reliability of the data.

Areas for which data are presented.—Data are presented in this report primarily for selected economic subregions and for the United States. The boundaries of the 119 subregions used for the compilation of data on which this report is based are indicated by the map on page vi. These subregions represent primarily general type-of-farming areas. Many of them extend into two or more States. (For a more detailed description of economic subregions, see the publication "Economic Subregions of the United States, Series Census BAE; No. 19, published cooperatively by the Bureau of the Census, and the Bureau of Agricultural Economics, U. S. Department of Agriculture, July 1953.)

DEFINITIONS AND EXPLANATIONS

Definitions and explanations are given only for some of the more important items. For more detailed definitions and explanations, reference can be made to Part 8 of Volume III and to Volume II of the reports of the 1954 Census of Agriculture.

A farm.—For the 1954 Census of Agriculture, places of 3 or more acres were counted as farms if the annual value of agricultural products, exclusive of home-garden products, amounted to \$150 or more. The agricultural products could have been either for home use or for sale. Places of less than 3 acres were counted as farms only if the annual value of sales of agricultural products amounted to \$150 or more. Places for which the value of agricultural products for 1954 was less than these minima because of crop failure or other unusual conditions, and places operated at the time of the Census for the first time were counted as farms if normally they could be expected to produce these minimum quantities of agricultural products.

All the land under the control of one person or partnership was included as one farm. Control may have been through ownership, or through lease, rental, or cropping arrangement.

Farm operator.—A "farm operator" is a person who operates a farm, either performing the labor himself or directly supervising it. He may be an owner, a hired manager, or a tenant, renter, or sharecropper. If he rents land to others or has land cropped for him by others, he is listed as the operator of only that land which he retains. In the case of a partnership, only one partner was included as the operator. The number of farm operators is considered the same as the number of farms.

Farms reporting or operators reporting.—Figures for farms reporting or operators reporting, based on a tabulation of all farms, represent the number of farms, or farm operators, for which the specified item was reported. For example, if there were 11,922 farms in a subregion and only 11,465 had chickens over 4 months old on hand, the number of farms reporting chickens would be 11,465. The difference between the total number of farms and the number of farms reporting an item represents the number of farms not having that item, provided the inquiry was answered completely for all farms.

Farms by type.—The classification of commercial farms by type was made on the basis of the relationship of the value of sales from a particular source, or sources, to the total value of all farm products sold from the farm. In some cases, the type of farm was determined on the basis of the sale of an individual farm product, such as cotton, or on the basis of the sales of closely related products, such as dairy products. In other cases, the type of farm was determined on the basis of sales of a broader group of products, such as grain crops including corn, sorghums, all small grains, field peas, field beans, cowpeas, and soybeans. In order to be classified as a particular type, sales or anticipated sales of a product or group of products had to represent 50 percent or more of the total value of products sold.

The types of commercial farms for which data are shown, together with the product or group of products on which the classification is based are:

<i>Type of farm</i>	<i>Product or group of products amounting to 50 percent or more of the value of all farm products sold</i>
Cash-grain.....	Corn, sorghum, small grains, field peas, field beans, cowpeas, and soybeans.
Cotton.....	Cotton (lint and seed).
Other field-crop.....	Peanuts, Irish potatoes, sweet-potatoes, tobacco, sugarcane, sugar beets for sugar, and other miscellaneous crops.
Vegetable.....	Vegetables.
Fruit-and-nut.....	Berries and other small fruits, and tree fruits, nuts, and grapes.
Dairy.....	Milk and other dairy products. The criterion of 50 percent of the total sales was modified in the case of dairy farms. A farm for which the value of sales of dairy products represented less than 50 percent of the total value of farm products sold was classified as a dairy farm if— (a) Milk and other dairy products accounted for 30 percent or more of the total value of products sold, and (b) Milk cows represented 50 percent or more of all cows, and (c) Sales of dairy products, together with the sales of cattle and calves, amounted to 50 percent or more of the total value of farm products sold.
Poultry.....	Chickens, eggs, turkeys, and other poultry products.
Livestock farms other than dairy and poultry.	Cattle, calves, hogs, sheep, goats, wool, and mohair, provided the farm did not qualify as a dairy farm.

Type of farm

General.....	<i>Product or group of products amounting to 50 percent or more of the value of all farm products sold</i> Farms were classified as general when the value of products from one source or group of sources did not represent as much as 50 percent of the total value of all farm products sold. Separate figures are given for three kinds of general farms: (a) Primarily crop. (b) Primarily livestock. (c) Crop and livestock. <i>Primarily crop</i> farms are those for which the sale of one of the following crops or groups of crops—vegetables, fruits and nuts, cotton, cash grains, or other field crops—did not amount to 50 percent or more of the value of all farm products sold, but for which the value of sales for all these groups of crops represented 70 percent or more of the value of all farm products sold. <i>Primarily livestock</i> farms are those which could not qualify as dairy farms, poultry farms, or livestock farms other than dairy and poultry, but on which the sale of livestock and poultry and livestock and poultry products amounted to 70 percent or more of the value of all farm products sold. <i>General crop and livestock</i> farms are those which could not be classified as either crop farms or livestock farms, but on which the sale of all crops amounted to at least 30 percent but less than 70 percent of the total value of all farm products sold.
Miscellaneous.....	This group of farms includes those that had 50 percent or more of the total value of products accounted for by sale of horticultural products, or sale of horses, or sale of forest products.

Farms by economic class.—A classification of farms by economic class was made for the purpose of segregating groups of farms that are somewhat alike in their characteristics and size of operation. This classification was made in order to present an accurate description of the farms in each class and in order to provide basic data for an analysis of the organization of agriculture.

The classification of farms by economic class was made on the basis of three factors; namely, total value of all farm products sold, number of days the farm operator worked off the farm, and the relationship of the income received from nonfarm sources by the operator and members of his family to the value of all farm products sold. Farms operated by institutions, experiment stations, grazing associations, and community projects were classified as abnormal, regardless of any of the three factors.

For the purpose of determining the code for economic class and type of farm, it was necessary to obtain the total value of farm products sold as well as the value of some individual products sold.

The total value of farm products sold was obtained by adding the reported or estimated values for all products sold from the farm. The value of livestock, livestock products except wool and mohair, vegetables, nursery and greenhouse products, and forest

products was obtained by the enumerator from the farm operator for each farm. The enumerator also obtained from the farm operator the quantity sold for corn, sorghums, small grains, hays, and small fruits. The value of sales for these crops was obtained by multiplying the quantity sold by State average prices.

The quantity sold was estimated for all other farm products. The entire quantity produced for wool, mohair, cotton, tobacco, sugar beets for sugar, sugarcane for sugar, broomcorn, hops, and mint for oil was estimated as sold. To obtain the value of each product sold, the quantity sold was multiplied by State average prices.

In making the classification of farms by economic class, farms were grouped into two major groups, namely, commercial farms and other farms. In general, all farms with a value of sales of farm products amounting to \$1,200 or more were classified as commercial. Farms with a value of sales of \$250 to \$1,199 were classified as commercial only if the farm operator worked off the farm less than 100 days or if the income of the farm operator and members of his family received from nonfarm sources was less than the total value of all farm products sold.

Land in farms according to use.—Land in farms was classified according to the use made of it in 1954. The classes of land are mutually exclusive, i. e., each acre of land was included only once even though it may have had more than one use during the year.

The classes referred to in this report are as follows:

Cropland harvested.—This includes land from which crops were harvested; land from which hay (including wild hay) was cut; and land in small fruits, orchards, vineyards, nurseries, and greenhouses. Land from which two or more crops were reported as harvested was to be counted only once.

Cropland used only for pasture.—In the 1954 Census, the enumerator's instructions stated that rotation pasture and all other cropland that was used only for pasture were to be included under this class. No further definition of cropland pastured was given the farm operator or enumerator. Permanent open pasture may, therefore, have been included under this item or under "other pasture," depending on whether the enumerator or farm operator considered it as cropland.

Cropland not harvested and not pastured.—This item includes idle cropland, land in soil-improvement crops only, land on which all crops failed, land seeded to crops for harvest after 1954, and cultivated summer fallow.

In the Western States, this class was subdivided to show separately the acres of cultivated summer fallow. In these States, the acreage not in cultivated summer fallow represents largely crop failure. There are very few counties in the Western States in which there is a large acreage of idle cropland or in which the growing of soil-improvement crops is an important use of the land.

In the States other than the Western States, this general class was subdivided to show separately the acres of idle cropland (not used for crops or for pasture in 1954). In these States, the incidence of crop failure is usually low. It was expected that the acreage figure that excluded idle land would reflect the acreage in soil-improvement crops. However, the 1954 crop year was one of low rainfall in many Eastern and Southern States and, therefore, in these areas the acreage of cropland not harvested and not pastured includes more land on which all crops failed than would usually be the case.

Cultivated summer fallow.—This item includes cropland that was plowed and cultivated but left unseeded for several months to control weeds and conserve moisture. No land from which crops were harvested in 1954 was to be included under this item.

Cropland, total.—This includes cropland harvested, cropland used only for pasture, and cropland not harvested and not pastured.

Land pastured, total.—This includes cropland used only for pasture, woodland pastured, and other pasture (not cropland and not woodland).

Woodland, total.—This includes woodland pastured and woodland not pastured.

Value of land and buildings.—The value to be reported was the approximate amount for which the land and the buildings on it would sell.

Off-farm work and other income.—Many farm operators receive a part of their income from sources other than the sale of farm products from their farms. The 1954 Agriculture Questionnaire included several inquiries relating to work off the farm and non-farm income. These inquiries called for the number of days worked off the farm by the farm operator; whether other members of the operator's family worked off the farm; and whether the farm operator received income from other sources, such as sale of products from land rented out, cash rent, boarders, old age assistance, pensions, veterans' allowances, unemployment compensation, interest, dividends, profits from nonfarm business, and help from other members of the operator's family. Another inquiry asked whether the income of the operator and his family from off-farm work and other sources was greater than the total value of all agricultural products sold from the farm in 1954. Off-farm work was to include work at nonfarm jobs, businesses, or professions, whether performed on the farm premises or elsewhere; also, work on someone else's farm for pay or wages. Exchange work was not to be included.

Specified facilities and equipment.—Inquiries were made in 1954 to determine the presence or absence of selected items on each place such as (1) telephone, (2) piped running water, (3) electricity, (4) television set, (5) home freezer, (6) electric pig brooder, (7) milking machine, and (8) power feed grinder. Such facilities or equipment were to be counted even though temporarily out of order. Piped running water was defined as water piped from a pressure system or by gravity flow from a natural or artificial source. The enumerator's instructions stated that pig brooders were to include those heated by an electric heating element, by an infrared or heat bulb, or by ordinary electric bulbs. They could be homemade.

The number of selected types of other farm equipment was also obtained for a sample of farms. The selected kinds of farm equipment to be reported were (1) grain combines (for harvesting and threshing grains or seeds in one operation); (2) cornpickers; (3) pickup balers (stationary ones not to be reported); (4) field forage harvesters (for field chopping of silage and forage crops); (5) motortrucks; (6) wheel tractors (other than garden); (7) garden tractors; (8) crawler tractors (tracklaying, caterpillar); (9) automobiles; and (10) artificial ponds, reservoirs, and earth tanks.

Wheel tractors were to include homemade tractors but were not to include implements having built-in power units such as self-propelled combines, powered buck rakes, etc. Pickup and truck-trailer combinations were to be reported as motortrucks. School buses were not to be reported, and jeeps and station wagons were to be included as motortrucks or automobiles, depending on whether used for hauling farm products or supplies, or as passenger vehicles.

Farm labor.—The farm-labor inquiries for 1954, called for the number of persons doing farmwork or chores on the place during a specified calendar week. Since starting dates of the 1954 enumeration varied by areas or States, the calendar week to which the farm-labor inquiries related varied also. The calendar week was September 26–October 2 or October 24–30. States with the September 26–October 2 calendar week were: Arizona, California, Colorado, Connecticut, Florida, Idaho, Kansas, Kentucky, Louisiana, Maine, Massachusetts, Michigan, Minnesota, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico,

New York, North Dakota, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Dakota, Tennessee, Texas, Utah, Vermont, Washington, Wisconsin, and Wyoming. States with the October 24-30 calendar week were: Alabama, Arkansas, Delaware, Georgia, Illinois, Indiana, Iowa, Maryland, Mississippi, Missouri, North Carolina, Ohio, South Carolina, Virginia, and West Virginia. Farmwork was to include any work, chores, or planning necessary to the operation of the farm or ranch business. Housework, contract construction work, and labor involved when equipment was hired (custom work) were not to be included.

The farm-labor information was obtained in three parts: (1) Operators working, (2) unpaid members of the operator's family working, and (3) hired persons working. Operators were considered as working if they worked 1 or more hours; unpaid members of the operator's family, if they worked 15 or more hours; and hired persons, if they worked any time during the calendar week specified. Instructions contained no specifications regarding age of the persons working.

Regular and seasonal workers.—Hired persons working on the farm during the specified week were classed as "regular" workers if the period of actual or expected employment was 150 days or more during the year, and as "seasonal" workers if the period of actual or expected employment was less than 150 days. If the period of expected employment was not reported, the period of employment was estimated for the individual farm after taking into account such items as the basis of payment, wage rate, expenditures for labor in 1954, and the type and other characteristics of the farm.

Specified farm expenditures.—The 1954 Census obtained data for selected farm expense items in addition to those for fertilizer and lime. The expenditures were to include the total specified expenditures for the place whether made by landlord, tenant, or both.

Expenditures for machine hire were to include any labor included in the cost of such machine hire. Machine hire refers to custom machine work such as tractor hire, threshing, combining, silo filling, baling, ginning, plowing, and spraying. If part of the farm products was given as pay for machine hire, the value of the products traded for this service was to be included in the amount of expenditures reported. The cost of trucking, freight, and express was not to be included.

Expenditures for hired labor were to include only cash payments. Expenditures for housework, custom work, and contract construction work were not to be included.

Expenditures for feed were to include the expenditures for pasture, salt, condiments, concentrates, and mineral supplements, as well as those for grain, hay, and mill feeds. Expenditures for grinding and mixing feeds were also to be included. Payments made by a tenant to his landlord for feed grown on the land rented by the tenant were not to be included.

Expenditures for gasoline and other petroleum fuel and oil were to include only those used for the farm business. Petroleum products used for the farmer's automobile for pleasure or used exclusively in the farm home for heating, cooking, and lighting were not to be included.

Crops harvested.—The information on crops harvested refers to the acreage and quantity harvested for the 1954 crop year. An exception was made for land in fruit orchards and planted nut trees. In this case, the acreage represents that in both bearing and nonbearing trees and vines as of October and November 1954.

Hay.—The data for hay includes all kinds of hay except soybean, cowpea, sorghum, and peanut hay.

Livestock and poultry.—The data on the number of livestock and poultry represent the number on hand on the day of enumera-

tion (October-November 1954). The data relating to livestock products and the number of livestock sold relate to the sales made during the calendar year 1954.

LABOR RESOURCES

The data for labor resources available represent estimates based largely on Census data and developed for the purpose of making comparisons among farms of various size of operations. The labor resources available are stated in terms of man-equivalents.

To obtain the man-equivalents the total number of farm operators as reported by the 1954 Census were adjusted for estimated man-years of work off the farm and for the number of farm operators 65 years old and over. The farm operator was taken to represent a full man-equivalent of labor unless he was 65 years or older or unless he worked at an off-farm job in 1954.

The man-equivalent estimated for farm operators reporting specified amounts of off-farm work were as follows:

<i>Days worked off the farm in 1954</i>	<i>Estimated man-equivalent</i>
1-99 days.....	0.85
100-199 days.....	.50
200 days and over.....	.15

The man-equivalent for farm operators 65 years of age and older was estimated at 0.5.

Man-equivalents of members of the farm operator's family were based upon Census data obtained in response to the question "How many members of your family did 15 or more hours of farm work on this place the week of September 26-October 2 (or, in some areas, the week of October 24-30) without receiving cash wages?" Each family worker was considered as 0.5 man-equivalent. This estimate provides allowance for the somewhat higher incidence of women, children, and elderly persons in the unpaid family labor force.

In addition, the number of unpaid family workers who were reported as working 15 or more hours in the week of September 26-October 2 was adjusted to take account of seasonal changes in farm employment. Using published and unpublished findings of the U. S. Department of Agriculture and State Agricultural Colleges, and depending largely upon knowledge and experience with the geographic areas and type of farming, each author determined the adjustment factor needed to correct the number of family workers reported for the week of September 26-October 2 to an annual average basis.

Man-equivalents of hired workers are based entirely upon the expenditure for cash wages and the average wage of permanent hired laborers as reported in the 1954 Census of Agriculture.

Value of or investment in livestock.—Numbers of specified livestock and poultry in each subregion were multiplied by a weighted average value per head. The average values were computed from data compiled for each kind of livestock for the 1954 Census of Agriculture. The total value does not include the value of goats. (For a description of the method of obtaining the value of livestock, see Chapter VI of Volume II of the reports for the 1954 Census of Agriculture.)

Value of investment in machinery and equipment.—The data on value of investment in machinery and equipment were developed for the purpose of making broad comparisons among types and economic classes of farms and by subregions. Numbers of specified machines on farms, as reported by the Census, were multiplied by estimated average value per machine. Then the total values obtained were adjusted upward to provide for the inclusion of items of equipment not included in the Census inventory of farm machinery.

The estimates for average value of specified machines and the proportion of total value of all machinery represented by the value of these machines were based largely on published and unpublished data from the "Farm Costs and Returns" surveys conducted currently by the Agricultural Research Service, U. S. Department of Agriculture.¹ Modifications were made as needed in the individual chapters on the basis of State and local studies. The total estimated value of all machinery for all types and economic classes of farms is approximately equal to the value of all machinery as estimated by the U. S. Department of Agriculture.

Value of farm products sold, or gross sales.—Data on the value of the various farm products sold were obtained for 1954 by two methods. First, the values of livestock and livestock products sold, except wool and mohair; vegetables harvested for sale; nursery and greenhouse products; and forest products were obtained by asking each farm operator the value of sales. Second, the values of all other farm products sold were computed. For the most important crops, the quantity sold or to be sold was obtained for each farm. The entire quantity harvested for cotton and cottonseed, tobacco, sugar beets for sugar, hops, mint for oil, and sugarcane for sugar was considered sold. The quantity of minor crops sold was estimated. The value of sales for each crop was computed by multiplying the quantity sold by State average prices. In the case of wool and mohair, the value of sales was computed by multiplying the quantity shorn or clipped by the State average prices.

Gross sales include the value of all kinds of farm products sold. The total does not include rental and benefit, soil conservation, price adjustment, Sugar Act, and similar payments. The total

does include the value of the landlord's share of a crop removed from a farm operated by a share tenant. In most of the tables, detailed data are presented for only the more important sources of gross sales and the total for the individual farm products or sources will not equal the total as the values for the less important sources or farm products have been omitted. (For a detailed statement regarding the reliability and method of obtaining the value of farm products sold, reference should be made to Chapter IX of Volume II of the reports for the 1954 Census of Agriculture.)

Livestock and livestock products sold.—The value of sales for livestock and livestock products includes the value of live animals sold, dairy products sold, poultry and poultry products sold, and the calculated value of wool and mohair. The value of bees, honey, fur animals, goats, and goat milk is not included.

The value of dairy products includes the value of whole milk and cream sold, but does not include the value of butter and cheese, made on the farm, and sold. The value of poultry and products includes the value of chickens, broilers, chicken eggs, turkeys, turkey eggs, ducks, geese, and other miscellaneous poultry and poultry products sold. The value does not include the value of baby chicks sold.

Crops sold.—Vegetables sold includes the value of all vegetables harvested for sale, but does not include the value of Irish potatoes and sweetpotatoes.

The value of all crops sold includes the value of all crops sold except forest products. The value of field crops sold includes the value of sales of all crops sold except vegetables, small fruits and berries, fruits, and nuts.

¹ Farm Costs and Returns, 1955 (with comparisons), Agriculture Information Bulletin No. 158, Agricultural Research Service, U. S. Department of Agriculture, June 1956.

CHAPTER I

WHEAT PRODUCERS AND WHEAT PRODUCTION

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WHEAT PRODUCERS AND WHEAT PRODUCTION

A. W. EPP

INTRODUCTION

American wheat producers represent an important and distinct segment of our agricultural economy. Nearly a million of the 4.8 million farmers in the United States produce some wheat. Some wheat is grown in all States (see fig. 1), and in 1954, it occupied 51.4 million acres or 15.4 percent of the cropland harvested. Its relative importance in various areas is shown by the proportion of cropland occupied by wheat (see fig. 2). Total wheat production has approximated 1 billion bushels or more in each of the last 15 years with a peak production of 1,359 million bushels in 1947. The 1954 crop of 909 million bushels had a farm value of \$1,940 million. This was approximately 8 percent of gross farm sales in the United States.

Two-thirds of the wheat is grown on relatively specialized farms on which wheat is the major product. These farms are particularly affected by changes in weather conditions and in economic programs that affect wheat. Operators of cash-grain farms harvesting wheat used 34 million acres of cropland or 10.7 percent of the United States total, in the production of wheat in 1954. They had invested \$25.7 billion in land, buildings, livestock, and machinery, or about 23 percent of the total capital investment in agriculture. These wheat farmers used 13 percent of the total agricultural labor force.

In addition, many other farmers with diversified types of farming use a part of their resources to produce some wheat.

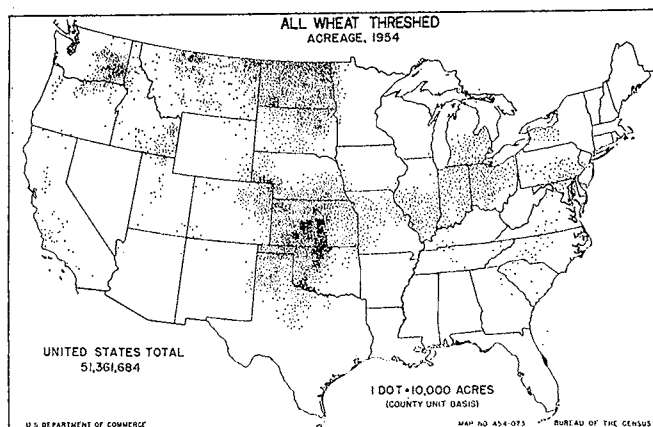


FIGURE 1.

Public interest in wheat producers is stimulated by the demand-supply situation in wheat and the difficulties of making necessary adjustments. The major concern in agricultural programs and price policy for wheat growers for more than 30 years has been the problem of adjusting the quantity produced to the quantity consumed (see fig. 3).

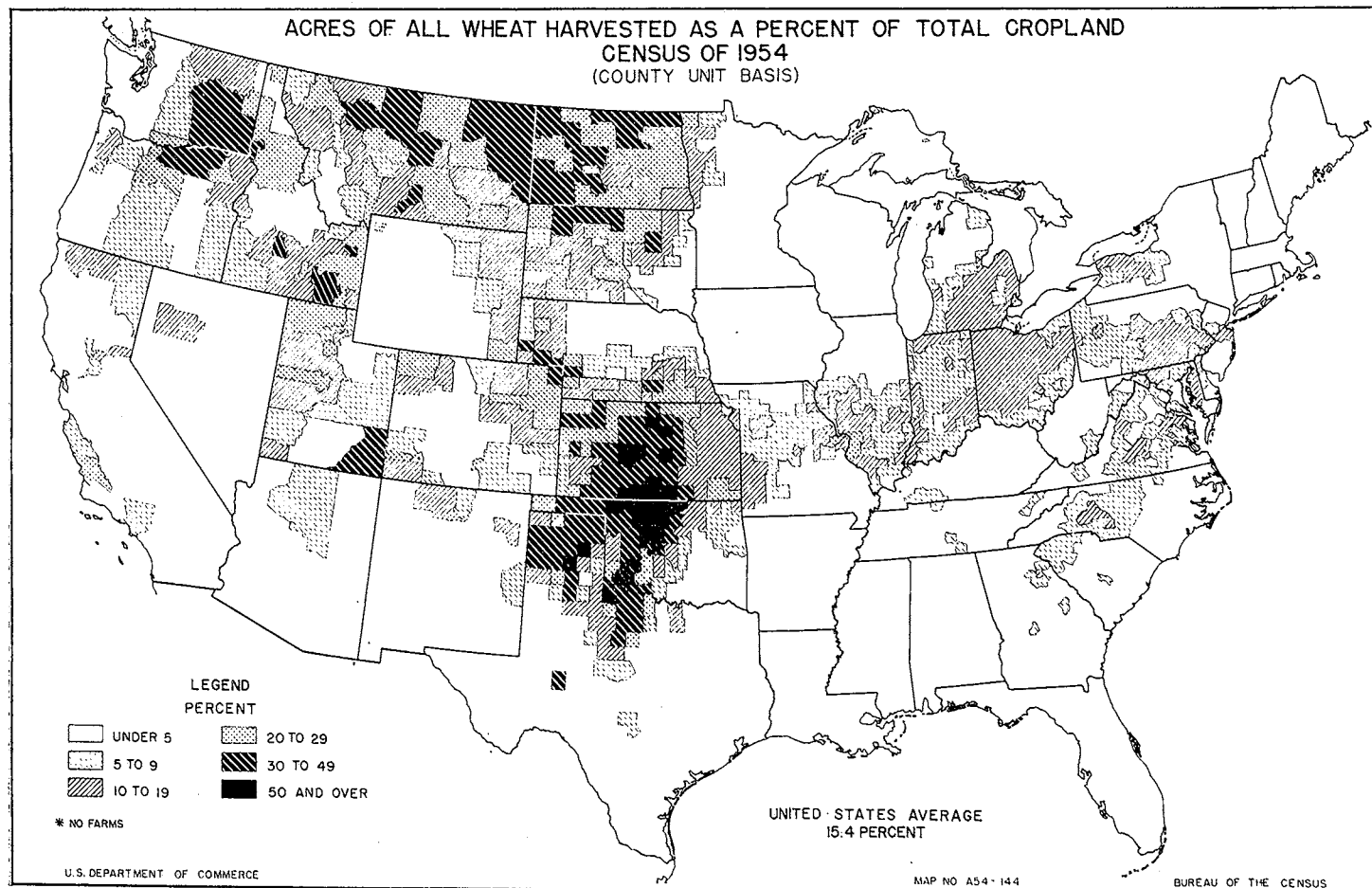


FIGURE 2.

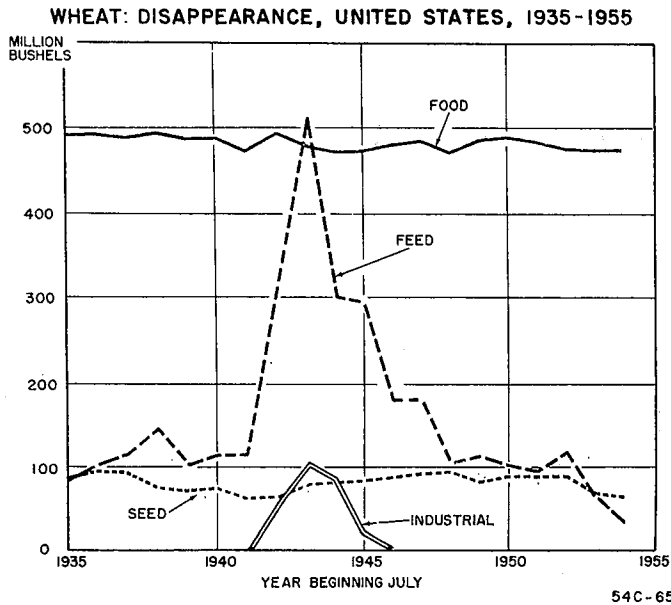


FIGURE 3.

Food habits have changed over the years. The American people have reduced their consumption of the starchy foods such as bread and potatoes. The annual consumption of wheat has declined from 310 pounds per capita in 1910 to 173 pounds in 1954, but the

increase in population has offset this decrease so that total consumption has remained rather constant. (See table 1.)

Wheat is tolerant of a wide range of growing conditions. Ideal conditions for wheat production are a deep, fertile, fine-textured soil, cool temperatures and ample rainfall during the growing season, with warm dry weather during the final period of maturing and harvest. Wheat plants respond readily to favorable moisture conditions but will survive and produce grain with as little as 10 inches of rainfall. Most wheat is grown in areas of less than 50 inches annual rainfall. When wheat is grown in areas of less than 20 inches of yearly precipitation, it is a common practice to summer-fallow at least a part of the wheatland. The purpose of fallowing is to kill weeds, to keep the surface in as permeable condition as possible for the absorption of water, and help to control wind erosion. Many wheat growers in the low-rainfall areas have half of their cropland in wheat and the other half in fallow. A comparison of figures 1, 4, and 5 will show the relation of annual precipitation and summer-fallowing to the areas of wheat production.

Table 1.—TOTAL AND PER-CAPITA CONSUMPTION OF WHEAT FOR FOOD IN THE UNITED STATES:¹ 1910 TO 1954

Year	Total	Per capita	Year	Total	Per capita
	<i>Million bushels</i>	<i>Pounds</i>		<i>Millions bushels</i>	<i>Pounds</i>
1910.....	478	310	1940.....	484	217
1920.....	466	259	1950.....	481	186
1930.....	506	243	1954.....	474	173

¹ Source: Agricultural Marketing Service, U. S. Department of Agriculture.

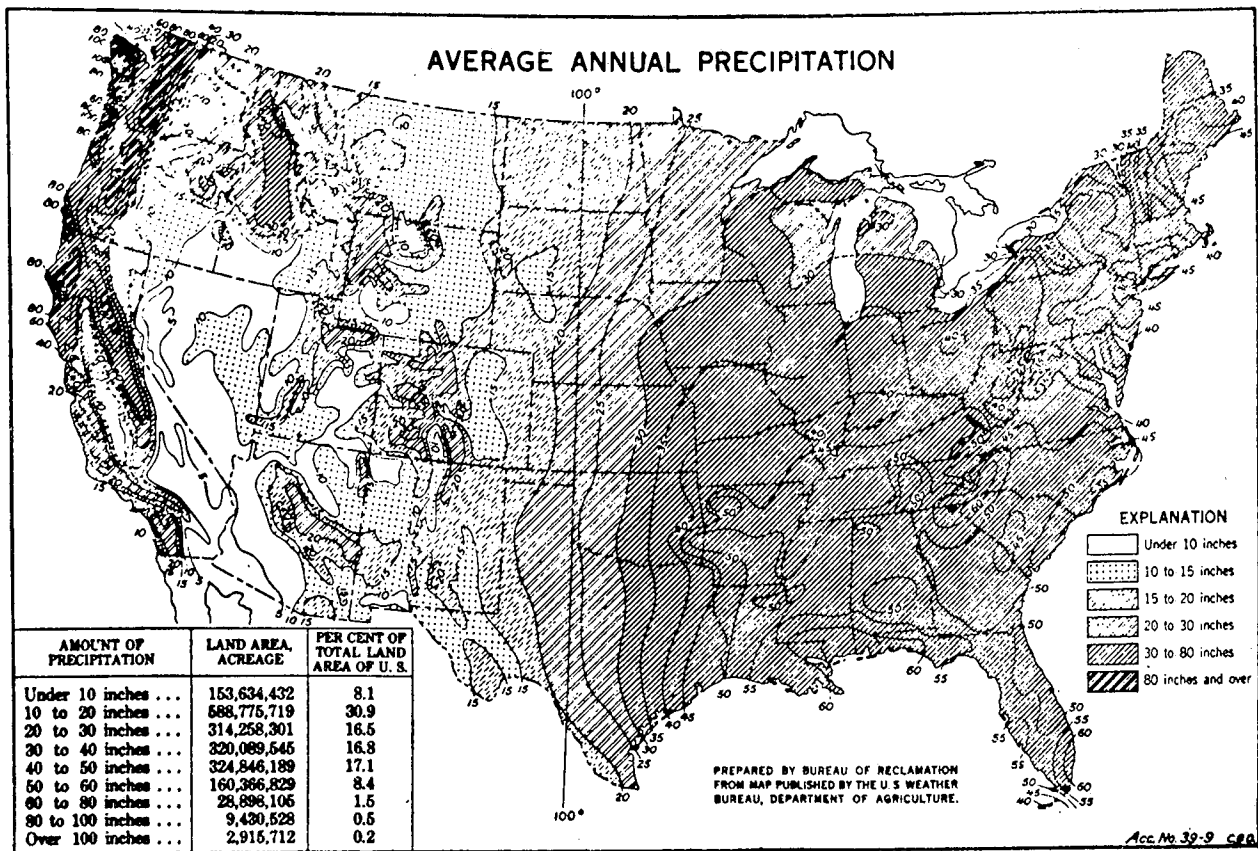


FIGURE 4.

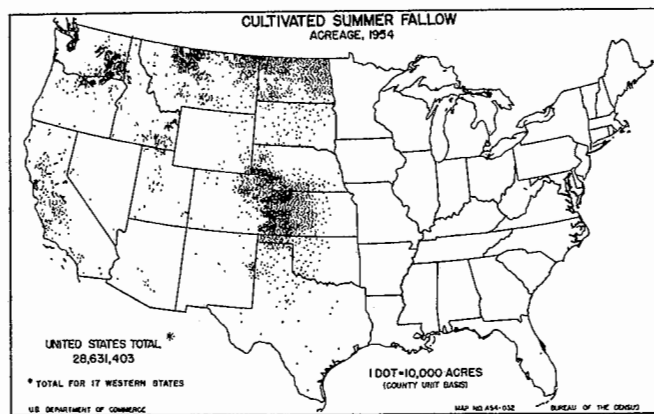


FIGURE 5.

The adaptation of wheat to a wide range of climatic conditions also contributes to the difficulty of limiting the supply. Acreage reductions in recognized commercial wheat areas may be offset by increases in wheat acreage in other areas where it can be grown fairly successfully.

The lack of production alternatives in the major wheat regions intensifies the difficulty of adjusting supply to demand. There are few good alternative uses for the land. It is difficult to get grasses established, and if a shift to livestock production is undertaken, the income is often reduced and any increase in the total farm income may be delayed for several years.

There is great variation in the acreage planted to wheat. It has varied from 50 million to 84 million acres during the last 45 years. The harvested acreage is somewhat less because of abandonment. Each year some seeded wheat acreage is abandoned because conditions are unfavorable for its growth. Winterkill because of drought conditions is the most frequent cause.

The production fluctuates as well as the acreage seeded. The average yield in the United States has varied from 12 to 19 bushels per acre harvested. On a seeded-acre basis, yields dropped as low as 8 bushels during several years of the drought of the 1930's. The acreage harvested, yield, production, and value of the wheat crop during nearly 50 years are shown in table 4. Production has varied from as low as 526 million to a high of 1,359 million bushels. Obviously, the fluctuation in acreage planted and in yield per acre results in considerable variation in annual production.

In recent years wheat supplies have been increasing. The supply of wheat in the United States by source is as follows, for the 5 years, 1950-54:

Item	1950	1951	1952	1953	1954
Production.....	Mil. bu. 1,019	Mil. bu. 981	Mil. bu. 1,299	Mil. bu. 1,170	Mil. bu. 970
Imports.....	12	32	21	6	4
Stocks, July 1.....	425	396	256	562	902
Total supply.....	1,456	1,409	1,576	1,738	1,876

Stocks of wheat have accumulated so that we now have practically 2 years' total requirements on hand at the beginning of each harvest. A part of the problem of oversupply rises out of the extent of the acreage seeded to wheat in response to wartime demand. During both World War I and World War II adequate

supplies of food were essential. Prices of wheat and other foods increased rapidly. Farmers responded by plowing up grassland and increasing the wheat acreage by thousands of acres. The re-adjustment of this acreage to normal demands for wheat is more difficult than the expansion. In the Great Plains area it is difficult and costly to establish grass on cropland. A few years of good grain crops and high prices raise the hopes of farmers for high profits from wheat, and make them reluctant to seed the land to grass.

In 1954 farmers voted in favor of marketing quotas. Carryover stocks of wheat had mounted from a quarter of a billion bushels in 1952 to nearly a billion bushels in July 1954. Continued production at existing levels was not consistent with market demand conditions and price supports of more than \$2 per bushel for wheat. Largely, as a result of acreage controls and marketing quotas, wheat acreage harvested was reduced from 68 million in 1953 to less than 55 million in 1954. Farmers again voted in favor of marketing quotas in 1955 and 1956.

Table 2.—ACREAGE, PRODUCTION, AND VALUE OF WHEAT IN THE UNITED STATES: 1910 TO 1954¹

Year	Harvested acreage	Yield per acre	Production	Average price	Farm value
	Thousands	Bushels	Million bushels	Per bushel	Million dollars
1954.....	53,712	18.1	970	\$2.13	\$2,063
1953.....	67,661	17.3	1,169	2.04	2,385
1952.....	70,926	18.3	1,299	2.09	2,714
1951.....	61,492	16.0	981	2.11	2,074
1950.....	61,610	16.5	1,019	2.00	2,042
1949.....	75,910	14.5	1,098	1.88	2,062
1945.....	65,167	17.0	1,108	1.50	1,661
1940.....	53,273	15.3	815	.68	556
1930.....	62,637	14.2	887	.67	595
1920.....	62,358	13.5	843	1.83	1,541
1910.....	45,793	13.7	625	.91	568

¹ Agricultural Statistics, U. S. Department of Agriculture.

CLASSES OF WHEAT

Wheat is not the homogeneous product implied in some of the discussion of the problems of wheat farmers and farm programs. Several distinct classes of wheat are produced in this country. Each class is grown for a specific use, and is used in a limited number of products. The classes vary in their characteristics. Although there is a considerable overlapping in production areas, the classes of wheat are grown in fairly distinct areas. To a large extent the class produced in an area is greatly influenced by the climatic conditions.

Hard red winter and hard red spring wheats differ mainly in their habits of growth. In the areas where either kind can be grown, winter wheat usually produces a higher yield. These hard wheats are commonly used for the kind of bread flour that requires a high-protein grain. Flour from soft red wheat is especially suited for baking biscuits, pastry, and cakes, as these products require flour with a relatively low protein content.

White wheat, grown in the western and northeastern parts of the United States, is a soft wheat; it is used for pastries and cereals. Durum wheat is a very hard wheat that is grown in the spring wheat regions. It makes a very tough dough used in making macaroni, spaghetti, vermicelli, and noodles. Red durum wheat is grown mainly for livestock feed. The supply and distribution of wheat by classes is shown in table 3.

WHEAT PRODUCTION REGIONS

Wheat production in the United States can be separated into two general production situations. In the western half of the country there are extensive areas of specialized cash-grain farming where wheat is the dominant crop (see fig. 6). While some wheat is grown in all of the Western States, production is concentrated in three major regions. These three major regions, characterized by specialization and large acreages of wheat, account for about half of the total production of wheat. Nearly all of this production occurs on commercial farms. In addition, some wheat is grown in other scattered areas of the West.

In the eastern half of the United States wheat is generally a minor farm enterprise. Here wheat usually is grown in a diversified type of farming where wheat typically is a minor source of income.

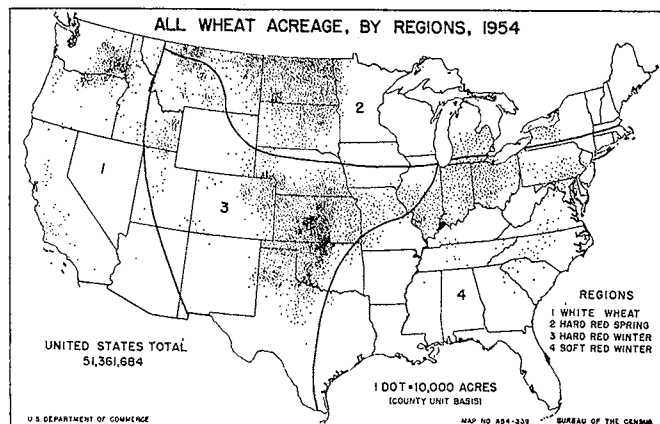


FIGURE 6.

Table 3.—ESTIMATED SUPPLY AND DOMESTIC USE OF WHEAT BY CLASSES: 1954-55¹

Class	Supply	Domestic use
	Million bushels	Million bushels
Hard red winter.....	1,018	225
Soft red winter.....	271	159
Hard red spring.....	338	140
Durum.....	10	8
White.....	254	55

¹ 12 months beginning July 1, 1954.

Source: Agricultural Marketing Service, U. S. Department of Agriculture.

In this report, soft winter wheat production in the eastern half of the United States is covered in less detail. Very few of the producers there would be classified as wheat farmers and data are not available to show how much of the capital and labor is used on these wheat-producing farms. But these areas taken together produce almost a fourth of the wheat in the United States.

Wheat production in the three major wheat areas in the western half of the United States can be described as an extensive, highly mechanized type of agriculture.

Areas of production for the major classes of wheat are shown in figure 6. Along the boundaries between two of the areas, there is considerable overlapping in the classes grown. Winter wheat has been pushing farther north as more winter-hardy varieties have been developed. The boundary between hard and soft winter wheat is not a distinct line but rather a belt in which both classes are found.

The hard winter wheat area, lies in the southern Great Plains extending from Texas to southern Nebraska and from the Corn Belt to the Rocky Mountains. Subregions 93, 94, and 103 comprise nearly all the hard winter wheat area and the data for these three subregions are used to represent the total for this area. Practically all of the wheat produced in these three subregions is hard winter wheat.

The hard spring wheat area extends from northern Nebraska to the Canadian border and from the Red River Valley in Minnesota to western Montana. It includes subregions 89, 90, 91, and 105. The total for these 4 subregions is used to represent the total for this area. This area produces both winter and spring wheat, although the latter is far more extensive. This territory lies too far north for winter wheat except on the southern border and in protected areas in Montana.

The white wheat area is found in southwestern Washington and northern Oregon, extending slightly into Idaho. The data for this subregion are used as the total for this area. Here both spring and winter wheat are grown, but winter wheat predominates.

Table 4.—NUMBER OF COMMERCIAL FARMS, PERCENTAGE GROWING WHEAT, AND PERCENTAGE CLASSIFIED AS CASH-GRAIN, MAJOR PRODUCING REGIONS: 1954

Item	Number of commercial farms	Percent of commercial farms growing wheat for sale	Cash-grain farms			
			Number	Percent of commercial farms	Percent growing wheat for sale	Average wheat acreage per cash-grain farm
Major wheat regions:						
Hard winter wheat.....	127,971	79.9	75,544	59.0	93.7	168.7
Hard spring wheat.....	104,378	90.8	61,427	58.9	100.0	150.4
White wheat.....	14,551	83.8	9,109	62.6	100.0	244.0
Other regions:						
West of 98 th parallel.....	403,703	23.2	48,524	12.0	72.1	140.8
East of 98 th parallel.....	2,677,286	18.3	343,370	12.8	46.7	27.8

Table 5.—PERCENTAGE OF FARMS REPORTING WHEAT SOLD AND OF THE QUANTITY OF WHEAT SOLD FOR CASH-GRAIN AND OTHER FARMS FOR MAJOR WHEAT REGIONS: 1954

Region and type of farm	Percentage of farms producing wheat for sale	Percentage of total wheat sold in the United States
Major Wheat Regions		
Hard winter wheat:		
Cash-grain farms.....	93.7	21.0
Other commercial farms.....	60.0	4.6
Other farms.....	15.3	0.1
Hard spring wheat:		
Cash-grain farms.....	100.0	13.2
Other commercial farms.....	69.6	2.4
Other farms.....	19.0	(z)
White wheat:		
Cash-grain farms.....	100.0	10.1
Other commercial farms.....	30.9	0.3
Other farms.....	6.7	(z)
Other Regions		
West of the 98 th parallel:		
Cash-grain farms.....	72.1	9.9
Other commercial farms.....	16.6	5.3
Other farms.....	2.4	0.1
East of the 98 th parallel:		
Cash-grain farms.....	46.7	14.9
Other commercial farms.....	14.1	17.3
Other farms.....	2.5	0.6

^z 0.05 percent or less.

IMPORTANCE OF MAJOR WHEAT REGIONS

The proportion of the agricultural resources of farmers on commercial farms used by cash-grain farmers in three western wheat-producing regions is shown in table 6. Cash-grain farmers are those who receive at least 50 percent of their income from the sale of grain. Other commercial farmers get more of their income from sources other than grain. Cash-grain farmers in the three major wheat regions have 54 percent of all land and 70 percent of all cropland. They use 62 percent of all capital employed in agriculture, 55 percent of all the farm labor force, and produce 59 percent of all farm products sold in the three major wheat regions.

The adaptation of the wheat plant to a wide range of soil and climatic conditions helps to explain why wheat is grown extensively in the three major wheat regions. In the more productive areas of the Corn Belt, farmers find corn more profitable as a major crop and give it first consideration, even though the yields of wheat in the Corn Belt are higher than the yields in the Great Plains. In the Corn Belt, wheat is grown only because it combines well with other farm enterprises. In earlier years, wheat was grown extensively in the Eastern States and in the Corn Belt, but in recent decades corn and other feed grains have pushed wheat production into areas less favorable for corn production.

Table 6.—PERCENTAGE OF RESOURCES USED AND VALUE OF GROSS SALES FOR ALL COMMERCIAL FARMS REPRESENTED BY CASH-GRAIN FARMS FOR MAJOR WHEAT REGIONS: 1954

Region	All land	Crop-land	Capital investment	Labor force (man-equivalent)	Gross sales
Total, 3 major regions.....	54	70	62	55	59
Hard winter wheat.....	50	67	60	55	53
Hard spring wheat.....	55	68	60	55	62
White wheat.....	72	92	82	62	78

When examined in terms of total units and value, the resources used by the wheat farmers in these specialized wheat-producing

regions loom large. The hard winter wheat region ranks high in number of wheat farms, acres of wheat, wheat production, and total investment. It leads all other regions in total production of wheat. The 146,000 cash-grain farmers in the three regions produced approximately 45 percent of all wheat raised in the United States in 1954. They used nearly \$9 billion in capital investment and the equivalent of 190,000 men. (See table 7.)

Table 7.—NUMBER OF FARMS AND RESOURCES USED ON CASH-GRAIN FARMS IN THE MAJOR WHEAT REGIONS: 1954

Item	Unit	Hard winter wheat	Hard spring wheat	White wheat	Total, 3 regions
Total farms.....	Number.....	75,544	61,427	9,109	146,080
Acres of cropland.....	Thousands.....	30,962	33,493	7,219	71,674
Acres of wheat.....	do.....	12,029	10,132	2,586	24,747
Wheat production.....	Thousands of bushels.....	183,690	121,816	84,065	389,571
Value of wheat sales.....	Millions of dollars.....	371	231	175	777
Gross sales.....	do.....	654	480	238	1,372
Investment in—					
Land and buildings.....	do.....	3,768	1,900	1,033	6,701
Livestock.....	do.....	208	182	27	417
Machinery.....	do.....	696	717	166	1,579
Total.....	do.....	4,672	2,799	1,226	8,697
Man-equivalent.....	Number.....	91,041	82,833	14,755	188,629

A comparison of wheat farmers among regions and with the average of all commercial farmers in the United States is shown on a per-farm basis in table 8.¹ Compared with the United States average, wheat farmers are large operators. They use 2 to 4 times as much land and 1½ to 5 times as much capital as the average farmer in the United States, but need only slightly more than the average of man-labor because of the high degree of mechanization.

Marked differences among regions are found in the acreage and amount of investment in commercial cash-grain farms. The producers of white wheat have the largest farms and the largest investment per farm. The producers of hard winter wheat exceed those in the hard spring wheat area in amount of resources other than land.

Table 8.—NUMBER OF COMMERCIAL FARMS AND SPECIFIED CHARACTERISTICS PER FARM, FOR MAJOR WHEAT REGIONS AND THE UNITED STATES: 1954

Region and type of farm	Number of farms	All land in farms (acres)	Total cropland (acres)	Labor force (man-equivalent)	Total investment (dollars)	Investment in—			Gross sales (dollars)
						Land and buildings (dollars)	Machinery (dollars)	Livestock (dollars)	
All commercial farms.....	3,327,880	310	139	1.5	32,874	25,429	4,291	3,154	7,302
Hard winter wheat region.....	127,971	656	359	1.3	53,904	48,593	8,818	4,046	9,600
Cash-grain farms.....	75,544	558	410	1.2	54,956	50,038	9,210	2,749	8,656
Other commercial farms.....	52,427	797	286	1.5	52,388	46,422	8,262	5,914	10,961
Hard spring wheat region.....	104,378	821	471	1.4	41,426	28,646	11,212	4,749	7,409
Cash-grain farms.....	61,427	771	545	1.3	42,281	30,979	11,619	2,964	7,815
Other commercial farms.....	42,951	892	366	1.6	40,203	25,262	10,632	7,302	6,974
White wheat region.....	14,551	1,034	540	1.6	92,428	85,481	14,307	3,953	20,982
Cash-grain farms.....	9,109	1,188	793	1.6	120,910	99,206	18,244	3,005	26,088
Other commercial farms.....	5,442	776	118	1.6	45,614	32,623	7,718	6,272	12,436

¹ Comparison based on cash-grain farms in major wheat regions. Wheat is the principal cash grain produced on most of these farms.

The wheat regions previously outlined are discussed separately on the following pages. When reference is made to other than the cash-grain farmers in the wheat regions the fact is indicated.

The number of cash-grain farmers and the percentage of total wheat production of each major region are as follows:

Area	Number of cash-grain farmers	Percentage of total U. S. wheat produced in area
Hard winter wheat.....	75,544	20
Hard spring wheat.....	61,427	13
White wheat.....	9,109	9

THE HARD RED WINTER WHEAT REGION

Wheat production is most highly concentrated in subregions 93, 94, and 103 (see fig. 7). A similar area extends into southwestern Nebraska and northeastern Colorado where wheat production is specialized. The relative importance of wheat production in this region is indicated by the following data:

Item	Subregion			Total (3 subregions)
	93	94	103	
Total wheat produced on commercial farms (1,000 bu.).....	39,260	78,586	108,120	225,975
Percent of U. S. total wheat produced on commercial farms.....	4	9	12	25
Percent of region total wheat produced on cash-grain farms.....	74	84	82	81
Percent of region total wheat produced on other commercial farms.....	26	16	18	19

THE HARD WINTER WHEAT AREA,
SUBREGIONS 93, 94, AND 103

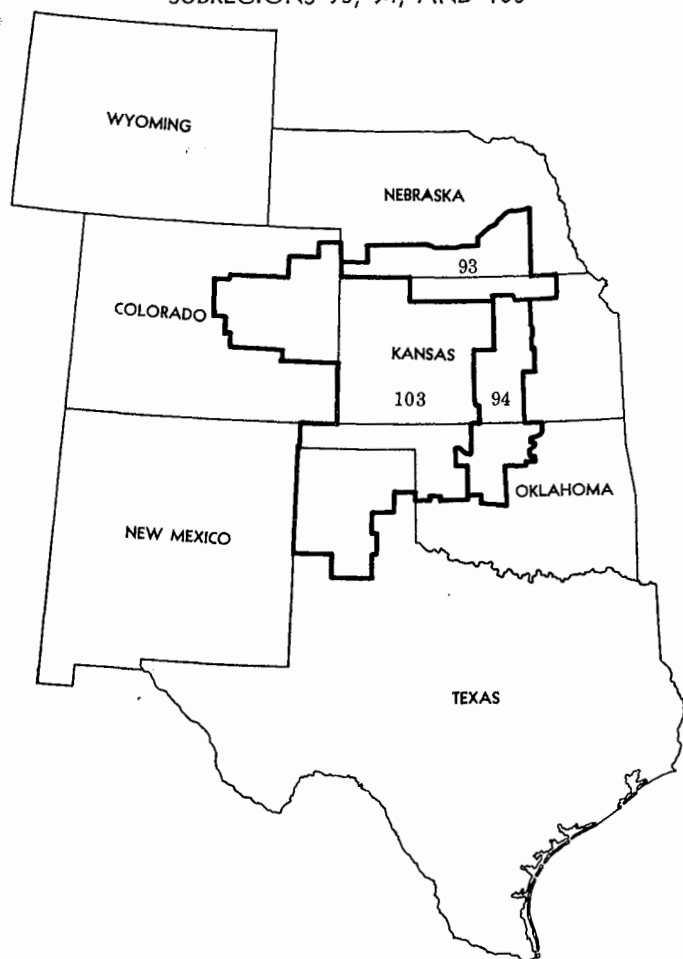


FIGURE 7.

AS4-502

Wheat production in this region is largely the result of physical conditions. The soils and temperature are favorable for such production, and the precipitation very definitely limits the alternatives to wheat.

Most of the soils in this region belong to the Chernozem group; these are dark, deep, heavy prairie soils, which are excellent for wheat production. But obviously, there are variations in the soils and amount of rainfall in so large a territory. Not much of the occasional coarse-textured soil is used for wheat except on the fringes of the good wheat land where, stimulated by the high prices of the war periods, farmers have broken grassland not well suited to wheat production.

Some of the most serious problems here have come from extending wheat production to land unsuited for it. Severe wind erosion is not limited to the less favorable areas but occurs most often and is most severe in such areas. If winter wheat makes little growth in the fall the soil surface is exposed and wind erosion is likely to take place. Damage consists of the destruction of the wheat seedling and the loss of the topsoil.

The topography varies from level plains to undulating and rolling land. The slopes are seldom so steep as to make the use of large machinery difficult. The limiting factor is rainfall which varies from 15 to 25 inches annually. About three-fourths of this falls during the growing season.

Because of the limited rainfall and high rate of evaporation, much of the wheat is grown on summer-fallow land. In 1954, the wheat and summer-fallow acreages were:

	Subregion			
	93	94	103	Total
Wheat (1,000 acres).....	1,418	3,362	7,249	12,029
Summer fallow (1,000 acres).....	609	280	4,608	5,497

The extent of summer-fallowing varies considerably in the hard winter wheat region and depends on the annual precipitation. Nearly all of the fallow land is used for wheat. Most of it is found in areas of less than 20 inches of rainfall. In dry periods the practice of summer-fallowing shifts considerably to the east. In years of above-normal precipitation the summer-fallow acreage may be reduced throughout the entire region.

Transportation facilities and markets are generally adequate for these wheat growers. Local elevators are found in practically every town along the railroads. Considerable quantities of grain are transported by truck to the central markets. Farm-to-market roads have been improved but relatively few are hard-surfaced and many are not even graveled. This is not a serious drawback in marketing wheat since it need not be delivered at any set time.

When yields of wheat are high, a very large quantity is harvested within a short period, approximately 2 months. Local areas usually complete their harvest in 10 to 20 days. Railroads frequently are unable to provide sufficient boxcars to ship the grain to the terminal markets as rapidly as harvested. It is usual to store some of the wheat on the ground in the fields until transportation and storage are available. This may seem a wasteful practice but in the western part of the region, where July and August rainfall is very low, it provides a very cheap temporary method and the risk of spoilage is not high. Storage capacity on farms and in local elevators is far from adequate for the quantity of grain, but it has been increasing very rapidly during the last decade. Tall elevators dot the landscape. Semiterminal elevators with capacities in the millions of bushels have been built at some of the larger shipping centers such as Oklahoma City, Okla.; Wichita and Hutchinson, Kans.; and Lincoln, Nebr., in the hard winter wheat territory.

The hard winter wheat production is extending northward. More hardy varieties make this possible. Generally, farmers prefer to grow winter wheat if it is well adapted as it is likely to produce higher yields because of its longer growing season. Seeding wheat in the fall reduces the fieldwork in the spring. Then too, fall seeding provides some cover for the soil through the winter and helps to prevent the soil from blowing.

Hard winter wheat is also expanding into the soft winter wheat region. The Pawnee variety, developed in the early 1940's, is very well adapted to conditions in the western Corn Belt. In some years more than half of the wheat acreage in southern Iowa, northern Missouri, and west-central Illinois, is in Pawnee wheat. In this humid area Pawnee produces an intermediate-type wheat—it is lower in protein and has a weaker gluten than when grown in a drier area. This wheat can be used in blending flour for bread.

In the hard red winter wheat region there is considerable variation in size and organization of farms and production, and in efficiency levels. Analysis of the characteristics of commercial wheat farms by economic class in the three subregions will help to explain some of the more important differences. (In this discussion the term "wheat farms" in this region is used as synonymous with "cash-grain farms.")

SIZE OF BUSINESS

The size of business is important in wheat farming, as it is in all phases of agriculture and in business outside the field of agriculture. A first requirement of high returns in mechanized agriculture is a volume of business large enough for effective use of machinery and labor resources.

The size of business can be measured in several ways. In the 1954 Census, farms were sorted by size on the basis of gross sales, and divided into six economic classes. (See Introduction for description of economic classes.) The size of farm business can also be measured in other ways. For example, by the area of land operated, or the capital invested, or the man-equivalent per farm. These measures of size are given for the three subregions in tables 9, 10, and 11.

Classification of farms by the amount of gross sales was necessarily based on 1-year's data, 1954. In areas of specialized crop production gross sales in any one year are determined largely by the yields and prices of the major crop produced. Obviously, higher or lower wheat yields would have changed the classification of some individual farms. For example, an area may have a high percentage of farms in the low-income groups because yields were abnormally low in 1954, or if yields were much above average, the number of farms in the high-income brackets may be abnormally high. A comparison of yields in 1954 with average yields will give some indication of the effect of the 1954 growing conditions on the 1954 classification of the farms.

	Subregion		
	93	94	103
1954 wheat yields (bushels per acre).....	20.5	19.7	12.2
5-year average (1949-53) yields.....	17.0	13.8	12.1

Wheat farming in this area is characterized by large acreages per farm, a high capital investment, and a family type of farm. The average cash-grain farmer has a total investment of \$45,000 to \$70,000 in comparison with a national average of \$26,000. Only a little more than the equivalent of one man is employed on the typical wheat farm here.

Substantial variation in size of farms is found in the winter wheat region. Subregions 93 and 94 lie in the eastern part, in

southern Nebraska, and in central Kansas, where production per acre is relatively high. Here the land can be farmed more intensively, compared with the western part, because of the high annual rainfall. Consequently, the farms are smaller in acreage farmed. The larger farms in subregion 103 (western Texas, Oklahoma, Kansas, and eastern Colorado) require a larger investment in land and in machinery than the smaller farms in subregions 93 and 94. The livestock investment is rather uniform in all three subregions. Likewise, the labor required per farm is approximately the same.

Table 9.—SIZE OF CASH-GRAIN FARMS IN SUBREGION 93, BY ECONOMIC CLASS OF FARM: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	19, 859	283	3, 868	7, 768	5, 603	1, 910	427
Total acres per farm.....	358	1, 073	564	362	257	184	132
Crop acres per farm.....	258	801	403	264	180	125	75
Capital investment per farm:							
Land and buildings							
dollars..	33, 745	97, 567	54, 577	34, 659	22, 356	13, 827	10, 265
Livestock.....do.....	2, 817	7, 509	4, 385	2, 948	2, 003	1, 257	778
Machinery.....do.....	8, 023	15, 820	10, 665	8, 218	6, 874	5, 143	3, 313
Total.....do.....	44, 585	120, 896	69, 627	45, 825	31, 233	20, 227	14, 356
Man-equivalent per farm.....	1.2	2.1	1.4	1.2	1.1	0.9	0.8

Table 10.—SIZE OF CASH-GRAIN FARMS IN SUBREGION 94, BY ECONOMIC CLASS OF FARM: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	23, 140	413	5, 179	8, 630	6, 294	2, 233	391
Total acres per farm.....	362	1, 163	580	353	226	166	122
Crop acres per farm.....	264	861	435	260	157	106	67
Capital investment per farm:							
Land and buildings							
dollars.....	44, 520	147, 439	75, 019	43, 546	25, 563	17, 290	11, 897
Livestock..... do.....	2, 283	6, 486	3, 544	2, 290	1, 503	1, 042	617
Machinery..... do.....	7, 949	15, 948	10, 627	7, 956	6, 496	5, 086	3, 606
Total..... do.....	54, 752	169, 873	89, 190	53, 792	33, 562	23, 418	16, 120
Man-equivalent per farm.....	1.1	2.1	1.4	1.1	1.0	0.8	0.8

Table 11.—SIZE OF CASH-GRAIN FARMS IN SUBREGION 103, BY ECONOMIC CLASS OF FARM: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms-----	32,545	1,928	8,644	10,692	7,086	3,353	842
Total acres per farm-----	820	2,163	1,076	713	519	445	500
Crop acres per farm-----	607	1,534	810	526	384	331	395
Capital investment per farm:							
Land and buildings							
dollars.....	55,367	158,204	77,024	47,592	31,245	24,516	22,145
Livestock.....do.....	3,040	7,933	4,275	2,794	1,805	1,033	665
Machinery.....do.....	10,832	18,943	13,102	10,389	8,669	7,282	6,900
Total.....do.....	69,239	185,080	94,401	60,775	41,719	32,831	29,710
Man-equivalent per farm-----	1.3	2.5	1.5	1.2	1.0	1.0	1.0

Farms in Classes IV, V, and VI have a small amount of land and capital for economic family farm operation. The man-equivalent per farm indicates that many of the smaller farms either are operated by older persons or that the operator performs only part-time farmwork, for the man-equivalent of labor on Classes V and VI averaged less than one. The average Class I farms in subregion 103 required 2.5 man-equivalent as compared with 2 for subregions 93 and 94. In other respects, the labor requirements of the average farm in the various size groups are similar for the three subregions.

The size of farms as measured by gross sales is consistent with size determined by other measures. Size of business declines from Class I farms to Class VI farms regardless of the measure used.

One-half to two-thirds of the cash-grain farms in these subregions were in Economic Classes I, II, and III. Farms in these classes had a volume of sales of \$5,000 or more, each. Only a small percentage of the farms in subregions 93 and 94 were Class I farms. Less than 2 percent of the cash-grain farms in subregions 93 and 94, and about 6 percent of the cash-grain farms in subregion 103, had total sales of \$25,000 or more. Even in subregion 103, however, many of these Class I farms would not be considered as large-scale farms. Labor used on Class I farms in subregion 103 averaged only 2.5 man-equivalent per farm, in 1954.

The larger wheat farms, Class I to Class III, have investments of \$50,000 to \$185,000 each. Differences in size were greatest in terms of capital investment. The number of workers averaged from 1.1 to 2.5 man-equivalent while the acreage of farmland per farm ranged from 350 acres for Class III farms to more than 2,000 acres for the large Class I farms. Class I farms averaged more than 2,000 acres per farm in subregion 103. In the region as a whole, nearly three-fifths of the farms are in Classes II and III. The percentage distribution of farms by economic classes is shown in table 12.

Table 12.—PERCENTAGE DISTRIBUTION OF CASH-GRAIN FARMS AND OF WHEAT PRODUCTION IN THE HARD WINTER WHEAT REGION, BY ECONOMIC CLASS OF FARM: 1954

Item and subregion	Economic class of farm					
	I	II	III	IV	V	VI
	Percent of the total in the subregion					
Number of farms:						
Subregion 93.....	1.4	19.5	39.1	28.2	9.6	2.2
Subregion 94.....	1.8	22.4	37.3	27.2	9.6	1.7
Subregion 103.....	5.9	26.6	32.9	21.8	10.3	2.6
Wheat production:						
Subregion 93.....	6.8	36.0	38.3	15.9	2.7	.3
Subregion 94.....	7.5	41.2	35.3	13.3	2.5	.2
Subregion 103.....	17.3	41.8	28.4	9.7	2.5	.3

CROP AND LIVESTOCK ORGANIZATION

Land use and crops grown.—There are differences among the subregions in organization of the cash-grain farms. Farms in subregions 93 and 94 are more diversified than those in subregion 103. A higher percentage of the cropland is summer-fallowed in the western part than in the eastern part of the region. The northern part of subregion 93 produces more corn than wheat while the reverse is true in the southern part. Much of the corn throughout the area is sold as cash grain. The variations in yield from year to year are so large that farmers hesitate to keep enough

livestock to consume the average crop of feed produced. In the southern part of subregion 103 (Texas, Oklahoma, and Kansas) grain sorghum is the strongest competitor with wheat for the use of cropland. The acreage of grain sorghum has been increasing in the northern part of the subregion since earlier maturing varieties have become available.

The most highly specialized wheat area is found in subregion 94 where 59 percent of the cropland is in wheat. (See tables 13, 14, and 15.) The very low summer-fallow acreage partly accounts for this but this subregion also has a small acreage in other crops. Subregion 93 emphasizes corn as an alternative to wheat because of fairly favorable annual rainfall, although here the corn crop frequently fails. The acreages of grain sorghum are increasing in this subregion. In subregion 103 the acreage of grain sorghum is large as grain sorghum is the best alternative for many of these farmers. The proportion of the farms that is in pastureland is quite uniform.

Table 13.—LAND USE ON CASH-GRAIN FARMS IN SUBREGION 93, BY ECONOMIC CLASS OF FARM: 1954

Item	Percent of farms reporting	Economic class of farm						
		Total	I	II	III	IV	V	VI
Number of farms.....		19,859	283	3,868	7,768	5,603	1,910	427
Acres per farm:								
All land.....	100	358	1,073	554	362	257	184	132
Cropland.....	100	258	801	403	264	180	125	75
Wheat.....	93	71	286	122	71	46	26	13
Corn.....	92	73	201	109	77	53	38	27
Grain sorghum.....	54	21	76	31	21	15	11	6
Land pastured.....	92	92	249	138	91	69	53	62
Summer fallow.....	50	64	122	56	29	18	13	8

Table 14.—LAND USE ON CASH-GRAIN FARMS IN SUBREGION 94, BY ECONOMIC CLASS OF FARM: 1954

Item	Percent of farms reporting	Economic class of farm						
		Total	I	II	III	IV	V	VI
Number of farms.....		23, 140	413	5, 179	8, 630	6, 294	2, 233	391
Acres per farm:								
All land.....	100	362	1, 163	580	353	226	166	122
Cropland.....	100	264	861	435	260	157	106	67
Wheat.....	100	145	497	254	142	80	47	27
Oats.....	55	15	46	22	15	11	7	5
Grain sorghum.....	24	11	51	18	10	7	6	4
Land pastured.....	90	95	295	142	90	66	56	54
Summer fallow.....	28	12	36	21	12	6	5	2

Table 15.—LAND USE ON CASH-GRAIN FARMS IN SUBREGION 103, BY ECONOMIC CLASS OF FARM: 1954

Item	Percent of farms reporting	Economic class of farm						
		Total	I	II	III	IV	V	VI
Number of farms.....		32,545	1,928	8,644	10,692	7,086	3,353	842
Acres per farm:								
All land.....	100	820	2,163	1,076	713	519	445	500
Cropland.....	100	607	1,534	810	526	384	331	395
Wheat.....	(NA)	223	569	317	199	129	94	55
Grain sorghum.....	68	115	394	158	90	66	51	37
Land pastured.....	82	212	639	263	185	132	114	106
Summer fallow.....	71	142	327	186	119	93	96	143

NA Not available.

Within each of the subregions, the land-use pattern tends to be similar for all economic classes, with a few significant differences. The smaller farms (Class V and VI) have a higher proportion of land in permanent pasture. They also have a smaller proportion of the cropland in wheat. The relatively low acreage in wheat on Class VI farms in 1954 in subregion 103 was probably the result of a complete failure of the wheat crop in some localities. Failure of the major crop resulted in many farms being classified as Class VI (less than \$1,200 gross sales). Crop failure also accounts for the larger acreage for Class VI farms than for Class V farms, in subregion 103. Some oats were grown in all parts of the hard winter wheat region but the oat crop was less important in subregions 93 and 103 than in subregion 94.

Livestock.—Average livestock numbers per farm in the winter wheat region are more uniform among the subregions than is the land-use pattern. (See tables 17, 18, and 19.) Livestock is an additional source of income on many wheat farms. The typical livestock organization is to have enough cattle to utilize the native pasture and consume the available roughage. The cattle are mostly beef cattle but a few milk cows are kept to supply milk for the farm family. A small flock of chickens is usual. The average number of hogs and sheep per farm is very low. However, because a small percentage of farms have hogs or sheep, the number of animals per farm reporting is considerably larger than shown by the data in tables 16, 17, and 18.

The pattern of livestock numbers by economic class of farm is similar for all subregions. The large farms have more cattle but about the same number of milk cows per farm. In subregion 93, the large farms have more hogs than the smaller farms, reflecting the higher corn production compared with that in subregions 94 and 103. In general, sheep are found on the larger farms, usually on farms that can carry at least 100 ewes. Many flocks are much larger.

Table 16.—LIVESTOCK ON CASH-GRAIN FARMS IN SUBREGION 93, BY ECONOMIC CLASS OF FARM: 1954

Item	Percent of farms reporting	Economic class of farm						
		Total	I	II	III	IV	V	VI
Number of farms.....		19,859	283	3,868	7,768	5,603	1,910	427
Livestock, number per farm:								
All cattle.....	87	26	71	40	27	19	12	7
Milk cows.....	68	3	2	4	4	3	2	1
Hogs.....	43	10	22	17	10	6	3	2
Sheep.....	3	1	8	3	1	(2)	77	(2)
Chickens.....	79	113	102	123	123	111	77	47
Gross sales of livestock and livestock products per farm.....dollars..	x x x	1,725	6,867	3,272	1,736	946	420	156
Investment in livestock per farm.....dollars..	x x x	2,817	7,509	4,385	2,948	2,003	1,257	778

z Less than 0.5.

Table 17.—LIVESTOCK ON CASH-GRAIN FARMS IN SUBREGION 94, BY ECONOMIC CLASS OF FARM: 1954

Item	Percent of farms reporting	Economic class of farm						
		Total	I	II	III	IV	V	VI
Number of farms.....		23,140	413	5,179	8,630	6,294	2,233	301
Livestock, number per farm:								
All cattle.....	85	26	77	41	26	17	12	7
Milk cows.....	59	3	5	4	3	3	2	1
Hogs.....	24	3	6	5	3	2	2	1
Sheep.....	10	5	13	10	4	2	2	1
Chickens.....	75	90	77	103	100	81	59	48
Gross sales of livestock and livestock products per farm.....dollars..	x x x	1,551	6,470	2,832	1,469	782	404	144
Investment in livestock per farm.....dollars..	x x x	2,282	6,486	3,544	2,290	1,503	1,042	617

Table 18.—LIVESTOCK ON CASH-GRAIN FARMS IN SUBREGION 103, BY ECONOMIC CLASS OF FARM: 1954

Item	Percent of farms reporting	Economic class of farm						
		Total	I	II	III	IV	V	VI
Number of farms.....		32,545	1,928	8,644	10,692	7,086	3,353	842
Livestock, number per farm:								
All cattle.....	75	36	94	50	33	21	12	8
Milk cows.....	52	2	2	3	3	2	1	1
Hogs.....	24	3	5	4	2	2	1	(2)
Sheep.....	3	3	14	5	2	1	2	(2)
Chickens.....	63	60	52	66	69	56	39	28
Gross sales of livestock and livestock products per farm.....dollars..	x x x	1,682	6,147	2,579	1,340	714	329	110
Investment in livestock per farm.....dollars..	x x x	3,040	7,933	4,275	2,794	1,805	1,033	665

z Less than 0.5.

Obviously, some of the operators of the smaller farms have not increased their volume of business by producing more livestock. Probably the lack of capital and the uncertainty of feed production are major reasons. Some of the farmers have intensive livestock enterprises. A few farmers are able to take advantage of the limited outlets for fluid milk and high-quality eggs in the area.

Pasturing wheat is a common practice in the hard red winter wheat region. The wheat, seeded early in the fall, frequently makes rapid growth especially on summer-fallow land. Moderate pasturing is not harmful and some growers feel it increases the yields in years of very rank growth. Grazing is done in both the fall and spring; in years of little snowfall it may continue through the winter. Some wheat growers buy feeders for grazing, others take in feeders for grazing on a rental or contract basis. The cattle and lambs make good gains on the lush growth of wheat when weather conditions are favorable and many are brought in for the purpose. Most of these feeder cattle and sheep were not included in the Census data because they usually are brought in after October 15, the approximate date of the 1954 Census.

LABOR USED

In spite of their relatively large size when measured in acres, gross sales, or capital investment, the wheat farms in the winter wheat regions are typically family farms. On many, the family provides nearly all of the labor; only the very largest hire a large amount of labor.

For the purpose of showing the amounts of labor used on cash-grain farms, all labor was converted to an average man-equivalent basis. This was done in order that more meaningful comparisons might be made between the different sizes of cash-grain farms and between cash-grain farms in different subregions. In the discussion and tables that follow, an adjustment is made for operators over 65 years old and for those who reported they worked at an off-farm job during the year. Operators under 65 years with no off-farm work were considered as one man-equivalent, even though wheat production is a seasonal job. The expenditure for hired labor was divided by an annual average wage for the locality in order to provide man-equivalents for the number of hired workers. The number of unpaid family workers was adjusted to take account of women and children and elderly persons included in the total. The procedure for estimating labor on man-equivalents is explained in detail in the Introduction.

Farm operators comprised slightly less than one man-equivalent per farm in each of the subregions, but made up the bulk of the labor force. (See table 19.) Hired labor was relatively unimportant when cash-grain farms were taken as a group. Sources of labor were quite similar for the three subregions as a whole.

When classified by gross sales, the Class I farmers depended on hired help equaling about as much as the operator's labor. Farmers in the other size groups hired very little help, depending largely on the members of the operator's family. The sources of farm labor and the age of operators for the three subregions, and by economic class for subregion 93, are shown in table 19. Because of the similarity of distribution by economic class of farm among the subregions this detail is not shown for subregions 94 and 103.

Table 19.—LABOR FORCE ON CASH-GRAIN FARMS IN THE HARD RED WINTER WHEAT REGION, AND FOR SUBREGION 93 BY ECONOMIC CLASS OF FARM: 1954

Item	Subregion			Economic class of farm for subregion 93					
	93	94	103	I	II	III	IV	V	VI
Total man-equivalent....	1.2	1.2	1.3	2.1	1.4	1.2	1.1	0.9	0.8
Operator.....	.9	.8	.8	.9	.9	.9	.8	.7	.7
Unpaid family help.....	.2	.2	.3	.3	.3	.2	.2	.2	.1
Hired.....	.1	.1	.2	.9	.2	.1	(z)	(z)	(z)
Operators by age:									
All operators...percent..	100	100	100	100	100	100	100	100	100
Under 25 years...do.....	3	2	3	2	1	3	4	4	5
25-34 years...do.....	19	16	18	19	22	22	16	13	6
35-64 years...do.....	69	70	69	73	74	69	68	63	61
65 years & over...do.....	9	12	10	6	3	6	12	20	28

z Less than 0.05.

Figures on the age of operators show that more of the beginning farmers and more of the farmers over 65 years were in Class VI than in any other income size group in 1954. If this is a typical situation, some of the young men in the lowest income group have been able to improve their situation, for in the 25-to-34-year group, the percentage in Class VI is the smallest.

FARM MECHANIZATION AND HOME CONVENIENCES

The degree of mechanization on the farm and the number of home conveniences reflect the financial situation of the farm family and the progressiveness of the farm operator. In a few localities it is impossible to obtain such modern conveniences as television or electricity, although electric lines are now available to most farmers in the wheat country.

The degree of mechanization and use of home conveniences are indicated in table 20. Class I and II farms are more highly mechanized than the smaller groups of lower income. As their operators have a large acreage, they can use modern machinery efficiently. They also have enough income to allow the purchase of modern equipment which most Class I and II farmers now have. Many of the operators of smaller farms have neither the capital to buy modern machinery nor the acreage to use it efficiently. It is characteristic that many of the operators of Class V and VI farms hire the use of highly specialized, expensive machinery. For example, the number of farms reporting combines varies considerably by size of farm in the three subregions:

Item	Economic class of farm					
	I	II	III	IV	V	VI
Percent of farmers reporting combines:						
Subregion 93.....	91	85	76	64	45	25
Subregion 94.....	89	86	80	65	48	33
Subregion 103.....	80	84	79	67	55	47
Number of combines per farm:						
Subregion 93.....	1.2	.9	.8	.7	.5	.2
Subregion 94.....	1.4	1.0	.8	.7	.5	.3
Subregion 103.....	1.4	1.1	.9	.8	.6	.6

Table 20.—FARM MECHANIZATION AND HOME CONVENIENCES ON CASH-GRAIN FARMS IN THE HARD RED WINTER WHEAT REGION, AND FOR SUBREGION 94 BY ECONOMIC CLASS OF FARM: 1954

Item	Subregion			Economic class of farm for subregion 94					
	93	94	103	I	II	III	IV	V	VI
Number of farms.....	19,859	23,140	32,545	413	5,179	8,630	6,204	2,233	301
Number per farm:									
Automobiles.....	1.2	1.1	1.2	1.6	1.2	1.1	1.0	1.0	0.8
Motortrucks.....	.8	1.2	1.5	2.3	1.6	1.2	.9	.7	.5
Tractors.....	1.6	1.7	1.9	3.3	2.3	1.7	1.4	1.2	.9
Combines.....	.7	.8	.9	1.4	1.0	.8	.7	.5	.3
Percent of farms reporting—									
Automobiles.....	93	92	91	97	97	93	88	85	73
Motortrucks.....	69	86	91	99	98	92	79	64	44
Tractors.....	95	96	95	100	99	98	95	91	76
Combines.....	71	74	75	89	86	80	65	48	33
Corn pickers.....	64	5	3	6	6	6	4	3	1
Field forage harvesters.....	7	10	10	28	19	9	4	2	1
Telephones.....	73	81	64	91	80	82	79	66	54
Electricity.....	93	95	89	99	98	96	94	90	74
Television sets.....	30	45	23	66	61	45	36	33	17
Piped water in home.....	57	71	74	90	87	75	61	53	37
Home freezer.....	30	33	42	62	49	33	25	20	12

In subregions 93 and 94 the number of combines decreases with the size of farm. In subregion 103 the same general relationship is found, although a higher percentage of operators for Class II farms owned combines than for Class I farms, and Class III farmers averaged more combines per farm than the Class I farmers. In this area a number of the large farm operators depend entirely on custom combining. Notwithstanding their large acreages some believe that they can hire the work done more economically than they can do it with their own equipment. This hiring helps to solve their labor problem at harvest time for usually the custom operator furnishes operators for the machines.

Most farmers own at least one automobile. The exceptions are usually farmers who use their trucks for family transportation. Not all farmers in any economic class own tractors as a few depend on having all of their work performed on a custom basis. Custom work is more common among those in the lowest income group than among those in the higher income groups. Cornpickers are more common in subregion 93 because much more corn is produced here than in the other subregions.

Differences in farm income are reflected more in the conveniences in the home than in the degree of farm mechanization. Farm families on the lowest income farms usually do not have enough capital to buy such items as home freezers, television sets, and a water system for the house.

GROSS FARM INCOME

Average gross income per farm was considerably higher in subregion 103, in 1954, where the farms are larger than in subregions 93 and 94.

The important sources of income vary among the three subregions. Subregion 94 specializes in wheat to a higher degree than the other areas as indicated in the following data:

Item	Economic class of farm					
	I	II	III	IV	V	VI
Percent of gross sales from wheat:						
Subregion 93.....	44	39	40	41	37	41
Subregion 94.....	74	75	75	74	73	74
Subregion 103.....	38	57	63	61	61	55

In subregion 93 farmers had considerable income from corn but the relative importance of wheat as a source of income varied little among the economic classes of farms. (Table 21 gives the sources of farm income in the winter wheat region.) In subregion 103 where grain sorghum is an important source of income, Class I farmers ranked lowest in percentage of gross sales from wheat and received more income from grain sorghum than from wheat. Farmers in the other five economic classes received more than half their income from wheat. Gross sales per crop acre are higher in the eastern part of subregion 103 because of the higher yields. Gross sales per crop acre (see table 21) indicate that the problem of the operators of the smaller farms involves not only the area of land farmed but also the level of production.

Table 21.—SOURCES OF FARM INCOME ON CASH-GRAIN FARMS IN THE HARD RED WINTER WHEAT REGION, AND FOR SUBREGION 94 BY ECONOMIC CLASS OF FARM: 1954

Item	Subregion			Economic class of farm for subregion 94					
	93	94	103	I	II	III	IV	V	VI
Number of farms.....	19,859	23,140	32,545	413	5,179	8,630	6,294	2,233	391
Sales per farm:									
Wheat.....dollars..	2,947	5,818	5,457	24,889	10,808	5,465	2,826	1,422	584
Corn.....do.....	1,913	19	51	69	30	20	8	9	22
Oats.....do.....	88	87	12	409	138	78	57	34	24
Grain sorghum.....do..	505	73	2,421	538	131	54	39	36	3
Other crops.....do....	178	236	446	1,207	513	188	90	48	16
All crops.....do.....	5,631	6,233	8,387	27,112	11,620	5,805	3,020	1,549	649
Livestock and live- stock products dollars..	1,725	1,551	1,682	6,470	2,832	1,469	782	404	144
Gross sales....do....	7,356	7,784	10,069	33,582	14,452	7,274	3,802	1,953	793
Percentage of gross sales from wheat.....	40	75	54	74	75	75	74	73	74
Gross sales per crop acre dollars..	28.57	29.51	16.60	39.01	33.23	27.93	24.28	18.43	11.83

FARM EXPENSES

Not all costs of operating farms were included on the 1954 Census Questionnaire, but the Census does provide data for some of the major cost items. These serve to indicate differences in cost of production by areas and by the size of business (see tables 22, 23, and 24).

Table 22.—SPECIFIED FARM EXPENDITURES ON CASH-GRAIN FARMS IN SUBREGION 93, BY ECONOMIC CLASS OF FARM: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Average per farm:							
Cropland.....acres..	258	801	403	264	180	125	75
Machine hire.....dollars..	223	593	335	227	163	181	63
Gas and oil.....do.....	575	1,664	905	585	412	279	171
Hired labor.....do.....	161	1,523	354	119	69	46	11
Commercial fertilizer.....do..	228	1,267	527	206	80	36	25
Feed bought.....do.....	440	1,240	743	449	298	170	76
Total.....do.....	1,627	6,287	2,864	1,586	1,022	662	346
Average per crop acre:							
Machine hire.....dollars..	0.86	0.74	0.83	0.86	0.91	1.05	0.84
Gas and oil.....do.....	2.23	2.08	2.25	2.22	2.29	2.23	2.28
Hired labor.....do.....	.62	1.90	.88	.45	.38	.37	.15
Commercial fertilizer.....do..	.88	1.58	1.31	.78	.44	.29	.33
Total.....do.....	4.59	6.30	5.27	4.31	4.02	3.94	3.60

Subregion 103 has the highest specified expenditures per farm because the acreage farmed per operator is larger than in other subregions. However, costs per acre are considerably lower because the land is farmed less intensively in this more arid of the subregions.

Table 23.—SPECIFIED FARM EXPENDITURES ON CASH-GRAIN FARMS IN SUBREGION 94, BY ECONOMIC CLASS OF FARM: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Average per farm:							
Cropland.....acres..	264	861	435	260	157	106	67
Machine hire.....dollars..	263	996	404	252	107	148	79
Gas and oil.....do.....	525	1,526	827	521	345	226	123
Hired labor.....do.....	241	1,082	489	181	103	55	26
Commercial fertilizer.....do..	171	761	339	149	79	49	16
Feed bought.....do.....	580	1,690	948	570	359	256	132
Total.....do.....	1,780	6,655	3,007	1,673	1,053	734	376
Average per crop acre:							
Machine hire.....dollars..	1.00	1.16	0.93	0.97	1.07	1.39	1.17
Gas and oil.....do.....	1.99	1.77	1.90	2.00	2.21	2.13	1.83
Hired labor.....do.....	.91	1.95	1.13	.70	.66	.52	.39
Commercial fertilizer.....do..	.65	.88	.78	.57	.51	.46	.24
Total.....do.....	4.55	5.76	4.74	4.24	4.45	4.50	3.63

Table 24.—SPECIFIED FARM EXPENDITURES ON CASH-GRAIN FARMS IN SUBREGION 103, BY ECONOMIC CLASS OF FARM: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Average per farm:							
Cropland.....acres..	607	1,534	810	526	384	331	395
Machine hire.....dollars..	473	1,867	643	341	246	225	121
Gas and oil.....do.....	913	2,795	1,204	775	542	434	406
Hired labor.....do.....	504	2,905	713	272	176	107	125
Commercial fertilizer.....do..	61	427	88	27	13	5	(2)
Feed bought.....do.....	400	972	552	373	246	169	86
Total.....do.....	2,351	8,966	3,200	1,788	1,223	940	738
Average per crop acre:							
Machine hire.....dollars..	0.78	1.22	0.79	0.65	0.64	0.68	0.31
Gas and oil.....do.....	1.51	1.82	1.49	1.47	1.41	1.31	1.03
Hired labor.....do.....	.83	1.89	.88	.52	.46	.32	.32
Commercial fertilizer.....do..	.10	.28	.11	.05	.03	.02	(2)
Total.....do.....	3.22	5.21	3.27	2.69	2.54	2.33	1.66

² Less than 50 cents or less than 0.5 cent.

In subregions 93 and 94, the cost per acre for machine hire was about the same for all economic classes of farms. In subregion 103 the smaller farms spent considerably less for this item; even for the smallest farms the average per acre of cropland is less than any other groups. In subregion 103 many of the Class VI farmers own a combine and spend little for machine hire.

The smaller expenditures for gas and oil per crop acre for the smaller farms in subregion 103 may reflect less intensive operation. It is possible that the operators of Class V and VI farms did not summer-till the soil as often as the operators of other classes of farms. Since the Class VI farms were also lowest in machine hire per crop acre, it is not likely that the saving in gas and oil was due to more custom work hired. It may be that the lower fuel consumption per acre reflects less tillage of the soil.

The amount of hired labor decreases with the decrease in acreage farmed. The smallest size groups hired only a little labor. The amount of feed bought is closely related to the number of livestock on the farm.

Use of commercial fertilizer in wheat production is a recent practice in the winter wheat region. Farmers in the eastern part have received a good response in higher yields. In the western part of the area the use of commercial fertilizer is not a common practice. In all three subregions commercial fertilizer is used more commonly on the large farms than on those with low gross sales. The figures for rate of application are not fully significant because the composition of the fertilizer was not known. The rate of application is rather uniform regardless of economic class of the farm. This may indicate that those farmers who use fertilizer are using the recommended quantities. (See table 25.)

FARMERS AND FARM PRODUCTION

Table 25.—USE OF COMMERCIAL FERTILIZER ON CASH-GRAIN FARMS IN THE HARD RED WINTER WHEAT REGION, BY ECONOMIC CLASS OF FARM: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Subregion 93							
Percent of farms using fertilizer..	44.0	73.0	65.0	48.0	33.0	20.0	14.0
Tons used per farm.....	2.3	11.7	5.1	2.1	.8	.3	.3
Rate of application, pounds per acre.....	128	108	132	200	122	113	162
Subregion 94							
Percent of farms using fertilizer..	43.0	62.0	56.0	45.0	37.0	28.0	17.0
Tons used per farm.....	2.1	8.6	4.1	1.9	1.0	.7	.2
Rate of application, pounds per acre.....	81	78	79	82	84	90	78
Subregion 103							
Percent of farms using fertilizer..	11.0	31.0	17.0	9.0	6.0	3.0	1.0
Tons used per farm.....	.7	4.7	1.0	.3	.2	.1	(%)
Rate of application, pounds per acre.....	103	125	94	87	106	68	22

z Less than 0.05 ton.

EFFICIENCY LEVELS OF FARM OPERATION

Efficiency in the use of resources is an important consideration in any business. It is important to the individual farm operator because efficiency is reflected in farm earnings.

Census data do not provide all the information needed to make a complete analysis of the differences among economic classes or among subregions in efficiency of farm operation, but can be used to make comparisons which indicate general levels, even though the specific figures may not always reflect the precise relationships. The comparisons made in tables 26, 27, and 28 indicate wide differences among economic classes of farms in levels of efficiency in the hard red winter wheat region.

Gross sales minus the specified expenditures do not include any fixed costs nor all operating costs. Net income would be much less than indicated by gross sales minus specified expenditures. Obviously, Classes V and VI farms with less than \$2,500 gross sales each, cannot have a high net income.

Measures such as gross sales per man-equivalent and crop acres per man-equivalent, indicate accomplishment per worker. In all subregions gross sales and crop acres per man decline rapidly from Class I to Class VI farms. Less than 150 crop acres per man do not provide full-time employment for a wheat farmer and gross sales of \$1,000 per man cannot provide a high level of living for a farm family.

The total investment per dollar of sales and per-man indicates that the farmers on the smaller farms do not have sufficient capital resources. Sales per dollar of investment on Class II farms are double those on Class V farms. Capital investment per man on Class V farms is about half that on Class II farms. Most of the difference in investment arises from differences in investment in land and buildings. Estimated machinery investment per worker is about the same for the various classes of farms.

The Class VI farmers in subregion 103 have a much higher total investment per man-equivalent and more crop acres per man than the Class VI farmers in the other subregions. In this subregion, it is probable that some large farms had a complete crop failure and abnormally low yields in 1954, and for these reasons fell into a low gross-income group.

Table 26.—SELECTED MEASURES OF INCOME AND EFFICIENCY LEVELS ON CASH-GRAIN FARMS IN SUBREGION 93, BY ECONOMIC CLASS OF FARM: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Gross sales per farm.....dollars..	7,356	32,815	14,000	7,261	3,931	2,017	857
Specified expenses per farm.....dollars..	1,642	6,374	2,891	1,601	1,027	667	346
Gross sales less specified expenses per farm.....dollars..	5,714	26,441	11,109	5,660	2,904	1,350	511
Gross sales per man-equivalent.....dollars..	6,229	15,740	9,876	6,061	3,707	2,179	1,054
Total investment per \$100 gross sales.....dollars..	610	369	497	636	801	1,011	1,794
Total investment per man-equivalent.....dollars..	37,083	57,570	40,734	38,187	28,394	22,474	17,945
Machinery investment per man-equivalent.....dollars..	6,799	7,606	7,511	6,848	6,485	5,530	4,000
Machinery investment per crop acre.....dollars..	31	20	26	31	38	41	44
Winter wheat yield per acre.....bushels..	21	24	22	20	18	16	16
Crop acres per man-equivalent.....	218	384	284	220	170	135	92

Table 27.—SELECTED MEASURES OF INCOME AND EFFICIENCY LEVELS ON CASH-GRAIN FARMS IN SUBREGION 94, BY ECONOMIC CLASS OF FARM: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Gross sales per farm.....dollars..	7,784	33,583	14,454	7,275	3,802	1,953	793
Specified expenses per farm.....dollars..	1,787	6,665	3,024	1,680	1,056	738	376
Gross sales less specified expenses per farm.....dollars..	5,997	26,918	11,429	5,595	2,747	1,215	417
Gross sales per man-equivalent.....dollars..	7,058	15,997	10,574	6,502	4,084	2,506	985
Total investment per \$100 gross sales.....dollars..	701	506	619	747	883	1,232	2,303
Total investment per man-equivalent.....dollars..	49,775	80,892	63,707	48,902	33,562	29,272	20,150
Machinery investment per man-equivalent.....dollars..	7,208	7,597	7,774	7,111	6,977	6,527	4,476
Machinery investment per crop acre.....dollars..	30	19	24	31	41	48	54
Winter wheat yield per acre.....bushels..	19.7	24.2	20.8	19.1	17.6	15.4	12.6
Crop acres per man-equivalent.....	239	410	318	233	168	140	83

Table 28.—SELECTED MEASURES OF INCOME AND EFFICIENCY LEVELS ON CASH-GRAIN FARMS IN SUBREGION 103, BY ECONOMIC CLASS OF FARM: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Gross sales per farm.....dollars..	10,068	42,614	15,219	7,404	3,846	2,044	825
Specified expenses per farm.....dollars..	2,351	8,966	3,201	1,788	1,224	941	739
Gross sales less specified expenses per farm.....dollars..	7,717	33,648	12,018	5,616	2,622	1,103	86
Gross sales per man-equivalent.....dollars..	7,789	16,846	10,130	6,013	3,704	2,384	857
Total investment per \$100 gross sales.....dollars..	692	434	621	821	1,098	1,642	3,714
Total investment per man-equivalent.....dollars..	53,261	74,032	62,933	50,646	41,719	32,831	29,710
Machinery investment per man-equivalent.....dollars..	8,379	7,489	8,721	8,436	8,348	8,405	7,163
Machinery investment per crop acre.....dollars..	18	12	16	20	23	22	17
Winter wheat yield per acre.....bushels..	12	14	13	12	9	7	5
Crop acres per man-equivalent.....	469	606	539	427	370	386	410

OTHER TYPES OF FARMING IN THE HARD RED WINTER WHEAT REGION

Rarely do all the farmers of an area follow the same line of production. Differences in production conditions, available resources, and personal preferences lead to diversity of production within an area. Throughout the wheat regions are farms that have been classified as other types because cash grain did not provide the major source of income in 1954. Only the most common types of farming other than cash-grain will be described. A little more than one-fifth of the wheat produced in the hard red winter wheat region is grown on these other types of farms.

General farms are those which diversify their production to the extent that no one enterprise provides one-half of the gross income. General farms usually produce the same commodities as the more specialized farms in the same area but they are less dependent on a single farm product. The difference in farm organization is more in emphasis on particular enterprises than in types of enterprises. Although cash grain is an important source of income for these general farms, it did not furnish one-half of gross sales in 1954.

In the northern part of the hard winter wheat region general farming is common. Here, general farms are organized much like the cash-grain farms in subregion 93 but more emphasis is given to feed grain and livestock production.

Also, in this subregion are more than 25,000 livestock farms that emphasize production of livestock other than dairy or poultry. Here again, the land-use pattern is much like that of the cash-grain farms with less emphasis on wheat and usually a larger acreage of pasture. In subregions 93 and 94 the livestock farms are similar to those of the Corn Belt. Here, the emphasis is on roughage-consuming livestock, especially beef cattle. A few farmers fatten cattle, some feed out only the cattle they raise, and many market their cattle as feeders. Farmers in subregion 93 raise many more hogs than sheep but the opposite is true in subregion 94.

The livestock farms in subregion 103 are much like the smaller livestock ranches described in Chapter VI. These farms have a much larger acreage in pasture than cash-grain farms, and a much larger number of cattle per farm. The cropland is used largely for a rotation of wheat and fallow and forage crops for winter feed.

Grain sorghum represents the other important cash-grain enterprise in the hard red winter wheat region. Its production in the United States is limited largely to this region. Grain-sorghum production is closely associated with winter wheat production, as many farmers grow both crops. Some farmers use the sorghum as another cash crop whereas others feed the grain to livestock.

The acreage of grain sorghum in the United States has fluctuated between 6 and 11 million acres per year. Grain sorghum is a drought-resistant crop and can be harvested with a grain combine which is common equipment in the wheat country. In earlier years, grain sorghum was mainly restricted to feeding on farms where grown, and as a basic ingredient in mixed poultry feeds but gradually it has become more widely accepted as a feed for fattening livestock. Grain sorghum is generally considered to have 90 to 95 percent of the feed value of corn by weight.

The leading States in grain-sorghum production are Texas, Oklahoma, Kansas, Nebraska, Colorado, and New Mexico. (See table 29.) In 1954, in these 6 States, more than 135,000 farmers raised grain sorghum on 10.9 million acres and produced 168 million bushels for sale. Additional quantities were fed on the farms where raised. Few farms would be classed as grain-sorghum farms for usually the crop is grown on farms where wheat is a more important crop. Grain sorghum is well adapted to the conditions in the Great Plains and offers one of the more promising alternatives to individual wheat producers.

Table 29.—ACREAGE AND PRODUCTION OF GRAIN SORGHUM, BY STATES, IN THE MAJOR PRODUCING STATES: 1954

[Data are estimates based on reports for only a sample of farms]

Item	Texas	Oklahoma	Kansas	Nebraska	Colorado	New Mexico
Number of farms in the State.....	293,152	119,270	120,291	100,733	40,672	20,977
Number of farms producing grain sorghum.....	55,950	11,867	46,817	10,829	3,411	1,953
Acreage in grain sorghum.....	5,610,766	600,407	3,551,408	514,706	387,153	274,949
Number reporting by acres harvested:						
Under 25 acres.....	18,495	6,196	17,962	9,353	872	429
25-49 acres.....	8,784	2,669	10,777	4,497	601	307
50-99 acres.....	11,118	1,584	8,689	2,369	799	341
100-299 acres.....	13,603	1,062	7,043	577	816	610
300-499 acres.....	2,606	230	1,315	19	194	170
500 acres and over.....	1,344	126	1,031	14	129	96
Quantity produced..... bushels.....	132,342,834	6,068,530	49,912,097	13,998,621	3,941,131	4,491,088
Quantity sold..... do.....	117,546,674	3,667,790	32,375,634	8,947,772	2,724,378	3,539,871

THE HARD RED SPRING WHEAT REGION

This region lies in the northern Great Plains. Its major wheat-producing areas are subregions 89, 90, 91, and 105 (see fig. 8). Although less wheat is produced in this region than in the hard winter wheat region, it is the major source of income to 61,000 farmers and many other farmers here grow some wheat. The importance of wheat production in this region and the percentage of wheat produced on cash-grain farms are indicated in the following data:

Item	Subregion				Total (4 subregions)
	89	90	91	105	
Total wheat produced on commercial farms (1,000 bu.).....	21,142	36,325	16,002	73,936	147,405
Percent of U. S. total wheat produced on commercial farms.....	2	4	2	8	16
Percent of total wheat for subregion produced on cash-grain farms.....	73	86	60	89	83
Percent of total wheat for subregion produced on farms other than cash-grain farms.....	27	14	40	11	17

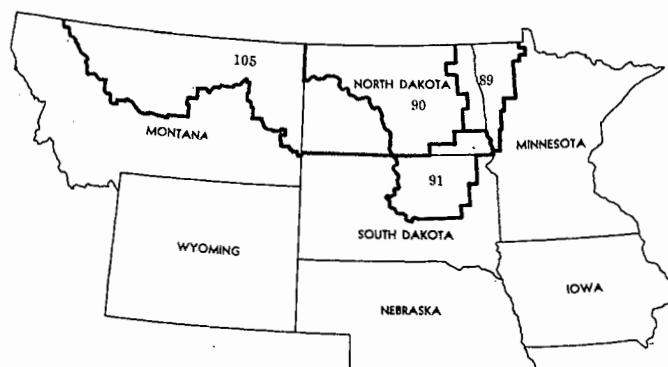
THE HARD SPRING WHEAT AREA
SUBREGIONS 89, 90, 91, AND 105

FIGURE 8.

A54-501

More than four-fifths of the wheat grown in this area is produced on cash-grain farms.

This is largely a spring wheat area because, in most parts, the winters are generally too severe for winter wheat to survive. The severity of the winters is the main distinguishing feature between the hard spring and hard winter wheat area. (In central Montana the Triangle Area in subregion 105, is mainly a winter wheat area. This includes the following counties: Teton, Chouteau, Cascade, Judith Basin, and Fergus. The counties directly north of this group also produce some winter wheat, but the spring wheat acreage predominates. The mountainous topography gives the Triangle Area enough protection to permit winter wheat to succeed.)

The spring wheat area produces both the hard red spring wheat and durum wheat although the former predominates. For the 10-year period, 1941-50, an average of 16 million acres of hard red spring wheat and 2.6 million acres of durum wheat were produced in the United States.² More than 80 percent of all durum wheat was produced in North Dakota, with South Dakota and Minnesota contributing significant quantities.

The soils of the hard spring wheat area are fertile and deep. The Red River Valley soils (subregion 89), are deep, fine-textured, alluvial soils. Most of the soils in subregions 90 and 91 belong to the Northern Chernozem group. These are dark, deep, fine-textured soils, well adapted for wheat. The soils in subregion 105 belong in the Chestnut soil group which are not quite so heavy or so deep as the Chernozem soils but are, nevertheless, good for wheat production. As in the hard winter wheat region, wheat is produced mainly on the silt and silty clay loams that are fairly deep. In the World War periods, under the influences of high prices for wheat, the farmers extended wheat production into areas of coarser textured soils and shallower soils where yields fluctuate greatly. In periods of relatively low prices or in years of unfavorable moisture, farmers in these marginal areas often find their costs exceeding their income.

The topography in the spring wheat region is typical of the Great Plains—fairly level to undulating. The rainfall in the hard spring wheat area is slightly less but evaporation rates are lower than in the hard winter wheat area. Rainfall averages from 10 to 25 inches annually. In subregions 89 and 91 the annual rainfall varies between 20 and 25 inches. Subregion 90 is slightly drier, the average precipitation varying from 15 to 20 inches. The driest part of this region is subregion 105 where the annual precipitation averages from 10 to 20 inches. In all of the hard wheat region, the rainfall and humidity are sufficiently low, especially in the maturing period, to produce a hard kernel. About three-fourths of the rainfall occurs during the growing season; the rainfall is much heavier in the spring and early summer than during the harvest period in late summer.

The low annual rainfall usually necessitates summer-fallowing. Considering evaporation and run-off, 10 to 15 inches of rainfall is not enough to produce satisfactory yields. In many instances, farmers can double the yields by summer-fallowing. But it is not necessary to double the yield to make fallowing profitable. Under this practice wheat harvesting is required only once in 2 years. The fallowing practices serve as seedbed preparation. Operating costs for the 2 years, 1 year of fallow and 1 year of wheat, will exceed the operating costs for 1 year of continuous cropping, but will usually be considerably less than the operating costs for 2 years of continuous wheat. This is important to the wheat farmer in the low-rainfall area. He increases the chance of producing a crop and at the same time reduces the cost of operation.

The wheat and summer-fallow acreages on cash-grain farms by subregions for 1954 were as follows:

	Subregion				Total
	89	90	91	105	
Wheat (1,000 acres).....	1,063	3,875	964	4,229	10,131
Summer fallow (1,000 acres).....	645	2,459	206	4,462	7,772

Not all the summer-fallow land is used to grow wheat; some is used for other small grains.

Marketing and transportation facilities are adequate here. As in the hard winter wheat area, mainline railroads and hard-surfaced highways transect the country and farm-to-market roads are adequate for hauling the grain to market. Storage and handling facilities are short of the needs during the peak harvest seasons, but storage space has increased sharply in the period following World War II.

Many characteristics of the wheat farms in the hard spring wheat region are similar to those of the hard winter wheat regions. The farms in this region can be described as large family-type units with a high average investment per farm.

But there are significant differences. A comparison of the hard winter wheat farms with the hard spring wheat farms shows that the spring wheat farms have a slightly lower average total investment due largely to higher land values per acre. A considerably larger proportion of the farms had gross sales of less than \$5,000 in most of the spring wheat subregions.

Farms in the spring wheat region have higher machinery investment, more land, more available labor (see table 31), more tractors, trucks, and combines. The cash-grain farmers in the winter wheat area specialized in wheat, in 1954, to a higher degree than spring wheat farmers with the exception of those in subregion 105. Flax, barley, and corn are among the other important cash and feed grains produced in this region.

Table 30.—A COMPARISON OF THE CASH-GRAIN FARMS IN THE HARD WINTER AND HARD SPRING WHEAT SUBREGIONS: 1954

Item	Hard winter wheat subregions			Hard spring wheat subregions			
	89	94	103	89	90	91	105
Total acres per farm.....	358	362	820	435	696	569	1,304
Crop acres per farm.....	258	204	607	378	535	442	769
Capital investment per farm (dollars):							
Land and buildings.....	33,745	44,520	55,367	31,144	23,026	25,503	45,177
Livestock.....	2,817	2,283	3,040	1,710	2,856	3,513	3,927
Machinery.....	8,023	7,940	10,832	11,748	11,063	10,624	12,220
Total.....	44,585	54,752	69,239	44,602	38,445	39,640	61,324
Man-equivalent per farm.....	1.2	1.1	1.3	1.4	1.4	1.3	1.3
Percent of gross sales from wheat.....	40	75	54	29	38	31	74

In comparing the subregions within the spring wheat region, and the farmers in subregion by economic class, it is again necessary to consider the influence of yields. The 5-year average yields of wheat were as follows:

	Subregion			
	89	90	91	105
5-year average yield (1949-1953) (bushels per acre).....	16.5	11.2	9.8	18.0
1954 yield (bushels per acre).....	14.6	8.0	9.9	15.5

The lower than average yields in 1954 for all but one subregion had some effect on the distribution of farmers by economic class of farm.

² Source: Agricultural Statistics - 1953, U. S. D. A.

SIZE OF BUSINESS

There is a wide range in the size of cash-grain farms among parts of the spring wheat region. (See tables 31, 32, 33, and 34.) In the Red River Valley of North Dakota and Minnesota, the farms average one-third the acreage in the wheat farms in subregion 105 in Montana and are considerably smaller than those in the Dakotas (subregions 90 and 91). When measured by total investment, the Red River Valley farms rank lower than those in subregion 105, but higher than those in subregions 90 and 91. In terms of man-equivalent, the farms in subregion 89 rank highest, because of more intensive farming and greater diversification.

The relationship of the size of farm business in subregion 89 to the economic class is fairly typical of the pattern in other subregions. The smaller farmers as a group are seriously handicapped by lack of resources. It is doubtful that the farm operator can use his time efficiently on the small-size units.

Table 31.—SIZE OF CASH-GRAIN FARMS IN SUBREGION 89, BY ECONOMIC CLASS OF FARM: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	13,280	363	2,552	4,079	3,540	1,678	468
Total acres per farm.....	435	1,433	678	431	300	224	167
Crop acres per farm.....	378	1,324	614	376	247	171	105
Capital investment per farm:							
Land and buildings.....	31,144	111,605	52,429	30,562	19,731	12,965	6,876
Livestock.....dollars..	1,710	3,052	2,563	1,893	1,288	873	383
Machinery.....dollars..	11,748	30,104	16,724	11,785	9,377	7,002	4,954
Total.....dollars..	44,602	144,851	71,716	44,240	30,396	20,840	12,213
Man-equivalent per farm..	1.4	3.6	1.7	1.4	1.2	1.0	0.9

Table 32.—SIZE OF CASH-GRAIN FARMS IN SUBREGION 90, BY ECONOMIC CLASS OF FARM: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	24,389	191	3,151	8,154	8,017	3,358	918
Total acres per farm.....	696	2,440	1,180	785	560	382	313
Crop acres per farm.....	535	1,976	944	604	419	284	220
Capital investment per farm:							
Land and buildings.....	23,926	88,320	43,480	26,619	18,384	12,366	10,292
Livestock.....dollars..	2,856	8,404	4,912	3,520	2,251	1,165	618
Machinery.....dollars..	11,663	29,415	17,957	12,957	10,430	7,819	6,364
Total.....dollars..	38,445	126,139	66,349	43,096	31,065	21,350	17,274
Man-equivalent per farm..	1.4	3.0	1.8	1.5	1.2	1.0	1.0

Table 33.—SIZE OF CASH-GRAIN FARMS IN SUBREGION 91, BY ECONOMIC CLASS OF FARM: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	8,687	130	1,372	2,922	2,908	1,086	271
Total acres per farm.....	599	2,097	930	607	426	293	234
Crop acres per farm.....	442	1,646	757	469	321	218	185
Capital investment per farm:							
Land and buildings.....	25,503	87,190	44,989	26,995	17,930	11,340	8,915
Livestock.....dollars..	3,513	10,253	6,023	4,067	2,545	1,338	688
Machinery.....dollars..	10,624	24,323	15,457	11,197	9,326	6,343	4,474
Total.....dollars..	39,640	121,766	66,469	42,259	29,801	19,021	14,077
Man-equivalent per farm..	1.3	2.6	1.6	1.4	1.2	1.0	1.0

Table 34.—SIZE OF CASH-GRAIN FARMS IN SUBREGION 105, BY ECONOMIC CLASS OF FARM: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	15,071	1,317	3,609	4,173	3,775	1,709	488
Total acres per farm.....	1,304	3,281	1,786	1,179	761	524	408
Crop acres per farm.....	769	2,077	1,054	668	440	291	202
Capital investment per farm:							
Land and buildings.....	45,177	137,276	65,182	35,546	22,253	14,096	11,335
Livestock.....dollars..	3,927	7,281	5,172	4,314	2,675	1,410	871
Machinery.....dollars..	12,220	23,472	15,125	11,515	9,476	7,079	5,636
Total.....dollars..	61,324	168,029	85,479	51,375	34,404	22,585	17,842
Man-equivalent per farm..	1.3	2.2	1.5	1.3	1.1	0.9	0.8

The distribution of cash-grain farmers by economic class is shown by subregions in table 35. Also, the percentage of total wheat produced by cash-grain farms in each economic class is shown. The percentage of farmers in Classes IV, V, and VI is considerably higher than in the hard winter wheat region (see table 12). More than half of the farms are in Classes III and IV while more than half the farms are in Classes II and III in the hard winter wheat region. In subregion 105, the percentage of farms in Classes I and II is materially higher than in the other subregions in the hard spring wheat region. The Classes V and VI farms produce a small percentage of the wheat in the subregions because of relatively small wheat acreages and low yields.

Table 35.—PERCENT DISTRIBUTION OF CASH-GRAIN FARMS AND WHEAT PRODUCED, BY ECONOMIC CLASS FOR THE HARD SPRING WHEAT REGION: 1954

Item and subregion	Economic class of farm					
	I	II	III	IV	V	VI
Percent of total in the subregion						
Number of farms:						
Subregion:						
89.....	2.7	19.2	35.3	26.7	12.6	3.5
90.....	.8	12.9	33.4	35.3	13.8	3.8
91.....	1.5	15.8	33.6	33.5	12.5	3.1
105.....	8.7	23.9	27.9	25.0	11.3	3.2
Wheat production:						
Subregion:						
89.....	12.2	36.8	33.4	13.9	3.4	.3
90.....	4.5	28.3	38.3	22.8	5.3	.8
91.....	9.2	33.8	33.6	18.8	4.0	.6
105.....	35.6	35.5	18.0	8.5	2.1	.3

CROP AND LIVESTOCK ORGANIZATION

Land use and crops grown.—Although the Red River Valley and the States of North Dakota, South Dakota, and Montana are generally recognized as comprising the spring wheat region, other crops are grown here. Cash-grain farms in subregions 89, 90, and 91 are diversified. The fact that acreage allotments for wheat were in effect in 1954 may have had a greater effect on land use in this than in the hard winter wheat region. Notwithstanding an increase during the last 5 years in acreage of cropland per farm in each subregion, the acreage of wheat in 1954 in each was less than in 1949.

	Subregion			
	89	90	91	105
Crop acres per farm:				
1954.....	378	535	442	769
1949.....	358	504	425	721
Acres in wheat per farm:				
1954.....	80	159	111	281
1949.....	110	212	150	329

This region is also the leading flax-producing area in the United States. Considerable acreages of barley and oats are produced also. At one time the Red River Valley was well known for its potatoes but the relative importance of this crop has declined. Land use by subregions and economic class of farm is shown in tables 36, 37, 38, and 39.

In subregion 89, wheat was not the major crop in 1954; the acreage in wheat was exceeded by the acreage in barley. Wheat was relatively more important in 1954 in subregions 90, 91, and 105, as these areas have fewer alternative opportunities for land use. Flax and oats or barley were dominant crops in subregions 90 and 91. Some corn was produced, especially in subregion 91. Barley was the main competitor of wheat in subregion 105 but was less important than wheat in the other subregions.

The relative importance of summer-fallowing declines from west to east in the hard spring wheat region. The acreage of pasture per farm and the percentage of the total farm area that is in pasture vary significantly among subregions within the region. The Red River Valley cropland comprises almost the entire farm acreage. In subregions 90 and 91 approximately one-sixth of the land is in pasture and in subregion 105 about two-fifths of the land in cash-grain farms is in permanent pasture.

Farmers in the various economic classes have approximately the same type-of-cropping system. In each subregion there are differences which may have affected gross sales. In subregion 89 the Class VI farms were lower than the Class I farms in proportion of cropland in wheat and barley but much higher in the proportion of cropland in oats. In subregion 90 the Class VI farms were lower than farms in other classes in proportion of cropland in flax and higher in the proportion in oats. Class VI farms in subregion 91 were relatively lower in the percentage of the crop acreage in wheat and much higher in the percentage in oats than Class I farms. In subregion 105 the Class VI farms were relatively lower than other farms in the proportion of cropland in barley. These differences in the relative importance of various small grain crops may explain some differences in gross income.

Table 36.—LAND USE ON CASH-GRAIN FARMS IN SUBREGION 89, BY ECONOMIC CLASS OF FARM: 1954

Item	Percent of farms reporting	Economic class of farm						
		Total	I	II	III	IV	V	VI
Number of farms.....		13,280	363	2,552	4,679	3,540	1,678	468
Acreage per farm:								
All land.....	100	435	1,433	678	431	300	224	167
Cropland.....	100	378	1,324	614	376	247	171	105
Wheat.....	(NA)	80	307	136	80	48	32	13
Flax.....	70	46	165	81	43	28	20	10
Barley.....	88	83	328	143	82	51	31	17
Oats.....	71	40	74	52	42	33	26	21
Summer fallow.....	42	32	101	52	32	21	13	6
Land pastured.....	67	33	58	40	33	29	23	24

NA Not available.

Table 37.—LAND USE ON CASH-GRAIN FARMS IN SUBREGION 90, BY ECONOMIC CLASS OF FARM: 1954

Item	Percent of farms reporting	Economic class of farm						
		Total	I	II	III	IV	V	VI
Number of farms.....		24,389	191	3,151	8,154	8,617	3,358	918
Acreage per farm:								
All land.....	100	696	2,446	1,180	784	560	382	314
Cropland.....	100	535	1,976	944	604	419	284	220
Wheat.....	(NA)	159	570	275	180	127	83	67
Flax.....	78	70	330	142	81	47	33	16
Barley.....	74	64	276	121	71	49	30	23
Oats.....	71	34	75	49	38	31	20	16
Corn.....	32	11	58	22	14	7	3	1
Summer fallow.....	84	101	433	186	111	76	64	46
Land pastured.....	82	125	359	185	143	108	73	67

NA Not available.

Table 38.—LAND USE ON CASH-GRAIN FARMS IN SUBREGION 91 BY ECONOMIC CLASS OF FARM: 1954

Item	Percent of farms reporting	Economic class of farm						
		Total	I	II	III	IV	V	VI
Number of farms.....		8,687	130	1,372	2,022	2,006	1,086	271
Acreage per farm:								
All land.....	100	569	2,097	930	607	426	293	234
Cropland.....	100	442	1,646	757	469	321	218	185
Wheat.....	(NA)	111	572	208	111	74	48	44
Oats.....	91	71	168	100	77	61	44	34
Corn.....	77	55	224	110	60	35	20	14
Flax.....	64	49	160	75	53	37	27	23
Summer fallow.....	40	24	114	44	24	15	11	13
Land pastured.....	82	105	341	150	116	85	60	36

NA Not available.

Table 39.—LAND USE ON CASH-GRAIN FARMS IN SUBREGION 105, BY ECONOMIC CLASS OF FARM: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	15, 071	1, 317	3, 609	4, 173	3, 775	1, 709	488
Acrees per farm:							
All land.....	1, 304	3, 281	1, 785	1, 179	761	524	408
Cropland.....	769	2, 077	1, 054	668	440	291	202
Wheat:							
Winter.....	65	381	101	21	7	3	1
Spring.....	215	366	282	228	155	103	69
Barley.....	65	225	97	45	28	17	13
Summer fallow.....	296	939	443	228	132	86	61
Land pastured.....	512	1, 160	606	487	307	221	195

Livestock.—The kinds of livestock kept on farms is fairly uniform throughout the spring wheat region. (See tables 40, 41, 42, and 43.) The number of cattle on individual farms varies with the amount of pasture available. The typical poultry flock is small, kept mainly for production for home use. Average hog and sheep numbers per farm are small because many farmers do not keep them. However, the average number on farms reporting sheep and hogs is much larger than that shown as the average for all farms. This is especially true for sheep. Even milk-cow numbers are larger on many farms that have cows for the production of marketable quantities of dairy products. Many wheat farmers in the more arid parts do not keep cows for family use. The percentage of farmers reporting each class of livestock and the number per farm reporting are shown in tables 40 to 43.

Table 40.—LIVESTOCK ON CASH-GRAIN FARMS IN SUBREGION 89, BY ECONOMIC CLASS OF FARM: 1954

Item	Percent of farms reporting	Economic class of farm						
		Total	I	II	III	IV	V	VI
Number of farms.....		13,280	363	2,552	4,679	3,540	1,678	468
Livestock, number per farm:								
All cattle.....	67	13	24	20	15	11	7	3
Milk cows.....	56	4	3	4	3	3	2	1
Hogs.....	37	6	12	10	7	3	2	1
Sheep.....	9	6	11	11	6	3	4	1
Chickens.....	54	79	68	93	91	77	44	20
Gross sales of livestock and livestock products per farm.....dollars.....	x x x	1,156	2,852	1,964	1,304	718	367	105
Investment in livestock per farm.....dollars.....	x x x	1,710	3,052	2,563	1,893	1,288	873	383

Table 41.—LIVESTOCK ON CASH-GRAIN FARMS IN SUBREGION 90, BY ECONOMIC CLASS OF FARM: 1954

Item	Percent of farms reporting	Economic class of farm						
		Total	I	II	III	IV	V	VI
Number of farms.....		24,380	191	3,151	8,154	8,617	3,358	918
Livestock, number per farm:								
All cattle.....	74	26	74	43	31	20	10	5
Milk cows.....	64	5	3	6	6	5	3	1
Hogs.....	41	5	15	9	6	4	1	1
Sheep.....	9	7	32	15	8	4	1	1
Chickens.....	62	54	47	66	64	53	35	18
Gross sales of livestock and livestock products per farm.....dollars..	x x x	1,215	4,434	2,381	1,526	869	363	155
Investment in livestock per farm.....dollars..	x x x	2,866	8,404	4,912	3,520	2,251	1,105	618

Table 42.—LIVESTOCK ON CASH-GRAIN FARMS IN SUBREGION 91, BY ECONOMIC CLASS OF FARM: 1954

Item	Percent of farms reporting	Economic class of farm						
		Total	I	II	III	IV	V	VI
Number of farms.....		8,687	130	1,372	2,022	2,906	1,086	271
Livestock, number per farm:								
All cattle.....	76	30	78	50	35	22	12	6
Milk cows.....	56	4	2	3	4	4	3	1
Hogs.....	45	14	50	27	16	9	4	1
Sheep.....	16	9	71	18	10	5	1	4
Chickens.....	67	101	94	127	121	94	54	37
Gross sales of livestock and livestock products per farm.....dollars..	x x x	1,608	8,501	3,326	1,935	1,001	439	126
Investment in livestock per farm.....dollars..	x x x	3,513	10,253	6,023	4,067	2,545	1,338	688

Table 43.—LIVESTOCK ON CASH-GRAIN FARMS IN SUBREGION 105, BY ECONOMIC CLASS OF FARM: 1954

Item	Percent of farms reporting	Economic class of farm						
		Total	I	II	III	IV	V	VI
Number of farms.....		15,071	1,317	3,609	4,173	3,775	1,709	488
Livestock, number per farm:								
All cattle.....	68	36	68	48	40	24	13	8
Milk cows.....	51	2	1	2	3	3	2	1
Hogs.....	32	4	5	4	5	4	2	1
Sheep.....	5	5	15	8	4	2	(%)	(%)
Chickens.....	65	46	48	47	55	47	23	21
Gross sales of livestock and livestock products per farm.....dollars..	x x x	1,329	2,749	1,840	1,458	805	341	131
Investment in livestock per farm.....dollars..	x x x	3,196	7,200	5,171	4,316	2,665	1,407	697

% Less than 0.5.

It is significant that in each subregion the number of milk cows and chickens per farm is highest in the middle economic groups, Classes II to IV. It is probable that some of the operators of these farms keep milk cows and chickens to provide some food for the family and to help reduce cash expenses for family living. Products not needed by the family are sold. Class I farmers probably feel less need for limiting cash expenditures for family living; but Class V and VI farmers who may have the greatest need for additional income and for limiting living costs, also have

fewer milk cows and chickens. The large percentage of farmers in the youngest and oldest age groups may explain partly the small number of cows and chickens on the small farms. The beginning operators may be handicapped by a shortage of capital while the operators over 65 years may not wish to be burdened with livestock chores.

LABOR USED

Most of the labor used on cash-grain farms in this region is supplied by the farm families (see table 44). With the exception of the relatively small number of Class I farms, the organization of most farms is planned around the farm family. (Many of the Class I farms would be classified as family farms.) Hired labor constitutes only a small part of the labor force on all except the Class I farms.

Table 44.—LABOR FORCE ON CASH-GRAIN FARMS IN THE HARD SPRING WHEAT REGION, AND FOR SUBREGION 90 BY ECONOMIC CLASS OF FARM: 1954

Item	Subregion				Economic class of farm for subregion 90					
	89	90	91	105	I	II	III	IV	V	VI
Total man-equivalent...	1.4	1.4	1.3	1.3	3.0	1.8	1.5	1.2	1.0	1.0
Operator.....	.9	.9	.8	.8	.9	.9	.9	.8	.8	.8
Unpaid family help.....	.3	.3	.3	.2	.4	.5	.4	.3	.2	.2
Hired.....	.2	.2	.2	.3	1.7	.4	.2	.1	(2)	(2)
Operators by age:										
All operators, percent.....	100	100	100	100	100	100	100	100	100	100
Under 25 years, do.....	2	3	4	4	2	2	3	3	5	4
25-34 years, do.....	17	20	24	20	20	19	23	20	15	10
35-64 years, do.....	69	68	62	64	73	74	69	68	61	59
65 years and over, do.....	12	9	10	12	5	5	5	9	19	27

% Less than 0.05.

On most farms all the operators' labor is allocated to the farm business as opportunities for off-farm work are very limited. There was considerable difference in the amount of labor hired on Class I farms in the four subregions. The man-equivalent of hired labor for Class I farms was by subregion as follows: subregion 89, 2.3; subregion 90, 1.7; subregion 91, 1.5; and subregion 105, 1.1. Labor requirements per acre are higher in the Red River Valley than in Montana, for Montana farmers use larger machinery than is generally used on more diversified farms. Subregion 89, with the smallest farms when measured in acres of land, had the largest number of workers per farm. The amount of family help used was about the same for subregions 89, 90, and 91, but was smaller for all economic classes in subregion 105. Less diversification and greater seasonality of the work may be the reasons for less unpaid family help per farm in subregion 105.

The percentage of farm operators that are under 35 years of age is low relative to the percentage in other age groups in all subregions and is lower in subregion 89 than in the other subregions. This is true for all economic classes of farms. It indicates that in the coming years either the rate of decrease in number of farms will be abnormally high or that an unusually high percentage of the farms will be operated by older men. The percentage of operators of Class VI farms who are 65 is high especially in subregion 105 where 37 percent of Class VI operators are more than 65 years of age.

FARM MECHANIZATION AND HOME CONVENIENCES

The cash-grain farms in the spring wheat region are highly mechanized. This has been true for several decades. Wheat farmers were one of the first groups to shift to motive power, for the large fields of fairly level land are excellent for the use of large-size modern machinery. The degree of mechanization and use of modern home conveniences is shown by data in table 45.

Table 45.—FARM MECHANIZATION AND HOME CONVENIENCES ON CASH-GRAIN FARMS IN THE HARD SPRING WHEAT REGION, AND FOR SUBREGION 91 BY ECONOMIC CLASS OF FARM: 1954

Item	Subregion				Economic class of farm for subregion 91					
	89	90	91	105	I	II	III	IV	V	VI
Number of farms.....	13,280	24,389	8,687	15,071	130	1,372	2,922	2,906	1,086	271
Number per farm:										
Automobiles.....	1.2	1.2	1.2	1.2	2.1	1.4	1.2	1.1	1.0	.7
Motortrucks.....	1.2	1.1	1.6	1.7	2.4	1.5	1.0	0.8	0.5	.4
Tractors.....	2.1	1.9	1.9	1.9	3.9	2.7	2.0	1.7	1.2	1.0
Combines.....	.9	.9	.8	1.0	1.6	1.0	.9	.7	.5	.3
Percent of farms report- ing:										
Automobiles.....	92	91	90	90	97	96	92	91	85	63
Motortrucks.....	82	85	75	92	94	92	83	73	48	35
Tractors.....	96	96	95	96	98	98	97	96	84	82
Combines.....	80	82	72	80	95	88	81	69	46	26
Corn pickers.....	10	4	36	4	70	60	41	29	15	7
Field forage harvesters.....	8	9	8	7	28	19	10	4	1	
Telephones.....	61	43	52	30	68	67	55	50	36	23
Electricity.....	91	90	89	85	95	96	94	89	76	56
Television sets.....	28	17	16	10	19	25	18	15	8	7
Piped water in home.....	49	38	57	51	88	82	65	46	36	32
Home freezer.....	39	39	35	52	61	55	40	28	16	8

In subregion 105 a relatively high percentage of farmers own trucks and there is a higher than average number of trucks per farm than in the other subregions. Tractor numbers also varied by subregion and by economic class of farm. The percentage of farms in each class reporting tractors was fairly uniform but the number of tractors per farm varied by economic class of farm as shown by the following data:

Subregion	Number of tractors per farm by economic class					
	I	II	III	IV	V	VI
89.....	4.4	2.8	2.1	1.6	1.4	1.1
90.....	4.0	2.7	2.0	1.6	1.3	1.1
91.....	3.9	2.7	2.0	1.7	1.2	1.0
105.....	3.1	2.3	1.9	1.6	1.2	1.1

The more diversified areas (subregions 89 and 91) had the largest number of tractors per farm. On diversified farms more than one operation requiring power must frequently be performed on the same day, thus the operators of these farms need more power units. Typically the power units on diversified farms are smaller than on farms in subregion 105.

The use of home conveniences is much more related to the economic class of farm than the particular part of the wheat region in which the farm is located. Almost without exception the lower a group of farmers ranks in gross sales, the lower is the percentage of the farmers having modern home conveniences. The small percentage of the lower income groups reporting telephones, electricity, home freezers, and piped water in the home, is a good indicator of the differences in levels of living among farmers in the economic classes. However, it may be expected that telephones and electricity would be less common in the sparsely settled parts of Montana and the western part of the Dakotas than in the Red River Valley. Home conveniences

were more common in the hard winter wheat region than in the hard spring wheat region.

GROSS FARM INCOME

The sources and amount of farm income indicate the farm organization and the relative importance of different enterprises (see table 46). In the Red River Valley where wheat was not the dominant crop, farmers had several important sources of income. In the central part of the Dakotas, wheat was the major source of income but livestock and livestock products were important. In subregion 105, in western North Dakota and Montana, wheat provided three-fourths of the gross sales.

Table 46.—SOURCES OF FARM INCOME ON CASH-GRAIN FARMS IN THE HARD SPRING WHEAT REGION, AND FOR SUBREGION 105 BY ECONOMIC CLASS OF FARM: 1954

Item	Subregion				Economic class of farm for subregion 105					
	89	90	91	105	I	II	III	IV	V	VI
Number of farms.....	13,280	24,389	8,687	15,071	1,317	3,609	4,173	3,775	1,709	488
Sales per farm:										
Wheat.....dollars..	2,262	2,341	2,111	8,251	34,172	12,393	5,261	2,650	1,388	590
Flax.....do.....	1,080	1,165	739	166	108	159	240	162	91	46
Other crops.....do..	3,260	1,417	2,280	1,395	6,553	2,157	609	342	203	122
All crops.....do....	6,602	4,923	5,139	9,812	40,833	14,709	6,200	3,154	1,682	758
Livestock and live- stock products.....										
dollars.....	1,156	1,215	1,608	1,329	2,749	1,840	1,458	805	341	131
Gross sales.....										
dollars.....	7,759	6,138	6,838	11,142	43,587	16,549	7,658	3,958	2,023	889
Percentage of gross sales from wheat.....	29	38	31	74	78	75	69	67	69	66
Gross sales per crop acre dollars.....	20.54	11.48	15.46	14.49	20.98	20.70	11.46	8.99	6.96	4.39

Gross sales per crop acre were highest in the more diversified area (subregion 89); here the yields are the highest in the area. The differences in sales per crop acre in the other subregions are the result of differences in crop yields, in 1954. In subregion 105, the Class I farmers (about 10 percent of all cash-grain farmers in the subregion) had gross sales exceeding \$40,000. These were the large wheat farmers.

The percentage of gross sales on cash-grain farms that came from wheat varied by subregions and by economic class as follows:

Subregion	Wheat sales as a percentage of gross sales by economic class					
	I	II	III	IV	V	VI
89.....	29	30	29	29	26	15
90.....	42	39	37	37	39	42
91.....	40	34	30	31	30	33
105.....	78	75	69	67	69	66

The importance of wheat as a source of income differs little by the economic class in subregion 90, but declines from Class I to Class VI in the other subregions. This was especially true in subregion 91 where Class VI farmers obtain a relatively small income from wheat.

Livestock sales are relatively important for farms in Economic Classes II, III, and IV but are less important for farms in Classes V and VI. The pattern of the source of income by economic class of farm was similar for all subregions in the hard spring wheat region and in the winter wheat region.

FARM EXPENSES

As in other wheat regions machine hire was the highest in the subregions having the largest acreages per farm. (See tables 47, 48, 49, and 50.) Frequently operators of the larger farms own one or two combines but hire additional machines to speed up harvest. In the localities of high hail risk, the harvesting of wheat is completed as rapidly as possible. Some of the larger operators have found that they can hire the combining for less cost than if they operated their own machines.

Expenditures per crop acre for gas and oil may be expected to decline with a decrease in intensity of operation. However, only in subregion 105 is there a correlation between size of farm and the cost of fuel and oil per acre. Here the larger farms had considerably lower costs per crop acre than the smaller farms.

The amount spent per crop acre for hired labor was approximately twice as large in subregion 89 as in the other subregions. The amount spent per acre for hired labor was highest on the largest farms. This is to be expected for the operators of small farms do not have enough work to employ hired help.

Table 47.—SPECIFIED FARM EXPENDITURES ON CASH-GRAIN FARMS IN SUBREGION 89, BY ECONOMIC CLASS OF FARM: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Average per farm:							
Cropland.....acres..	378	1,324	614	376	247	171	105
Machine hire.....dollars..	198	622	287	193	144	128	86
Gas and oil.....do.....	833	2,781	1,302	844	575	380	236
Hired labor.....do.....	400	4,608	1,021	337	144	82	14
Commercial fertilizer.....do.....	273	1,656	537	235	122	62	34
Feed bought.....do.....	286	698	542	281	186	104	37
Total.....do.....	2,080	10,365	3,689	1,890	1,171	766	407
Average per crop acre:							
Machine hire.....dollars..	0.52	0.47	0.47	0.51	0.58	0.75	0.82
Gas and oil.....do.....	2.21	2.10	2.12	2.24	2.33	2.22	2.25
Hired labor.....do.....	1.30	3.48	1.66	.90	.58	.48	.13
Commercial fertilizer.....do.....	.72	1.25	.87	.62	.50	.36	.32
Total.....do.....	4.75	7.30	5.12	4.27	3.99	3.81	3.52

Table 48.—SPECIFIED FARM EXPENDITURES ON CASH-GRAIN FARMS IN SUBREGION 90, BY ECONOMIC CLASS OF FARM: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Average per farm:							
Machine hire.....dollars..	168	578	259	167	150	120	126
Gas and oil.....do.....	857	2,702	1,425	963	711	473	342
Hired labor.....do.....	322	3,248	872	322	174	86	81
Commercial fertilizer.....do.....	48	593	147	47	22	6	5
Feed bought.....do.....	172	772	314	197	135	79	35
Total.....do.....	1,567	7,893	3,017	1,696	1,192	764	589
Average per crop acre:							
Machine hire.....dollars..	0.31	0.29	0.27	0.28	0.36	0.42	0.57
Gas and oil.....do.....	1.60	1.37	1.51	1.60	1.70	1.67	1.55
Hired labor.....do.....	.60	1.64	.92	.53	.42	.30	.37
Commercial fertilizer.....do.....	.09	.30	.16	.08	.05	.02	.02
Total.....do.....	2.60	3.60	2.86	2.49	2.53	2.41	2.51

Table 49.—SPECIFIED FARM EXPENDITURES ON CASH-GRAIN FARMS IN SUBREGION 91, BY ECONOMIC CLASS OF FARM: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Average per farm:							
Cropland.....acres..	442	1,646	757	460	321	218	185
Machine hire.....dollars..	244	971	388	250	184	158	97
Gas and oil.....do.....	812	2,558	1,337	862	640	388	306
Hired labor.....do.....	293	2,660	735	260	113	80	66
Commercial fertilizer.....do.....	35	289	86	33	15	4	4
Feed bought.....do.....	299	1,019	497	353	198	152	50
Total.....do.....	1,683	7,497	3,043	1,758	1,150	782	523
Average per crop acre:							
Machine hire.....dollars..	0.55	0.59	0.51	0.53	0.57	0.72	0.52
Gas and oil.....do.....	1.83	1.55	1.76	1.83	1.99	1.78	1.65
Hired labor.....do.....	.66	1.61	.97	.55	.35	.36	.35
Commercial fertilizer.....do.....	.07	.17	.11	.07	.04	.01	.02
Total.....do.....	3.11	3.92	3.35	2.98	2.95	2.87	2.54

Table 50.—SPECIFIED FARM EXPENDITURES ON CASH-GRAIN FARMS IN SUBREGION 105, BY ECONOMIC CLASS OF FARM: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Average per farm:							
Machine hire.....dollars..	386	1,156	472	333	213	194	144
Gas and oil.....do.....	1,004	2,129	1,298	974	698	459	330
Hired labor.....do.....	579	2,506	862	373	156	84	48
Commercial fertilizer.....do.....	43	181	67	27	12	4	1
Feed bought.....do.....	142	313	195	141	86	54	28
Total.....do.....	2,154	6,285	2,894	1,848	1,165	795	551
Average per crop acre:							
Machine hire.....do.....	0.50	0.56	0.45	0.50	0.48	0.67	0.71
Gas and oil.....do.....	1.31	1.02	1.23	1.46	1.59	1.58	1.63
Hired labor.....do.....	.75	1.21	.82	.56	.35	.29	.24
Commercial fertilizer.....do.....	.06	.09	.06	.04	.03	.01	(?)
Total.....do.....	2.62	2.88	2.56	2.56	2.45	2.55	2.58

z Less than 0.05 cent.

Because of the decline in the importance of expenditures for hired labor, the total cost per crop acre for specified expenses decreases as the size of farm decreases in subregions 89, 90, and 91. However, the total cost per crop acre does not decline with the change in size of farm in subregion 105 where the lower hired labor per acre on the smaller farms is offset by higher costs for gas and oil.

The use of commercial fertilizer is not common except in the Red River Valley where about half the farmers reported its use (see table 51). In the other areas, less than 15 percent of farmers reported the use of fertilizer. The percentage of farmers in the lower-income groups who use fertilizer is very low. Probably many do not have the capital to buy fertilizer and others probably lack information on which to make a decision to adopt a relatively new practice. The higher percentage of older farmers in these groups may be related to the small percentage of farmers reporting the use of fertilizer. The rate of application reported is rather uniform among the economic classes in subregions 89 and 90. The use of commercial fertilizer in the other two subregions is not a common practice.

FARMERS AND FARM PRODUCTION

Table 51.—USE OF COMMERCIAL FERTILIZER ON CASH-GRAIN FARMS IN THE HARD SPRING WHEAT REGION, BY ECONOMIC CLASS OF FARM: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Subregion 89							
Percent of farms using fertilizer	52	85	70	56	45	33	21
Tons used per farm	3.3	19.2	6.4	2.8	1.5	0.8	.4
Rate of application, pounds per acre	71	74	70	60	74	79	88
Subregion 90							
Percent of farms using fertilizer	14	54	31	16	9	4	3
Tons used per farm	0.5	6.7	1.6	0.5	0.2	0.1	0.1
Rate of application, pounds per acre	45	44	45	46	44	44	39
Subregion 91							
Percent of farms using fertilizer	11	29	22	13	8	(%)	6
Tons used per farm	.4	3.4	1.0	.4	.2	(%)	0.1
Rate of application, pounds per acre	80	112	81	77	72	53	60
Subregion 105							
Percent of farms using fertilizer	11	27	18	11	5	3	(%)
Tons used per farm	0.5	2.0	0.8	0.3	0.1	0.1	(%)
Rate of application, pounds per acre	40	36	37	50	54	66	22

% Less than 0.5 percent or less than 0.05 ton.

EFFICIENCY LEVELS OF FARM OPERATION

Gross sales minus the specified expenses per farm varied greatly from an average of \$4,570 to \$8,989 among four subregions. (See tables 52 to 55.) This measure does not represent net income because only some of the operating expenses have been considered. Other large items of cost to be considered in arriving at a net income include taxes, repairs and depreciation on buildings and machinery, supplies, and livestock purchases. Additional costs of production would include also the value of the operator's and unpaid family labor and interest on the investment. Also these data indicate returns for only 1 year and therefore may reflect abnormal differences in weather conditions in 1954. Although the importance of specific expense items varies somewhat from one part of this area to another, these data do provide useful measures for comparing economic classes of farms and subregions.

Table 52.—SELECTED MEASURES OF INCOME AND EFFICIENCY LEVELS ON CASH-GRAIN FARMS IN SUBREGION 89, BY ECONOMIC CLASS OF FARM: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Gross sales per farm.....dollars..	7,759	36,897	14,616	7,400	3,929	2,037	852
Specified expenses per farm do....	2,080	10,365	3,680	1,889	1,171	756	407
Gross sales less specified expenses per farm.....do....	5,679	26,532	10,927	5,511	2,758	1,281	445
Gross sales per man-equivalent do....	5,581	10,350	8,508	5,430	3,245	2,017	932
Total investment per \$100 gross sales.....do....	579	394	491	508	779	1,042	1,527
Total investment per man-equivalent.....do....	31,859	40,236	42,186	31,600	25,330	20,840	13,570
Machinery investment per man-equivalent.....do....	8,460	8,445	9,735	8,647	7,745	7,297	6,018
Machinery investment per crop acre.....do....	31	23	27	31	38	41	47
Wheat yield per acre.....bushels..	15	17	16	14	13	10	8
Crop acres per man-equivalent.....	272	371	357	276	204	170	115

Table 53.—SELECTED MEASURES OF INCOME AND EFFICIENCY LEVELS ON CASH-GRAIN FARMS IN SUBREGION 90, BY ECONOMIC CLASS OF FARM: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Gross sales per farm.....dollars..	6,138	34,976	13,813	7,104	3,908	2,081	989
Specified expenses per farm.....dollars..	1,508	7,803	3,017	1,607	1,193	764	589
Gross sales less specified expenses per farm.....dollars..	4,570	27,083	10,796	5,497	2,715	1,317	400
Gross sales per man-equivalent.....dollars..	4,493	11,478	7,561	4,898	3,129	2,006	1,001
Total investment per \$100 gross sales.....dollars..	630	360	401	607	797	1,017	1,727
Total investment per man-equivalent.....dollars..	27,461	42,046	36,861	28,731	25,888	21,350	17,274
Machinery investment per man-equivalent.....dollars..	8,538	9,653	8,894	8,933	8,351	7,539	6,441
Machinery investment per crop acre.....dollars..	22	15	17	21	25	28	29
Wheat yield per acre.....bushels..	8	13	10	8	7	6	4
Crop acres per man-equivalent.....	392	648	517	416	336	274	223

Table 54.—SELECTED MEASURES OF INCOME AND EFFICIENCY LEVELS ON CASH-GRAIN FARMS IN SUBREGION 91, BY ECONOMIC CLASS OF FARM: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Gross sales per farm.....dollars..	6,838	34,966	14,251	7,297	3,953	2,058	964
Specified expenses per farm.....dollars..	1,683	7,498	3,044	1,758	1,151	783	523
Gross sales less specified expenses per farm.....dollars..	5,155	27,468	11,207	5,539	2,802	1,275	441
Gross sales per man-equivalent.....dollars..	5,225	13,009	8,823	5,364	3,261	2,015	989
Total investment per \$100 gross sales.....dollars..	583	340	468	587	764	951	1,564
Total investment per man-equivalent.....dollars..	30,492	46,833	41,543	30,185	24,834	19,021	14,077
Machinery investment per man-equivalent.....dollars..	8,110	9,404	9,541	8,233	6,707	6,210	4,612
Machinery investment per crop acre.....dollars..	24	15	20	24	29	29	24
Wheat yield per acre.....bushels..	10	12	11	10	8	7	5
Crop acres per man-equivalent.....	338	640	469	345	265	213	190

Table 55.—SELECTED MEASURES OF INCOME AND EFFICIENCY LEVELS ON CASH-GRAIN FARMS IN SUBREGION 105, BY ECONOMIC CLASS OF FARM: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Gross sales per farm.....dollars..	11,142	43,587	16,549	7,658	3,958	2,023	889
Specified expenses per farm.....dollars..	2,153	6,285	2,895	1,848	1,164	795	549
Gross sales less specified expenses per farm.....dollars..	8,989	37,302	13,654	5,810	2,794	1,228	340
Gross sales per man-equivalent.....dollars..	8,530	19,632	11,212	6,025	3,608	2,192	1,053
Total investment per \$100 gross sales.....dollars..	552	385	518	667	800	1,129	1,982
Total investment per man-equivalent.....dollars..	47,172	76,377	56,986	39,519	31,276	25,094	22,302
Machinery investment per man-equivalent.....dollars..	9,356	10,572	10,247	9,000	8,639	7,671	6,676
Machinery investment per crop acre.....dollars..	16	11	14	17	22	24	28
Wheat yield per acre:							
Winter.....bushels..	27	29	25	22	20	12	5
Spring.....bushels..	12	18	14	10	9	7	6
Crop acres per man-equivalent.....	589	936	714	526	401	315	240

Some of the more meaningful measures of levels of efficiency are not affected significantly by growing conditions in a single year. These include total investment per man, machinery investment per man, machinery investment per crop acre, and crop acres per man.

Farms in subregion 105 had the highest total investment per man, the highest investment in machinery per man, the largest number of crop acres per man, but the lowest investment in machinery per crop acre. These measures of level of efficiency do not vary greatly among the other three subregions, although for farms in subregion 89 the investment per man and crop acres per man are somewhat lower than for farms in the other two subregions.

Comparisons of measures of level of efficiency by economic class indicate a decrease in total investment and crop acres per man from Class I to Class VI farms, whereas, machinery investment per acre increased from the large to small farms. There was some decline in investment in machinery per man from Class I to Class VI farms but the decline was not nearly as sharp as that for total investment per farm or crop acres per man. This explains perhaps one of the more significant reasons for low net income (gross sales less specified expenditures) on these farms as a minimum amount of machinery is required even for a small acreage. A second significant reason for low incomes on the Class VI farms is the low yields per acre in 1954. In all four subregions, the farms with larger gross income had significantly higher yields per acre.

OTHER TYPES OF FARMING IN THE HARD RED SPRING WHEAT REGION

Other types of farming in the hard spring wheat region are of interest. In the Red River Valley (subregion 89), there were 3,601 dairy farms and 3,213 general farms. On these farms, feed crops were emphasized more than wheat and more livestock were kept than on cash-grain farms.

In subregions 90 and 91, there were 8,942 general farms. These were similar to the cash-grain farms in the same area. Wheat was the major crop on tilled land but the general farms had more pastureland and livestock than the cash-grain farms. No doubt some of these general farms would have been classified as cash-grain farms if wheat yields had been normal.

In subregion 105 in southwestern North Dakota and Montana there is much land not suitable for cultivation. Farmers who have a large acreage of grassland keep more cattle or sheep than wheat farmers. In this subregion there were 6,336 livestock farms. Among these are many that are very similar to wheat farms but with enough income from livestock in 1954 to be classified as livestock farms. Among the farm units classified as livestock are many ranches that have the same characteristics as those in the nearby range livestock areas. These units usually are characterized by large acreages in grass and little cropland.

Although flax was once grown more widely, it is now produced mainly in three States—North Dakota, South Dakota, and Minnesota. In 1954, nearly 80,000 farmers reported a total of 5 million acres with a production of 34 million bushels of flax in these three States (see table 56). North Dakota is by far the leading flax-producing State. Acreage allotments for wheat undoubtedly influenced the acreage of flax. As grain sorghum provides a cash-grain alternative to winter wheat in the southern part of the Great Plains, so flax offers alternative opportunities in the northern Great Plains and Minnesota.

Flax production is closely associated with wheat production, for many farmers grow both crops. Most flax is grown by farmers who raise only small quantities. In 1954, 92 percent of the producers harvested less than 1,000 bushels each; 20 percent harvested less than 100 bushels each.

Table 56.—ACREAGE AND PRODUCTION OF FLAX IN THE THREE LEADING PRODUCING STATES: 1954

[Data are estimates based on reports for only a sample of farms]

Item	North Dakota	South Dakota	Minnesota
Number of farms in the State.....	61,808	62,350	165,324
Number of farms producing flax.....	42,171	16,238	29,491
Acreage in flax.....	3,126,185	944,306	978,315
Number of farms reporting by acres harvested:			
Under 25 acres.....	8,117	4,444	15,368
25-49 acres.....	11,166	4,828	8,410
50-99 acres.....	12,437	4,501	4,362
100 acres and over.....	10,451	2,465	1,351
Production..... bushels.....	20,032,677	5,467,435	8,228,230
Farms reporting by number of bushels harvested:			
Under 100 bushels.....	7,239	3,163	7,317
100-499 bushels.....	21,155	9,795	17,922
500-999 bushels.....	8,724	2,443	3,362
1,000 bushels and over.....	5,053	837	890

THE WHITE WHEAT REGION (SUBREGION 110)

This area, located in northwestern United States (see fig. 9), has long been known for its specialized, large-scale farming. Even before modern tractor power was available, it was known for its large farms and big machines pulled by large teams of horses. It has continued to have large farms and a labor-extensive type of farming. Although some hard winter wheat and some hard spring wheat are grown in the western, more arid part of subregion 110, the soft white wheat predominates. Small quantities of white wheat are also grown in Michigan and New York.

THE WHITE WHEAT AREA SUBREGION 110



A54-525

FIGURE 9.

The soils here include several types—the Northern Chernozem, Northern Dark Brown, and Northern Gray Desert. These are deep silt loams developed from loessal material; they have good moisture-retaining properties and are fertile and well suited to wheat. The topography varies from nearly level valley to hilly land. In much of subregion 110, rolling to hilly land predominates. Many of the slopes are so steep that special machines have been designed to harvest the wheat. One is the self-leveling grain combine. Crawler-type tractors are commonly used for field work.

The variation in precipitation influences the intensity of farming. The rainfall varies from 25 inches annually to less than 10 inches. In the eastern part where the rainfall varies from 18 to 25 inches, the land is cropped each year and wheat is commonly grown in rotation with peas or with other small grains. The line of 18-inch rainfall is the approximate boundary of annual cropping. To the west, in the Big Bend part of Washington and the wheat areas of northern Oregon, where the annual rainfall is 10 to 18 inches, wheat alternates with summer fallow. Summer-fallowing is necessary to accumulate the moisture necessary for a wheat crop. Some fallowing is done in the area of higher rainfall (18 to 25 inches) but here the reason for fallowing is to control weeds or to turn under heavy stubble and give it time to decompose. The driest season occurs during the summer, and provides for ideal harvesting. Transportation and marketing facilities are adequate; both railroads and highways offer ample opportunity for transporting the wheat to market.

The white wheat region ranks below the hard winter and hard spring wheat regions in total wheat production as it is the smallest of the three. In 1954, it produced 87 million bushels of wheat, or 10 percent of all wheat in the United States. Nearly all of the wheat is grown on commercial cash-grain farms. Only 3 percent of the wheat was grown on other than commercial cash-grain farms in 1954.

SIZE OF BUSINESS

This region is characterized by a highly mechanized system of farming. Subregion 110 exceeds any other wheat area in crop acres per farm, gross income per farm, total investment, and investment in machinery. Yields in 1954 were approximately 20 percent above the 5-year average. This affected the gross income and the classification of farms by economic class in 1954, but should not affect appreciably the relationships between economic classes in the acreage per farm or the investment in machinery and land and buildings.

In 1954, more than 70 percent of all cash-grain farms fell into Economic Classes I and II while less than 2 percent were in Class VI. The range in size of farms is exceptionally large; Class I farms are 20 times as large in total acres as Class VI farms. Only the Class I and Class II groups average more than one man-equivalent per farm. Measures of size of farm by economic class are shown in table 57.

Table 57.—SIZE OF CASH-GRAIN FARMS IN SUBREGION 110, BY ECONOMIC CLASS OF FARM: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	9,109	3,346	3,303	1,233	775	325	127
Total acres per farm.....	1,188	2,103	874	454	325	213	110
Crop acres per farm.....	793	1,462	566	243	154	100	41
Capital investment per farm:							
Land and buildings...dollars.....	113,412	201,798	83,613	40,576	27,436	18,593	11,747
Livestock.....do.....	3,005	4,767	2,476	1,626	1,173	703	569
Machinery.....do.....	18,244	25,949	16,213	11,994	9,763	8,176	6,306
Total.....	134,661	232,514	102,304	54,196	38,372	27,562	18,622
Man-equivalent per farm.....	1.6	2.4	1.4	1.1	1.0	0.7	0.7

CROP AND LIVESTOCK ORGANIZATION

Wheat and summer fallow together use nearly three-fourths of the cropland in this area (see table 58). As indicated earlier there are important differences in the use of cropland within the area associated with the amount of precipitation. The farms in the eastern part of Washington and western Idaho receive more rainfall and are more diversified. The production of dry field peas is an important enterprise on many of these farms. Other farmers rotate wheat with feed grains and green manure crops. In the remainder of the subregion, the cropping system is mainly wheat and summer fallow with varying acreages of oats or barley. In the more arid parts a straight wheat-summer fallow rotation is followed.

Table 58.—LAND USE ON CASH-GRAIN FARMS IN SUBREGION 110, BY ECONOMIC CLASS OF FARM: 1954

Item	Percent of farms reporting	Economic class of farm						
		Total	I	II	III	IV	V	VI
Number of farms.....		9,109	3,346	3,303	1,233	775	325	127
Acres per farm:								
All land.....	100	1,188	2,103	874	454	325	213	110
Cropland.....	100	793	1,462	566	243	154	100	41
Wheat.....								
Winter.....	87	253	496	166	57	30	12	9
Spring.....	30	31	43	31	18	12	10	3
Barley.....	77	87	103	61	27	16	9	3
Peas.....	16	18	34	12	8	3	2	1
Summer fallow.....	84	328	616	235	84	47	17	9
Land pastured.....	71	368	615	286	175	136	71	53

For subregion 110 as a whole, other crops occupy a little over one-fourth of the land. Barley is more important than oats. The acreage of pastureland varies from farm to farm, and consists largely of land not suited for cultivation. The smaller farms have relatively less wheat and fallow and they are located mostly in the diversified area.

The livestock system here is typical of the western wheat areas. Many of the large wheat-fallow farms with little pasture have no livestock. Some farmers keep a small flock of chickens, and enough cattle to utilize the pasture and roughage. Hogs are found on approximately 26 percent of the farms. Sheep are kept on a relatively few farms and the average size of flock for farms keeping sheep is much larger than indicated by data in table 59. The low-income farmers, as a group, have very few livestock, but this group is relatively much smaller in number in the white wheat region than in the other wheat regions. Many of the operators of the low income farms have other occupations or other sources of income.

Table 59.—LIVESTOCK ON CASH-GRAIN FARMS IN SUBREGION 110, BY ECONOMIC CLASS OF FARM: 1954

Item	Percent of farms reporting	Economic class of farm						
		Total	I	II	III	IV	V	VI
Number of farms.....		9, 109	3, 346	3, 303	1, 233	775	325	127
Livestock, number per farm:								
All cattle.....	72	28	46	23	15	10	7	5
Milk cows.....	52	1	1	1	1	2	1	1
Hogs.....	26	4	5	5	3	3	1	2
Sheep.....	6	4	7	2	3	2		
Chickens.....	64	39	37	42	48	33	27	19
Gross sales of livestock and livestock products per farm.....dollars..	x x x	1, 449	2, 344	1, 196	794	447	209	98
Investment in livestock per farm.....dollars..	x x x	3, 005	4, 767	2, 476	1, 026	1, 173	793	569

LABOR USED

For subregion 110 as a whole, the farm operators and their families comprise approximately 60 percent, and hired workers, 40 percent of the total labor force. Unpaid family labor is less important in this subregion than in the other major wheat regions. (See table 60.)

Table 60.—LABOR FORCE ON CASH-GRAIN FARMS IN SUBREGION 110, BY ECONOMIC CLASS OF FARM: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Total man-equivalent...	1.7	2.4	1.3	1.1	0.9	0.7	0.6
Operator.....	.9	.9	.9	.8	.7	.5	.6
Unpaid family help.....	.2	.2	.1	.2	.2	.2	(*)
Hired.....	.6	1.3	.3	.1	(*)	(*)	(*)
Operators by age:							
All operators..percent..	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Under 25 years..do....	1.0	1.0	1.0	1.0	1.0	3.0	-----
25-34 years.....do....	17.0	19.0	18.0	15.0	9.0	12.0	4.0
35-64 years.....do....	71.0	74.0	73.0	69.0	70.0	61.0	37.0
65 years and over..do....	11.0	6.0	8.0	15.0	20.0	24.0	59.0

* Less than 0.05.

The Class I farms average 1,462 crop acres per farm, and have a man-equivalent of 2.4 per farm. Actually several hired men are used during the period when field operations are performed. Many operators of farms in other economic classes have part-time work off the farms; one-third of the operators work more than 100 days off the farm and another 15 percent work 1 to 99 days off the farm. Approximately half of the farmers on the smaller farms perform off-farm work.

A very small percentage of the farm operators are under 25 years of age. Compared with the other wheat regions, the percentage of operators under 25 years old is small and the percentage in the 25-to-34-year group is relatively large. The percentage of operators 65 years of age for Class VI farms is the largest for any region. Many of the operators of these small farms may be semi-retired.

FARM MECHANIZATION AND HOME CONVENIENCES

Farms here are highly mechanized. Nearly all have automobiles, motortrucks, and tractors. Most farmers have only one combine, yet relatively little is spent for machine hire. Many operators of small farms hire their combining performed. (See table 61.)

Table 61.—FARM MECHANIZATION AND HOME CONVENIENCES ON CASH-GRAIN FARMS IN SUBREGION 110, BY ECONOMIC CLASS OF FARM: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	9,109	3,346	3,303	1,233	775	325	127
Number per farm:							
Automobiles.....	1.4	1.8	1.2	1.0	1.0	1.0	0.7
Motortrucks.....	2.2	3.3	1.9	1.3	1.1	1.0	.7
Tractors.....	2.0	2.7	1.9	1.6	1.2	1.2	1.0
Combines.....	1.1	1.5	1.0	.7	.6	.4	.4
Percent of farms reporting:							
Automobiles.....	93	98	95	88	81	86	72
Motortrucks.....	94	99	96	91	88	72	57
Tractors.....	96	99	97	95	89	89	69
Combines.....	82	96	84	67	62	42	41
Field storage harvestors.....	4	5	4	1	2	-----	4
Telephones.....	82	91	85	74	64	59	56
Electricity.....	96	98	96	95	93	86	76
Television sets.....	45	54	46	36	22	24	32
Piped water in home.....	92	97	94	86	83	75	75
Home freezer.....	64	80	66	46	38	26	20

Modern home facilities are more prevalent in the white wheat subregion than in the other wheat subregion. This may be related to the small percentage of farmers in the low-income groups; however, this area had power lines in rural areas at an earlier date than most other wheat regions and this fact has probably influenced the proportion of farms with electricity. The Class VI farms rank much higher in percentage of farmers reporting modern home facilities than Class VI farms in other wheat regions.

GROSS FARM INCOME

The average gross income for all cash-grain farms in the white wheat region was the highest for any wheat subregion, in 1954. This would probably be true for most years, for the farms are large and the yields are relatively high. Livestock is a very minor source of income. More than half of the income is derived from wheat even on farms having the lowest gross income (see table 62).

Table 62.—SOURCES OF FARM INCOME ON CASH-GRAIN FARMS IN SUBREGION 110, BY ECONOMIC CLASS OF FARM: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	9,109	3,346	3,303	1,233	775	325	127
Sales per farm:							
Wheat.....dollars.....	19,161	37,986	12,176	4,264	2,028	1,038	411
Other crops.....do.....	5,433	10,174	3,575	1,979	1,250	604	274
All crops.....do.....	24,594	48,160	15,751	6,243	3,278	1,642	685
Livestock and livestock products.....do.....	1,449	2,344	1,196	795	447	209	98
Gross sales.....do.....	26,043	50,504	16,947	7,038	3,725	1,851	783
Percentage of gross sales from wheat.....	74	75	72	61	54	56	52
Gross sales per crop acre.....dollars.....	32.92	34.58	30.02	29.10	24.33	18.54	20.97

FARM EXPENSES

Specified farm expenditures merely indicate the level of some cost items; total cost of operation would be much higher. The total cost of operation for these large farms is high, but the cost per acre compares favorably with that of most other areas. Machine hire, and gas and oil costs per acre, go up as the size of farm decreases, but hired labor costs per acre decline with the decrease in acreage. Total costs per acre for the specified expenses are approximately the same for all economic classes of farms except Class VI (see table 63).

Table 63.—SPECIFIED FARM EXPENDITURES ON CASH-GRAIN FARMS IN SUBREGION 110, BY ECONOMIC CLASS OF FARM: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Average per farm:							
Machine hire.....dollars.....	369	451	393	280	171	188	132
Gas and oil.....do.....	1,199	2,039	906	549	398	285	169
Hired labor.....do.....	1,638	3,480	862	206	190	62	66
Commercial fertilizer.....do.....	953	1,878	545	311	221	87	72
Feed bought.....do.....	455	687	303	275	170	181	143
Total.....do.....	4,614	8,535	3,099	1,621	1,150	803	582
Average per crop acre:							
Machine hire, dollars.....	0.47	0.31	0.69	1.15	1.11	1.87	3.22
Gas and oil.....do.....	1.51	1.39	1.60	2.26	2.59	2.83	4.12
Hired labor.....do.....	2.07	2.38	1.52	.85	1.24	.62	1.61
Commercial fertilizer.....do.....	1.20	1.28	.96	1.28	1.43	.87	1.77
Total.....do.....	5.25	5.36	4.77	5.54	6.37	6.19	10.72

Gas and oil expenditures per acre increase with the decrease in size of farm. In other areas, gas and oil costs per acre do not vary with size of farm. Many of the operators of large farms have undoubtedly invested in tractors that burn low-cost fuel, thus reducing the fuel cost per acre. Machine hire costs per acre also are lower on the large farms than small farms. This is the opposite of this relationship for large and small farms in other areas. For example, in subregions 103 and 105, for Class I farms, expenditures per acre for hired labor were higher on large than on the small farms.

Commercial fertilizer is used more extensively here than in most other wheat subregions (see table 64). Its use was reported on more than 74 percent of the Class I farms in 1954. Of the important wheat-producing regions, only the Red River Valley approaches the white wheat region in percentage of farmers reporting the use of fertilizer.

Table 64.—USE OF COMMERCIAL FERTILIZER ON CASH-GRAIN FARMS IN SUBREGION 110, BY ECONOMIC CLASS OF FARM: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Percent of farms using fertilizer	64.0	74.0	61.0	59.0	54.0	45.0	28.0
Tons used per farm	8.3	15.9	4.9	3.5	2.3	1.3	1.1
Rate of application, pounds per acre	96	89	104	152	146	204	326

EFFICIENCY LEVELS OF FARM OPERATION

For the year 1954, the cash-grain farmers of the white wheat region ranked high among cash-grain farmers in all wheat subregions in levels of efficiency. Gross sales per worker of \$16,000 were very high and the investment per \$100 gross sales was low (see table 65). The number of crop acres per man and the investment in machinery per man-equivalent was very high. One man can operate many acres with the large machinery used in the subregion. In 1954, wheat yields were 20 percent above average. A high level of production accompanied by high prices accounts in part for the high gross returns per farm and per worker. For each measure of level of efficiency, there was a decline from Class I through Class VI farms.

Table 65.—SELECTED MEASURES OF INCOME AND EFFICIENCY LEVELS ON CASH-GRAIN FARMS IN SUBREGION 110, BY ECONOMIC CLASS OF FARM: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Gross sales per farm, dollars	26,088	50,558	16,994	7,071	3,742	1,862	858
Specified expenses per farm, dollars	4,613	8,537	3,098	1,620	1,150	803	581
Gross sales less specified expenses per farm, dollars	21,475	42,021	13,896	5,451	2,592	1,059	276
Gross sales per man-equivalent, dollars	16,105	21,408	12,518	6,702	3,941	2,512	1,210
Total investment per \$100 gross sales, dollars	517	460	605	774	1,037	1,531	2,327
Total investment per man-equivalent, dollars	84,163	96,881	73,074	40,260	38,372	39,374	26,603
Machinery investment per man-equivalent, dollars	11,263	10,988	11,943	11,367	10,280	11,026	8,899
Machinery investment per crop acre, dollars	23	18	29	49	63	82	154
Winter wheat yield per acre, bushels	33	34	31	29	25	28	17
Crop acres per man-equivalent	480	619	417	230	162	135	57

RECENT CHANGES BY MAJOR WHEAT REGIONS

Some comparisons between 1954 and 1949 for hard winter, hard spring, and white wheat regions are given in tables 66 to 68. These are not comparisons of an identical group of farms in the two periods as the data for each year are for those farms classified as cash-grain farms in that particular year. The same farms may not have been classified as cash-grain in both years.

From 1949 to 1954, the size of farm increased, the acres in pasture increased, but the acreage in wheat decreased. The magnitude of these changes varied between subregions and between major wheat regions. The most drastic reduction in wheat acreage occurred in subregion 89, where the 1954 acreage was only one-third that of 1949. In several subregions the decrease in wheat acreage was as much as 25 percent.

Table 66.—A COMPARISON OF SOME ITEMS FOR ORGANIZATION, EXPENSES, AND HOME FACILITIES FOR CASH-GRAIN FARMS IN THE HARD WINTER WHEAT REGION: 1954 AND 1949

Item	Subregion 93		Subregion 94		Subregion 103	
	1949	1954	1949	1954	1949	1954
Total farms	16,605	19,859	18,002	23,140	34,453	32,545
Acres per farm:						
All land	337	358	349	362	812	820
Cropland	250	258	263	264	593	607
Wheat	84	71	205	145	340	223
Land pastured	78	92	78	95	216	212
Livestock—number per farm:						
All cattle	15	26	18	26	27	36
Milk cows	3	3	3	3	3	2
Hogs	9	10	4	3	4	3
Chickens	90	113	77	90	61	60
Expenditures per farm (dollars):						
Machine hire	197	223	343	263	655	473
Hired labor	181	161	298	241	716	504
Gas and oil	454	575	493	525	813	913
Total	832	959	1,134	1,020	2,184	1,890
Facilities—percent of farms reporting:						
Telephone	65	73	71	81	50	64
Electricity	74	93	86	95	71	89
Home freezer	7	30	11	33	14	42

Table 67.—A COMPARISON OF SOME ITEMS FOR ORGANIZATION, EXPENSES, AND HOME FACILITIES FOR CASH-GRAIN FARMS IN THE HARD SPRING WHEAT REGION: 1954 AND 1949

Item	Subregion 89		Subregion 90		Subregion 91		Subregion 105	
	1949	1954	1949	1954	1949	1954	1949	1954
Total farms	13,033	13,280	25,214	24,389	7,054	8,687	12,626	15,071
Acres per farm:								
All land	414	435	652	696	526	569	1,147	1,304
Cropland	358	378	504	535	425	442	721	769
Wheat	110	80	212	159	150	111	329	281
Land pastured	34	33	117	125	81	105	406	512
Livestock—number per farm:								
All cattle	11	13	18	25	17	30	22	36
Milk cows	4	4	5	5	4	4	3	2
Hogs	4	6	3	5	9	14	2	4
Chickens	58	79	38	54	74	101	35	46
Expenditures per farm (dollars):								
Machine hire	190	198	192	168	251	244	219	386
Hired labor	580	490	423	322	416	293	574	579
Gas and oil	744	833	764	857	666	812	900	1,004
Total	1,514	1,521	1,379	1,347	1,333	1,349	1,693	1,969
Facilities—percent of farms reporting:								
Telephone	53	61	42	43	45	52	26	30
Electricity	81	91	68	90	68	89	67	85
Home freezer	17	39	12	39	10	35	19	52

Table 68.—A COMPARISON OF SOME ITEMS FOR ORGANIZATION, EXPENSES, AND HOME FACILITIES FOR CASH-GRAIN FARMS IN THE WHITE WHEAT REGION: 1954 AND 1949

Item	Subregion 110	
	1949	1954
Total farms.....	8,165	9,109
Acres per farm:		
All land.....	1,147	1,188
Cropland.....	835	793
Wheat.....	384	284
Land pastured.....	340	368
Livestock—number per farm:		
All cattle.....	22	28
Milk cows.....	2	1
Hogs.....	4	4
Chickens.....	39	39
Expenditures per farm (dollars):		
Machine hire.....	312	369
Hired labor.....	1,577	1,638
Gas and oil.....	991	1,199
Total.....	2,880	3,206
Home facilities—percent of farms reporting:		
Telephone.....	76	82
Electricity.....	92	96
Home freezer.....	37	64

The number of cattle increased in all subregions. This was related to the increase in acres pastured, but particularly it was the result of increased cattle production during the period of high cattle prices prior to 1952.

Comparable items of expense for the two Census years are machine hire, hired labor, and gasoline and oil. The total of these expenses per farm is nearly the same for the 2 Census years in several subregions, but there were changes in expenditures for individual items. Machine hire and hired labor decreased in those areas where the wheat acreage declined significantly. However, in subregion 110 both machine hire and hired labor expenses increased from 1949 to 1954.

The proportion of farms with telephones, electricity, and home freezers increased in all eight subregions. Many rural communities in the Great Plains did not have electricity until after World War II, and some electric lines were constructed after 1949. This explains much of the increase in homes having electricity and home freezers. The use of telephones increased slightly during the 5-year period. Undoubtedly the use of these modern conveniences increased as the conveniences became available to farmers and farm families. Moreover, a part of the increase resulted from the relatively good incomes received by farmers in some years.

SOFT RED WINTER WHEAT

In the soft winter wheat area, other enterprises are more important than wheat on most farms. Here, few farms are classified as wheat farms, but the total wheat production is second only to that of the hard winter wheat region. The total soft red winter wheat production in 1954 was approximately 200 million bushels, or one-fifth of the United States total.

The soft red winter wheat belt extends from Missouri to Pennsylvania. It includes most of the wheat-growing area in the eastern half of the United States. The heaviest wheat production in this wide reach of country occurs in the southern part of the Corn Belt, although wheat is grown in nearly all of the States.

The soft winter wheat region receives 35 to 50 inches of rainfall and most of this falls during the growing season. The prevailing high precipitation and humidity produce a soft kernel, relatively low in protein. The winters are seldom so severe as to kill the crop. High summer temperatures usually do not occur until the wheat has matured.

The soils vary greatly, but most of the wheat is grown on deep, fertile soils. The topography varies from level to rolling, with rather steep slopes. Wheat is grown in rather small acreages per farm, in rotation with other crops. The wheat machinery is usually smaller than that used on the Great Plains. The smaller sizes of machines are due more to the smaller acreages of wheat per farm than to limitations imposed by the rolling topography.

Approximately 80 percent of the total soft red winter wheat is produced in the Corn Belt States and Pennsylvania. Though a relatively minor crop, the production of wheat has persisted here for many decades. Farmers have found it profitable to include wheat in their diversified type of farming. The relationships of wheat to other enterprises and to the efficient use of resources are the chief reasons for its continued production in this area.

Cropping conditions vary. Wheat is commonly grown on farms that also produce corn, hay, pasture crops, and frequently some oats, barley, or soybeans. Wheat fits into a rotation with such crops.

Sometimes the wheat is seeded after soybeans have been harvested on the same land or after corn has been cut for ensilage. Wheat may follow oats or barley as these crops mature in ample time for the sowing of winter wheat afterwards. In some cases, wheat is seeded as a companion or nurse crop for grass and legume seedings as wheat brings in some income while the hay or pasture crop is becoming established. Where wheat follows row crops, only one or two light tillage operations are necessary in making the seedbed as the land has been tilled during the early summer.

Here, wheat contributes to a more efficient use of the farmer's resources. Power units, field machinery, and man-labor can be used for wheat at a time when the other demands for machinery and labor are relatively low. Preparing the seedbed and seeding of winter wheat come between the last corn cultivation and corn harvest. Wheat harvesting may conflict with hay harvesting and with the cultivation of corn and soybeans; but with modern machinery, a small acreage of wheat can be harvested in a very short time. Many farmers have combines for harvesting other small grains and soybeans or they custom-hire their combining so no additional machinery is required for wheat.

Wheat is a desirable crop to many farmers because it brings in some cash at a time when they have few other products to sell and at a time when operating expenses are high. The winter wheat may contribute to the livestock enterprise by furnishing some pasture in the fall and early spring. Some of the wheat is fed, especially to poultry. Wheat straw provides a common source of bedding for livestock.

It is doubtful that wheat is more profitable on an acre basis than other crops, especially corn. It is grown because of its complementary relationship to other enterprises and because of the relatively small increase in cash costs required for its production. The more extensive use of labor and equipment reduces the cost per unit of work. Through its contribution to other enterprises and the increased efficiency in the use of resources, wheat increases the net returns for the entire farm operation. Wheat will undoubtedly continue to be grown in this area more widely known for its corn, soybeans, and livestock feeding.

More than 300,000 farmers grow some wheat in the five major soft red winter wheat States (see table 69). The acreage per farm is small. More than one-fourth of the producers had less than 10 acres in wheat in 1954; and less than 1 percent had 100 acres or more. The fact that wheat is typically a small enterprise is even more clearly illustrated by the number of farmers reporting the quantity of wheat sold. Seventy-six percent of the producers sold less than 1,000 bushels while less than 1 percent sold 3,000 bushels or more.

Table 69.—WHEAT PRODUCTION IN SELECTED STATES IN THE SOFT RED WINTER WHEAT AREA: 1954

[Data are estimates based on reports for only a sample of farms]

Item	Total for selected States	Missouri	Illinois	Indiana	Ohio	Pennsylvania
Number of farms reporting	336,594	50,309	60,137	64,790	99,354	62,004
Acreage (1,000 acres)	6,342	1,156	1,532	1,289	1,704	661
Average acreage per farm:						
Production (1,000 bushels)	181,309	32,455	46,241	38,779	45,417	18,417
Yield per acre (bushels)	29	28	30	30	27	28
Value of crop (1,000 dollars)	370,519	66,532	96,182	78,334	93,558	35,913
Number of farms reporting by acres harvested:						
Under 10 acres	95,928	9,074	7,131	12,923	31,177	35,623
10-24 acres	163,241	26,917	30,337	35,278	48,501	22,208
25-49 acres	59,112	9,801	16,516	13,243	16,046	3,506
50-99 acres	15,803	3,695	5,324	2,974	3,217	593
100-199 acres	2,212	698	750	329	380	55
200 acres and over	298	124	79	43	33	19
Number of farms reporting bushels sold:						
Under 100 bushels	17,506	2,101	1,626	2,066	6,155	5,558
100-499 bushels	169,819	25,499	25,942	34,127	54,911	29,340
500-999 bushels	68,849	11,045	17,389	16,395	18,637	5,383
1,000-1,499 bushels	22,186	3,990	6,940	5,404	4,832	1,020
1,500-1,999 bushels	8,001	1,773	2,759	1,864	1,350	255
2,000-2,999 bushels	5,179	1,256	2,068	956	766	133
3,000-4,999 bushels	1,967	538	784	355	250	40
5,000-9,999 bushels	533	167	212	81	53	20
10,000 bushels and over	54	22	17	6	7	2

WHEAT PRODUCTION IN OTHER WESTERN REGIONS

The heaviest concentration of wheat production is found in those regions that have been described as the major wheat regions. Much of the remainder of the Great Plains and the Rocky Mountains area has been classed as the range livestock region where livestock provides the major source of income. However, scattered through this vast region are localities in which considerable wheat is grown. In these subregions there were 27,000 cash-grain farmers, in 1954, that produced more than 67 million bushels of wheat. Data regarding these subregions are given below for 1954.

Subregion	Number of cash-grain farms	Acres of wheat	Bushels produced
		1,000	1,000
101	7,257	1,117	15,628
104	3,332	673	9,056
106	6,902	1,217	21,012
109	3,969	385	8,816
112	5,757	637	13,291
Total	27,217	4,029	67,803

In addition to that produced by these wheat farmers, a large quantity of wheat is grown by ranchers who combine stock-ranching with wheat farming. Most of these have been classified as livestock farms because livestock is their most important source of sales.

Wheat is grown in these areas under a variety of production conditions. Much of it is grown in dry-land areas where summer-fallowing is necessary. Some is grown in high mountain valleys and some on irrigated farms, particularly in Idaho and California, in rotation with other crops. The average yield in 1954 was 17 bushels which compares favorably with the yields in the major wheat regions.

SOME PRODUCTION PROBLEMS OF WHEAT FARMERS

Some of the production problems which specialized wheat farmers are facing merit more specific consideration in a review of the wheat industry.

Wheat farms in the major regions are large in comparison with other types of farms. But many wheat growers still face the problem of acquiring control of sufficient resources to make a satisfactory living. Continuous improvement in labor-saving equipment enables each worker to take care of more acres of wheat-land from year to year; therefore, more and more acres of cropland per worker are required if modern machinery is to be used efficiently. There has been a gradual increase in size of wheat farms. This increase is indicated for typical counties in the wheat areas in table 70.

Table 70.—CHANGES IN SIZE OF FARMS IN COUNTIES WHICH ARE TYPICAL OF THE VARIOUS WHEAT REGIONS: 1910-1954

County, State, and subregion	Average size of farm (acres)						
	1910	1920	1930	1940	1945	1950	1954
Polk, Minn.—(subregion 89)	252	255	247	261	276	302	325
Ward, N. Dak.—(subregion 90)	326	387	434	454	547	604	650
Brown, S. Dak.—(subregion 91)	460	442	441	458	503	525	580
Clay, Nebr.—(subregion 93)	182	196	202	231	256	279	311
Saline, Kans.—(subregion 94)	229	234	249	248	251	305	374
Kit Carson, Colo.—(subregion 103)	321	500	594	866	1,148	1,175	1,267
Sheridan, Mont.—(subregion 105)	(1)	480	600	705	905	1,048	1,092
Lincoln, Wash.—(subregion 110)	566	715	906	1,038	1,225	1,335	1,447

¹ Not organized until 1913.

The wheat-pea farms of Washington and Idaho serve as an example of the growing problem of acquiring sufficient capital.³ Changes in size of farm, value of real estate, and working capital from 1935 to 1953 were as follows:

Item	1935	1940	1945	1950	1953
Acres per farm.....number	389	426	444	482	512
Value of real estate.....dollars	22,173	29,057	51,162	89,759	111,616
Working capital.....dollars	3,934	6,912	13,379	17,847	23,729
Total investment.....dollars	26,107	35,969	64,541	107,606	135,345

A part of the change in dollar investment was due to change in price level. Changes have been somewhat more rapid in this wheat-pea area than in some other wheat areas during the last 20 years, but somewhat similar increases can be noted in other regions.

High capital requirements represent a serious problem to many farmers. This is especially true of a beginning farmer. Even though he starts as a tenant, the large amount of working capital required to operate an efficient unit is difficult to acquire. If the young farmer starts with little capital on a relatively small farm his net income may not be enough to accumulate the capital needed for the essential operation of a more efficient unit. All of his income is likely to be needed to pay family living and operating expenses.

³ Hurd, Edgar B., "Wheat-Pea Farming in Washington and Idaho, 1935-53." Circular No. 954. U. S. D. A., Washington, D. C.

A related problem facing wheat and other farmers is in making the adjustments to the rapid changes in modern technology. Obtaining proper adjustment in mechanization and size of farms is often difficult. As farmers attempt to increase the size of their farm, land becomes difficult to acquire. Thus, many farmers continue to find themselves either operating their land with inefficient equipment or having the modern machinery but being unable to operate efficiently for a lack of sufficient land.

The continual increase in the average size of farms in the wheat areas does not appear to indicate an end to family farms or that the land is rapidly falling into corporate hands. It is an indication that, with modern equipment, the farm family finds it can operate a much larger acreage than was formerly possible. But the decrease in number of families on the land does have economic and social implications for individuals and the community and it means much larger investments in the farm business and fewer families to support local government, local schools, churches, roads, recreational facilities, and community activities. But more prosperous families, though fewer, may mean eventually a more satisfactory community situation than is formed among a larger number of families having very low incomes.

The seasonality of labor requirements is another problem of specialized wheat producers in that most of the work on wheat farms comes during a four to six months period. In many parts of the wheat regions where annual rainfall is 20 inches or less, the opportunities for diversification are limited. Wheat has a decided advantage over other crops and farm operators find their highest returns in specialized wheat production. This does not permit full use of family labor and equipment on a yearly basis. Seasonal labor requirements for a typical wheat farm are as follows:

Monthly Percentage Distribution of Labor Required for Wheat Production ¹

Region	January	February	March	April	May	June	July	August	September	October	November	December
Hard winter wheat—Oklahoma					4	15	21	24	24	12		
Spring wheat—North Dakota				15	9	2	2	33	26	10	3	
Soft winter wheat—Illinois	2	2	2	2			31	20	26	7	2	1
White wheat—Washington		2	11	6	6	6	28	15	14	13	5	

¹ Hecht, Reuben W.—Farm Labor Requirements in the United States. 1947—Special report by the Bureau of Agricultural Economics U. S. D. A.

TABLE 71.—ANNUAL PRECIPITATION (INCHES OF RAINFALL) AT REPRESENTATIVE WEATHER STATIONS IN THE GREAT PLAINS WHEAT AREA: 1931-52

Year	Woodward, Okla.	Colby, Kans.	Dalton, Nebr.	Aberdeen, S. Dak.	Dickinson, N. Dak.	Bank, Mont.	Moro, Oreg.
1931	30	16	13	19	16	9	12
1932	29	15	13	20	17	14	11
1933	17	18	18	13	12	9	11
1934	24	9	12	15	8	12	10
1935	21	13	20	24	15	5	7
1936	18	12	11	14	7	12	10
1937	20	15	13	25	16	11	15
1938	30	18	22	17	17	14	11
1939	20	15	10	22	16	8	8
1940	23	16	10	16	17	13	15
1941	46	31	22	21	31	11	13
1942	26	21	25	28	20	13	16
1943	21	14	14	22	15	10	13
1944	33	29	19	28	20	8	8
1945	22	20	23	19	12	12	13
1946	27	28	15	22	14	14	8
1947	24	17	20	21	17	13	14
1948	26	20	13	15	16	16	16
1949	28	27	19	20	11	10	7
1950	31	16	15	18	15	9	16
1951	24	23	22	19	17	17	14
1952	15	14	17	14	12	8	10
Average	25	18	17	20	16	11	12

Source: Climatic Summary of United States—United States Weather Bureau.

Wheat production in the Great Plains area is often regarded as a high risk enterprise. The variability in climatic conditions together with insects and diseases results in considerable variation from year to year in wheat production and farm income.

The climatic hazards facing the farmer in this region are illustrated by the variation in annual rainfall (see table 71). The year-to-year variations may exceed 100 percent. Much of the Great Plains is also a high hail risk area. The hazards of crop failure are particularly serious to the farmer who is in debt and has no financial reserves. Added to this crop uncertainty is the high cash cost of operation.

In contrast to conditions of a few decades ago, farmers now have much higher costs for machinery upkeep; he buys all the fuel he needs for power; he spends much more for insect, disease, and weed control; he faces much higher cash living costs and in some areas, spends more for commercial fertilizer. The following data from the Agricultural Research Service studies ⁴ indicates the increase in total cash farm expenditures per farm:

Type of farm	1937-41	1947-49	1954
Wheat, corn, livestock farms, Northern Great Plains	\$1, 431	\$4, 336	\$4, 457
Wheat, small grain, livestock farms, Northern Great Plains	1, 614	5, 104	5, 129
Wheat, roughage, livestock farms, Northern Great Plains	1, 306	4, 363	4, 829
Winter wheat farms, Oklahoma and Kansas	1, 839	4, 493	4, 905
Wheat-pea farms, Washington and Idaho	3, 484	7, 117	9, 159

The lack of alternatives is a major problem to many wheat farmers. In many areas they cannot easily shift to other crops or increase livestock whenever conditions seem unfavorable for wheat. Many wheat producers in the Great Plains, however, do combine wheat and livestock production. Through much of this wheat region there is land that is not suitable for cultivation. It can be utilized only by grazing. Consequently, the farmers may keep sufficient livestock to make use of the feed available. This type of farm organization helps to improve the efficiency in use of labor and equipment.

Many have suggested putting much of the Great Plains wheatland back into grass and using it for livestock production. But farmers who are willing to seed the land back to grass and go into livestock production have important questions to consider. The high investment required for putting land into grass is a deterrent. Establishing grass in the low rainfall areas is difficult, especially since farmers are likely to consider shifts to grass only when conditions are dry and wheat yields are low. Such conditions are not favorable for establishing grass and obtaining a living from livestock. Often the grass seedlings fail entirely; or, when the establishment of grass is partially successful, several years are required to produce sufficient feed for livestock production. Under such conditions, the waiting for income from livestock production and the risks involved give rise to important problems to many farmers.

These are some of the production problems wheat farmers face. The fact that in its original state land in the Great Plains was better suited to grazing than to farming does not necessarily provide the answer to the farmer who has such land which has been broken out in a period when wheat was very profitable. And the fact that a man could operate a farm and get ahead financially in the past even though he had little capital to work with, offers little promise to the farmer who is producing wheat in this age of highly mechanized farming.

⁴ Farm Costs and Returns on Commercially Operated Farms—Agriculture Information Bulletin 158. ARS—U. S. D. A.—1956.

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Agricultural Research Service
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Sinclair Weeks, *Secretary*

Bureau of the Census
Robert W. Burgess, *Director*

United States Census of Agriculture: 1954

Volume III SPECIAL REPORTS

Part 9

Farmers and Farm Production in the United States (A Cooperative Report)

Chapter II

Cotton Producers and Cotton Production

CHARACTERISTICS OF FARMERS and FARM PRODUCTION •
PRINCIPAL TYPES OF FARMS •



BUREAU OF THE CENSUS
ROBERT W. BURGESS, *Director*

AGRICULTURE DIVISION
RAY HURLEY, *Chief*
WARDER B. JENKINS, *Assistant Chief*



AGRICULTURAL RESEARCH SERVICE
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SHERMAN E. JOHNSON, *Director*

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CARL P. HEISIG, *Chief*

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PREFACE

The purpose of this report is to present an analysis of the characteristics of farmers and farm production for the most important types of farms as shown by data for the 1954 Census of Agriculture. The analysis deals with the relative importance, pattern of resource use, some measures of efficiency, and problems of adjustment and change for the principal types of farms.

The data given in the various chapters of this report have been derived largely from the special tabulation of data for each type of farm, by economic class, for the 1954 Census of Agriculture. The detailed statistics for each type of farm for the United States and the principal subregions appear in Part 8 of Volume III of the reports for the 1954 Census of Agriculture.

This cooperative report was prepared under the direction of Ray Hurley, Chief of the Agriculture Division of the Bureau of the Census, U. S. Department of Commerce, and Kenneth L. Bachman, Head, Production, Income, and Costs Section, Production Economics Research Branch, Agricultural Research Service of the U. S. Department of Agriculture.

Jackson V. McElveen, Agricultural Economist, Production, Income, and Costs Section, Production Economics Research Branch, Agricultural Research Service of the U. S. Department of Agriculture, supervised a large part of the detailed planning and analysis for the various chapters.

The list of chapters and the persons preparing each chapter are as follows:

Chapter I.....	Wheat Producers and Wheat Production A. W. Epp, University of Nebraska.	Chapter VI....	Western Stock Ranches and Livestock Farms Mont H. Saunderson, Western Ranching and Lands Consultant, Bozeman, Mont.
Chapter II.....	Cotton Producers and Cotton Production Robert B. Glasgow, Production Economics Research Branch, Agricultural Research Service, United States Department of Agriculture.	Chapter VII....	Cash-grain and Livestock Producers in the Corn Belt Edwin G. Strand, Production Economics Research Branch, Agricultural Research Service, United States Department of Agriculture.
Chapter III....	Tobacco and Peanut Producers and Production R. E. L. Greene, University of Florida.	Chapter VIII..	Part-time Farming H. G. Halcrow, University of Connecticut.
Chapter IV....	Poultry Producers and Poultry Production William P. Mortenson, University of Wisconsin.	Chapter IX....	Agricultural Producers and Production in the United States— A General View Jackson V. McElveen, Production Economics Research Branch, Agricultural Research Service, United States Department of Agriculture.
Chapter V.....	Dairy Producers and Dairy Production P. E. McNall, University of Wisconsin.		

The editorial work for this report was performed by Caroline B. Sherman, and the preparation of the statistical tables was supervised by Margaret Wood.

December 1956

UNITED STATES CENSUS OF AGRICULTURE: 1954

REPORTS

Volume I.—Counties and State Economic Areas. Statistics for counties include number of farms, acreage, value, and farm operators; farms by color and tenure of operator; facilities and equipment; use of commercial fertilizer; farm labor; farm expenditures; livestock and livestock products; specified crops harvested; farms classified by type of farm and by economic class; and value of products sold by source.

Data for State economic areas include farms and farm characteristics by tenure of operator, by type of farm, and by economic class. Volume I is published in 33 parts.

Volume II.—General Report. Statistics by Subjects, United States Census of Agriculture, 1954. Summary data and analyses of the data for States, for Geographic Divisions, and for the United States by subjects.

Volume III.—Special Reports

Part 1.—Multiple-Unit Operations. This report will be similar to Part 2 of Volume V of the reports for the 1950 Census of Agriculture. It will present statistics for approximately 900 counties and State economic areas in 12 Southern States and Missouri for the number and characteristics of multiple-unit operations and farms in multiple units.

Part 2.—Ranking Agricultural Counties. This special report will present statistics for selected items of inventory and agricultural production for the leading counties in the United States.

Part 3.—Alaska, Hawaii, Puerto Rico, District of Columbia, and U. S. Possessions. These areas were not included in the 1954 Census of Agriculture. The available current data from various Government sources will be compiled and published in this report.

Part 4.—Agriculture, 1954, a Graphic Summary. This report will present graphically some of the significant facts regarding agriculture and agricultural production as revealed by the 1954 Census of Agriculture.

Part 5.—Farm-Mortgage Debt. This will be a cooperative study by the Agricultural Research Service of the U. S. Department of Agriculture and the Bureau of the Census. It will present, by States, data based on the 1954 Census of Agriculture and a special mail survey conducted in January 1956, on the number of mortgaged farms, the amount of mortgage debt, and the amount of debt held by principal lending agencies.

Part 6.—Irrigation in Humid Areas. This cooperative report by the Agricultural Research Service of the U. S. Department of Agriculture and the Bureau of the Census will present data obtained by a mail survey of operators of irrigated farms in 28 States on the source of water, method of applying water, number of pumps used, acres of crops irrigated in 1954 and 1955, the number of times each crop was irrigated, and the cost of irrigation equipment and the irrigation system.

Part 7.—Popular Report of the 1954 Census of Agriculture. This report is planned to be a general, easy-to-read publication for the general public on the status and broad characteristics of United States agriculture. It will seek to delineate such aspects of agriculture as the geographic distribution and differences by size of farm for such items as farm acreage, principal crops, and important kinds of livestock, farm facilities, farm equipment, use of fertilizer, soil conservation practices, farm tenure, and farm income.

Part 8.—Size of Operation by Type of Farm. This will be a cooperative special report to be prepared in cooperation with the Agricultural Research Service of the U. S. Department of Agriculture. This report will contain data for 119 economic sub-

regions (essentially general type-of-farming areas) showing the general characteristics for each type of farm by economic class. It will provide data for a current analysis of the differences that exist among groups of farms of the same type. It will furnish statistical basis for a realistic examination of production of such commodities as wheat, cotton, and dairy products in connection with actual or proposed governmental policies and programs.

Part 9.—Farmers and Farm Production in the United States. The purpose of this report is to present an analysis of the characteristics of farmers and farm production for the most important types of farms as shown by data for the 1954 Census of Agriculture. The analysis deals with the relative importance, pattern of resource use, some measures of efficiency, and problems of adjustment and change for the principal types of farms. The report was prepared in cooperation with the Agricultural Research Service of the U. S. Department of Agriculture.

The list of chapters (published separately only) and title for each chapter are as follows:

Chapter I—*Wheat Producers and Wheat Production*

II—*Cotton Producers and Cotton Production*

III—*Tobacco and Peanut Producers and Production*

IV—*Poultry Producers and Poultry Production*

V—*Dairy Producers and Dairy Production*

VI—*Western Stock Ranches and Livestock Farms*

VII—*Cash-Grain and Livestock Producers in the Corn Belt*

VIII—*Part-Time Farming*

IX—*Agricultural Producers and Production in the United States—A General View*

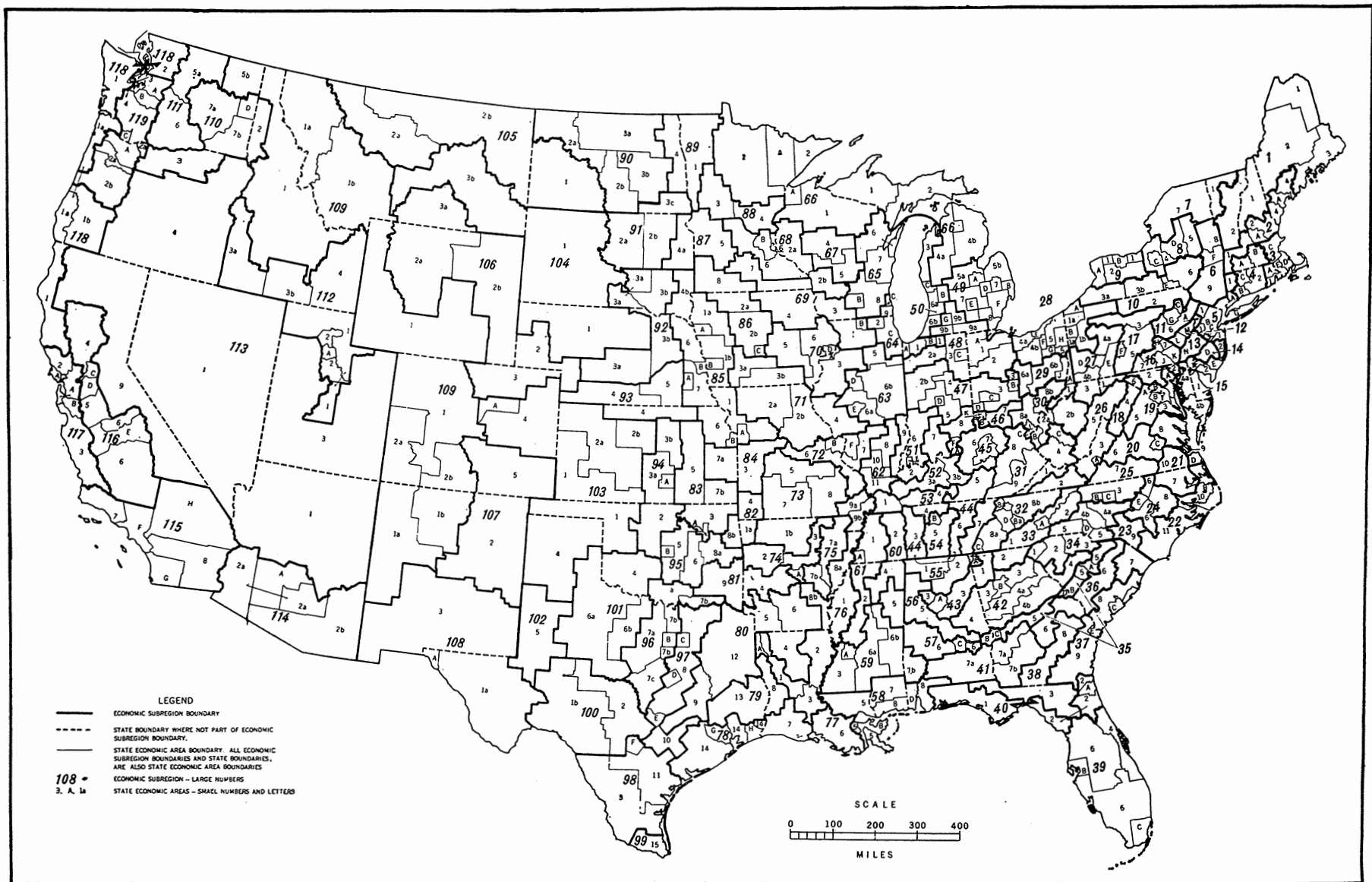
Part 10.—Use of Fertilizer and Lime. The purpose of this report is to present in one publication most of the detailed data compiled for the 1954 Census of Agriculture regarding the use of fertilizer and lime. The report presents data for counties, State economic areas, and generalized type-of-farming areas regarding the quantity used, acreage on which used, and expenditures for fertilizer and lime. The Agricultural Research Service cooperated with the Bureau of the Census in the preparation of this report.

Part 11.—Farmers' Expenditures. This report presents detailed data on expenditures for a large number of items used for farm production in 1955, and on the living expenditures of farm operators' families. The data were collected and compiled cooperatively by the Agricultural Marketing Service of the U. S. Department of Agriculture and the Bureau of the Census.

Part 12.—Methods and Procedures. This report contains an outline and a description of the methods and procedures used in taking and compiling the 1954 Census of Agriculture.

INTRODUCTION

ECONOMIC SUBREGIONS AND STATE ECONOMIC AREAS



INTRODUCTION

Purpose and scope.—American agriculture is exceedingly diverse and is undergoing revolutionary changes. Farmers and their families obtain their income by producing a large variety of products under a large variety of conditions as well as from sources other than farming. The organization of production, type of farming, productivity, income, expenditures, size, and characteristics of operators of the 4.8 million farms in the United States vary greatly. Agriculture has been a dynamic, moving, adjusting part of our economy. Basic changes in farming have been occurring and will continue to be necessary. Adjustments brought by technological change, by changing consumer wants, by growth of population, and by changes in the income of nonfarm people, have been significant forces in changing agriculture since World War II. The transition from war to an approximate peacetime situation has also made it necessary to reduce the output of some farm products. Some of the adjustments in agriculture have not presented relatively difficult problems as they could be made by the transfer of resources from the production of one product to another. Others require substantial shifts in resources and production.

Moreover, a considerable number of farm families, many of whom are employed full time in agriculture, have relatively low incomes. Most of these families operate farms that are small when compared with farms that produce higher incomes. The acreage of land and the amount of capital controlled by the operators of these small farms are too small to provide a very high level of income. In recent years, many farm families on these small farms have made adjustments by leaving the farm to earn their incomes elsewhere, by discontinuing their farm operations, and by earning more non-farm income while remaining on the farm or on the place they farmed formerly.

One objective of this report is to describe and analyze some of the existing differences and recent adjustments in the major types of farming and farm production. For important commodities and groups of farms, the report aims to make available, largely from the detailed data for the 1954 Census of Agriculture but in a more concise form, facts regarding the size of farms, capital, labor, and land resources on farms, amounts and sources of farm income and expenditures, combinations of crop and livestock enterprises, adjustment problems, operator characteristics, and variation in use of resources and in size of farms by areas and for widely differing production conditions. Those types of farms on which production of surplus products is important have been emphasized. The report will provide a factual basis for a better understanding of the widespread differences among farms in regard to size, resources, and income. It will also provide a basis for evaluating the effects of existing and proposed farm programs on the production and incomes of major types and classes of farms.

Income from nonfarm sources is important on a large number of farms. About 1.4 million of the 4.8 million farm-operator families, or about 3 in 10, obtain more income from off-farm sources than from the sale of agricultural products. More than three-fourths of a million farm operators live on small-scale part-time farms and ordinarily are not dependent on farming as the main source of family income. These part-time farmers have a quite different relation to adjustments, changes, and farm problems than do commercial farmers. A description of and facts regarding these part-time farms and the importance of nonfarm income for commercial farms are presented in Chapter 8.

Except for Chapter 8, this report deals with commercial farms (see economic class of farm). The analysis is limited to the major types of agricultural production and deals primarily with geographic areas in which each of the major types of agricultural production has substantial significance.

Source of data.—Most of the data presented in this report are from special compilations made for the 1954 Census of Agriculture, although pertinent data from research findings and surveys of the U. S. Department of Agriculture, State Agricultural Colleges, and other agencies have been used to supplement Census data. The detailed Census data used for this report are contained in Part 8 of Volume III of the reports of the 1954 Census of Agriculture. Reference should be made to that report for detailed explanations and definitions and statements regarding the characteristics and reliability of the data.

Areas for which data are presented.—Data are presented in this report primarily for selected economic subregions and for the United States. The boundaries of the 119 subregions used for the compilation of data on which this report is based are indicated by the map on page vi. These subregions represent primarily general type-of-farming areas. Many of them extend into two or more States. (For a more detailed description of economic subregions, see the publication "Economic Subregions of the United States, Series Census BAE; No. 19, published cooperatively by the Bureau of the Census, and the Bureau of Agricultural Economics, U. S. Department of Agriculture, July 1953.)

DEFINITIONS AND EXPLANATIONS

Definitions and explanations are given only for some of the more important items. For more detailed definitions and explanations, reference can be made to Part 8 of Volume III and to Volume II of the reports of the 1954 Census of Agriculture.

A farm.—For the 1954 Census of Agriculture, places of 3 or more acres were counted as farms if the annual value of agricultural products, exclusive of home-garden products, amounted to \$150 or more. The agricultural products could have been either for home use or for sale. Places of less than 3 acres were counted as farms only if the annual value of sales of agricultural products amounted to \$150 or more. Places for which the value of agricultural products for 1954 was less than these minima because of crop failure or other unusual conditions, and places operated at the time of the Census for the first time were counted as farms if normally they could be expected to produce these minimum quantities of agricultural products.

All the land under the control of one person or partnership was included as one farm. Control may have been through ownership, or through lease, rental, or cropping arrangement.

Farm operator.—A "farm operator" is a person who operates a farm, either performing the labor himself or directly supervising it. He may be an owner, a hired manager, or a tenant, renter, or sharecropper. If he rents land to others or has land cropped for him by others, he is listed as the operator of only that land which he retains. In the case of a partnership, only one partner was included as the operator. The number of farm operators is considered the same as the number of farms.

FARMERS AND FARM PRODUCTION

Farms reporting or operators reporting.—Figures for farms reporting or operators reporting, based on a tabulation of all farms, represent the number of farms, or farm operators, for which the specified item was reported. For example, if there were 11,922 farms in a subregion and only 11,465 had chickens over 4 months old on hand, the number of farms reporting chickens would be 11,465. The difference between the total number of farms and the number of farms reporting an item represents the number of farms not having that item, provided the inquiry was answered completely for all farms.

Farms by type.—The classification of commercial farms by type was made on the basis of the relationship of the value of sales from a particular source, or sources, to the total value of all farm products sold from the farm. In some cases, the type of farm was determined on the basis of the sale of an individual farm product, such as cotton, or on the basis of the sales of closely related products, such as dairy products. In other cases, the type of farm was determined on the basis of sales of a broader group of products, such as grain crops including corn, sorghums, all small grains, field peas, field beans, cowpeas, and soybeans. In order to be classified as a particular type, sales or anticipated sales of a product or group of products had to represent 50 percent or more of the total value of products sold.

The types of commercial farms for which data are shown, together with the product or group of products on which the classification is based are:

Type of farm	Product or group of products amounting to 50 percent or more of the value of all farm products sold
Cash-grain-----	Corn, sorghum, small grains, field peas, field beans, cowpeas, and soybeans.
Cotton-----	Cotton (lint and seed).
Other field-crop-----	Peanuts, Irish potatoes, sweet-potatoes, tobacco, sugarcane, sugar beets for sugar, and other miscellaneous crops.
Vegetable-----	Vegetables.
Fruit-and-nut-----	Berries and other small fruits, and tree fruits, nuts, and grapes.
Dairy-----	Milk and other dairy products. The criterion of 50 percent of the total sales was modified in the case of dairy farms. A farm for which the value of sales of dairy products represented less than 50 percent of the total value of farm products sold was classified as a dairy farm if— (a) Milk and other dairy products accounted for 30 percent or more of the total value of products sold, and (b) Milk cows represented 50 percent or more of all cows, and (c) Sales of dairy products, together with the sales of cattle and calves, amounted to 50 percent or more of the total value of farm products sold.
Poultry-----	Chickens, eggs, turkeys, and other poultry products.
Livestock farms other than dairy and poultry.	Cattle, calves, hogs, sheep, goats, wool, and mohair, provided the farm did not qualify as a dairy farm.

Type of farm

General----- Farms were classified as general when the value of products from one source or group of sources did not represent as much as 50 percent of the total value of all farm products sold. Separate figures are given for three kinds of general farms:
(a) Primarily crop.
(b) Primarily livestock.
(c) Crop and livestock.

Primarily crop farms are those for which the sale of one of the following crops or groups of crops—vegetables, fruits and nuts, cotton, cash grains, or other field crops—did not amount to 50 percent or more of the value of all farm products sold, but for which the value of sales for all these groups of crops represented 70 percent or more of the value of all farm products sold.

Primarily livestock farms are those which could not qualify as dairy farms, poultry farms, or livestock farms other than dairy and poultry, but on which the sale of livestock and poultry and livestock and poultry products amounted to 70 percent or more of the value of all farm products sold.

General crop and livestock farms are those which could not be classified as either crop farms or livestock farms, but on which the sale of all crops amounted to at least 30 percent but less than 70 percent of the total value of all farm products sold.

Miscellaneous----- This group of farms includes those that had 50 percent or more of the total value of products accounted for by sale of horticultural products, or sale of horses, or sale of forest products.

Farms by economic class.—A classification of farms by economic class was made for the purpose of segregating groups of farms that are somewhat alike in their characteristics and size of operation. This classification was made in order to present an accurate description of the farms in each class and in order to provide basic data for an analysis of the organization of agriculture.

The classification of farms by economic class was made on the basis of three factors; namely, total value of all farm products sold, number of days the farm operator worked off the farm, and the relationship of the income received from nonfarm sources by the operator and members of his family to the value of all farm products sold. Farms operated by institutions, experiment stations, grazing associations, and community projects were classified as abnormal, regardless of any of the three factors.

For the purpose of determining the code for economic class and type of farm, it was necessary to obtain the total value of farm products sold as well as the value of some individual products sold.

The total value of farm products sold was obtained by adding the reported or estimated values for all products sold from the farm. The value of livestock, livestock products except wool and mohair, vegetables, nursery and greenhouse products, and forest

products was obtained by the enumerator from the farm operator for each farm. The enumerator also obtained from the farm operator the quantity sold for corn, sorghums, small grains, hays, and small fruits. The value of sales for these crops was obtained by multiplying the quantity sold by State average prices.

The quantity sold was estimated for all other farm products. The entire quantity produced for wool, mohair, cotton, tobacco, sugar beets for sugar, sugarcane for sugar, broomcorn, hops, and mint for oil was estimated as sold. To obtain the value of each product sold, the quantity sold was multiplied by State average prices.

In making the classification of farms by economic class, farms were grouped into two major groups, namely, commercial farms and other farms. In general, all farms with a value of sales of farm products amounting to \$1,200 or more were classified as commercial. Farms with a value of sales of \$250 to \$1,199 were classified as commercial only if the farm operator worked off the farm less than 100 days or if the income of the farm operator and members of his family received from nonfarm sources was less than the total value of all farm products sold.

Land in farms according to use.—Land in farms was classified according to the use made of it in 1954. The classes of land are mutually exclusive, i. e., each acre of land was included only once even though it may have had more than one use during the year.

The classes referred to in this report are as follows:

Cropland harvested.—This includes land from which crops were harvested; land from which hay (including wild hay) was cut; and land in small fruits, orchards, vineyards, nurseries, and greenhouses. Land from which two or more crops were reported as harvested was to be counted only once.

Cropland used only for pasture.—In the 1954 Census, the enumerator's instructions stated that rotation pasture and all other cropland that was used only for pasture were to be included under this class. No further definition of cropland pastured was given the farm operator or enumerator. Permanent open pasture may, therefore, have been included under this item or under "other pasture," depending on whether the enumerator or farm operator considered it as cropland.

Cropland not harvested and not pastured.—This item includes idle cropland, land in soil-improvement crops only, land on which all crops failed, land seeded to crops for harvest after 1954, and cultivated summer fallow.

In the Western States, this class was subdivided to show separately the acres of cultivated summer fallow. In these States, the acreage not in cultivated summer fallow represents largely crop failure. There are very few counties in the Western States in which there is a large acreage of idle cropland or in which the growing of soil-improvement crops is an important use of the land.

In the States other than the Western States, this general class was subdivided to show separately the acres of idle cropland (not used for crops or for pasture in 1954). In these States, the incidence of crop failure is usually low. It was expected that the acreage figure that excluded idle land would reflect the acreage in soil-improvement crops. However, the 1954 crop year was one of low rainfall in many Eastern and Southern States and, therefore, in these areas the acreage of cropland not harvested and not pastured includes more land on which all crops failed than would usually be the case.

Cultivated summer fallow.—This item includes cropland that was plowed and cultivated but left unseeded for several months to control weeds and conserve moisture. No land from which crops were harvested in 1954 was to be included under this item.

Cropland, total.—This includes cropland harvested, cropland used only for pasture, and cropland not harvested and not pastured.

Land pastured, total.—This includes cropland used only for pasture, woodland pastured, and other pasture (not cropland and not woodland).

Woodland, total.—This includes woodland pastured and woodland not pastured.

Value of land and buildings.—The value to be reported was the approximate amount for which the land and the buildings on it would sell.

Off-farm work and other income.—Many farm operators receive a part of their income from sources other than the sale of farm products from their farms. The 1954 Agriculture Questionnaire included several inquiries relating to work off the farm and non-farm income. These inquiries called for the number of days worked off the farm by the farm operator; whether other members of the operator's family worked off the farm; and whether the farm operator received income from other sources, such as sale of products from land rented out, cash rent, boarders, old age assistance, pensions, veterans' allowances, unemployment compensation, interest, dividends, profits from nonfarm business, and help from other members of the operator's family. Another inquiry asked whether the income of the operator and his family from off-farm work and other sources was greater than the total value of all agricultural products sold from the farm in 1954. Off-farm work was to include work at nonfarm jobs, businesses, or professions, whether performed on the farm premises or elsewhere; also, work on someone else's farm for pay or wages. Exchange work was not to be included.

Specified facilities and equipment.—Inquiries were made in 1954 to determine the presence or absence of selected items on each place such as (1) telephone, (2) piped running water, (3) electricity, (4) television set, (5) home freezer, (6) electric pig brooder, (7) milking machine, and (8) power feed grinder. Such facilities or equipment were to be counted even though temporarily out of order. Piped running water was defined as water piped from a pressure system or by gravity flow from a natural or artificial source. The enumerator's instructions stated that pig brooders were to include those heated by an electric heating element, by an infrared or heat bulb, or by ordinary electric bulbs. They could be homemade.

The number of selected types of other farm equipment was also obtained for a sample of farms. The selected kinds of farm equipment to be reported were (1) grain combines (for harvesting and threshing grains or seeds in one operation); (2) cornpickers; (3) pickup balers (stationary ones not to be reported); (4) field forage harvesters (for field chopping of silage and forage crops); (5) motortrucks; (6) wheel tractors (other than garden); (7) garden tractors; (8) crawler tractors (tracklaying, caterpillar); (9) automobiles; and (10) artificial ponds, reservoirs, and earth tanks.

Wheel tractors were to include homemade tractors but were not to include implements having built-in power units such as self-propelled combines, powered buck rakes, etc. Pickup and truck-trailer combinations were to be reported as motortrucks. School buses were not to be reported, and jeeps and station wagons were to be included as motortrucks or automobiles, depending on whether used for hauling farm products or supplies, or as passenger vehicles.

Farm labor.—The farm-labor inquiries for 1954, called for the number of persons doing farmwork or chores on the place during a specified calendar week. Since starting dates of the 1954 enumeration varied by areas or States, the calendar week to which the farm-labor inquiries related varied also. The calendar week was September 26–October 2 or October 24–30. States with the September 26–October 2 calendar week were: Arizona, California, Colorado, Connecticut, Florida, Idaho, Kansas, Kentucky, Louisiana, Maine, Massachusetts, Michigan, Minnesota, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico,

FARMERS AND FARM PRODUCTION

New York, North Dakota, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Dakota, Tennessee, Texas, Utah, Vermont, Washington, Wisconsin, and Wyoming. States with the October 24-30 calendar week were: Alabama, Arkansas, Delaware, Georgia, Illinois, Indiana, Iowa, Maryland, Mississippi, Missouri, North Carolina, Ohio, South Carolina, Virginia, and West Virginia. Farmwork was to include any work, chores, or planning necessary to the operation of the farm or ranch business. Housework, contract construction work, and labor involved when equipment was hired (custom work) were not to be included.

The farm-labor information was obtained in three parts: (1) Operators working, (2) unpaid members of the operator's family working, and (3) hired persons working. Operators were considered as working if they worked 1 or more hours; unpaid members of the operator's family, if they worked 15 or more hours; and hired persons, if they worked any time during the calendar week specified. Instructions contained no specifications regarding age of the persons working.

Regular and seasonal workers.—Hired persons working on the farm during the specified week were classed as "regular" workers if the period of actual or expected employment was 150 days or more during the year, and as "seasonal" workers if the period of actual or expected employment was less than 150 days. If the period of expected employment was not reported, the period of employment was estimated for the individual farm after taking into account such items as the basis of payment, wage rate, expenditures for labor in 1954, and the type and other characteristics of the farm.

Specified farm expenditures.—The 1954 Census obtained data for selected farm expense items in addition to those for fertilizer and lime. The expenditures were to include the total specified expenditures for the place whether made by landlord, tenant, or both.

Expenditures for machine hire were to include any labor included in the cost of such machine hire. Machine hire refers to custom machine work such as tractor hire, threshing, combining, silo filling, baling, ginning, plowing, and spraying. If part of the farm products was given as pay for machine hire, the value of the products traded for this service was to be included in the amount of expenditures reported. The cost of trucking, freight, and express was not to be included.

Expenditures for hired labor were to include only cash payments. Expenditures for housework, custom work, and contract construction work were not to be included.

Expenditures for feed were to include the expenditures for pasture, salt, condiments, concentrates, and mineral supplements, as well as those for grain, hay, and mill feeds. Expenditures for grinding and mixing feeds were also to be included. Payments made by a tenant to his landlord for feed grown on the land rented by the tenant were not to be included.

Expenditures for gasoline and other petroleum fuel and oil were to include only those used for the farm business. Petroleum products used for the farmer's automobile for pleasure or used exclusively in the farm home for heating, cooking, and lighting were not to be included.

Crops harvested.—The information on crops harvested refers to the acreage and quantity harvested for the 1954 crop year. An exception was made for land in fruit orchards and planted nut trees. In this case, the acreage represents that in both bearing and nonbearing trees and vines as of October and November 1954.

Hay.—The data for hay includes all kinds of hay except soybean, cowpea, sorghum, and peanut hay.

Livestock and poultry.—The data on the number of livestock and poultry represent the number on hand on the day of enumera-

tion (October-November 1954). The data relating to livestock products and the number of livestock sold relate to the sales made during the calendar year 1954.

LABOR RESOURCES

The data for labor resources available represent estimates based largely on Census data and developed for the purpose of making comparisons among farms of various size of operations. The labor resources available are stated in terms of man-equivalents.

To obtain the man-equivalents the total number of farm operators as reported by the 1954 Census were adjusted for estimated man-years of work off the farm and for the number of farm operators 65 years old and over. The farm operator was taken to represent a full man-equivalent of labor unless he was 65 years or older or unless he worked at an off-farm job in 1954.

The man-equivalent estimated for farm operators reporting specified amounts of off-farm work were as follows:

<i>Days worked off the farm in 1954</i>	<i>Estimated man-equivalent</i>
1-99 days.....	0.85
100-199 days.....	.50
200 days and over.....	.15

The man-equivalent for farm operators 65 years of age and older was estimated at 0.5.

Man-equivalents of members of the farm operator's family were based upon Census data obtained in response to the question "How many members of your family did 15 or more hours of farm work on this place the week of September 26-October 2 (or, in some areas, the week of October 24-30) without receiving cash wages?" Each family worker was considered as 0.5 man-equivalent. This estimate provides allowance for the somewhat higher incidence of women, children, and elderly persons in the unpaid family labor force.

In addition, the number of unpaid family workers who were reported as working 15 or more hours in the week of September 26-October 2 was adjusted to take account of seasonal changes in farm employment. Using published and unpublished findings of the U. S. Department of Agriculture and State Agricultural Colleges, and depending largely upon knowledge and experience with the geographic areas and type of farming, each author determined the adjustment factor needed to correct the number of family workers reported for the week of September 26-October 2 to an annual average basis.

Man-equivalents of hired workers are based entirely upon the expenditure for cash wages and the average wage of permanent hired laborers as reported in the 1954 Census of Agriculture.

Value of or investment in livestock.—Numbers of specified livestock and poultry in each subregion were multiplied by a weighted average value per head. The average values were computed from data compiled for each kind of livestock for the 1954 Census of Agriculture. The total value does not include the value of goats. (For a description of the method of obtaining the value of livestock, see Chapter VI of Volume II of the reports for the 1954 Census of Agriculture.)

Value of investment in machinery and equipment.—The data on value of investment in machinery and equipment were developed for the purpose of making broad comparisons among types and economic classes of farms and by subregions. Numbers of specified machines on farms, as reported by the Census, were multiplied by estimated average value per machine. Then the total values obtained were adjusted upward to provide for the inclusion of items of equipment not included in the Census inventory of farm machinery.

The estimates for average value of specified machines and the proportion of total value of all machinery represented by the value of these machines were based largely on published and unpublished data from the "Farm Costs and Returns" surveys conducted currently by the Agricultural Research Service, U. S. Department of Agriculture.¹ Modifications were made as needed in the individual chapters on the basis of State and local studies. The total estimated value of all machinery for all types and economic classes of farms is approximately equal to the value of all machinery as estimated by the U. S. Department of Agriculture.

Value of farm products sold, or gross sales.—Data on the value of the various farm products sold were obtained for 1954 by two methods. First, the values of livestock and livestock products sold, except wool and mohair; vegetables harvested for sale; nursery and greenhouse products; and forest products were obtained by asking each farm operator the value of sales. Second, the values of all other farm products sold were computed. For the most important crops, the quantity sold or to be sold was obtained for each farm. The entire quantity harvested for cotton and cottonseed, tobacco, sugar beets for sugar, hops, mint for oil, and sugarcane for sugar was considered sold. The quantity of minor crops sold was estimated. The value of sales for each crop was computed by multiplying the quantity sold by State average prices. In the case of wool and mohair, the value of sales was computed by multiplying the quantity shorn or clipped by the State average prices.

Gross sales include the value of all kinds of farm products sold. The total does not include rental and benefit, soil conservation, price adjustment, Sugar Act, and similar payments. The total

does include the value of the landlord's share of a crop removed from a farm operated by a share tenant. In most of the tables, detailed data are presented for only the more important sources of gross sales and the total for the individual farm products or sources will not equal the total as the values for the less important sources or farm products have been omitted. (For a detailed statement regarding the reliability and method of obtaining the value of farm products sold, reference should be made to Chapter IX of Volume II of the reports for the 1954 Census of Agriculture.)

Livestock and livestock products sold.—The value of sales for livestock and livestock products includes the value of live animals sold, dairy products sold, poultry and poultry products sold, and the calculated value of wool and mohair. The value of bees, honey, fur animals, goats, and goat milk is not included.

The value of dairy products includes the value of whole milk and cream sold, but does not include the value of butter and cheese, made on the farm, and sold. The value of poultry and products includes the value of chickens, broilers, chicken eggs, turkeys, turkey eggs, ducks, geese, and other miscellaneous poultry and poultry products sold. The value does not include the value of baby chicks sold.

Crops sold.—Vegetables sold includes the value of all vegetables harvested for sale, but does not include the value of Irish potatoes and sweetpotatoes.

The value of all crops sold includes the value of all crops sold except forest products. The value of field crops sold includes the value of sales of all crops sold except vegetables, small fruits and berries, fruits, and nuts.

¹ Farm Costs and Returns, 1955 (with comparisons), Agriculture Information Bulletin No. 158, Agricultural Research Service, U. S. Department of Agriculture, June 1956.

CHAPTER II

COTTON PRODUCERS AND COTTON PRODUCTION

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COTTON PRODUCERS AND COTTON PRODUCTION

ROBERT B. GLASGOW

INTRODUCTION

SIGNIFICANCE OF COTTON PRODUCTION

Cotton production is one of the most important enterprises found on American farms. It takes place in only 20 of the 48 States, and is of appreciable significance in only 14 States, yet no other single crop in this country accounts for so large a proportion of total farm sales. Moreover, except for dairying, no other single crop or livestock enterprise accounts for half or more of the total farm sales on so many farms.

Cotton is grown to a varying extent in all of the 19 States that have some part of their land south of the 37th parallel of latitude,

and a very small acreage is grown in Kansas just north of this parallel. States in which cotton is not of appreciable significance are those having southern borders at or near the 37th parallel. In addition to Kansas, these are Virginia, Kentucky, Illinois, and Nevada. In Florida, cotton does not loom large in the agriculture as a whole.

The 14 remaining States in which cotton production is of considerable significance are shown in tables 1 and 2. These tables also show some data regarding national and State trends, and some indications of the relative importance of the cotton enterprise to the agriculture of the country as a whole, and to the agriculture

TABLE 1.—FARMS REPORTING COTTON AS A PERCENT OF ALL FARMS AND ACRES OF COTTON HARVESTED AS A PERCENT OF CROPLAND HARVESTED, FOR SPECIFIED STATES: 1930 to 1954

State	1954		1950		1945		1940		1930	
	Percent of farms	Percent of cropland harvested	Percent of farms	Percent of cropland harvested	Percent of farms	Percent of cropland harvested	Percent of farms	Percent of cropland harvested	Percent of farms	Percent of cropland harvested
Alabama.....	60.2	24.0	68.8	32.3	64.6	22.3	86.6	27.1	90.1	50.1
Arizona.....	29.4	40.1	16.0	42.2	7.6	21.5	10.8	34.9	24.3	44.1
Arkansas.....	46.7	30.7	54.9	43.4	57.4	29.5	69.5	31.1	79.3	52.4
California.....	8.0	10.6	6.1	10.8	3.1	3.5	4.0	4.8	3.2	4.6
Florida.....	9.6	1.7	9.9	2.5	7.8	1.4	14.3	3.5	20.7	8.5
Georgia.....	47.7	16.4	55.7	21.9	53.4	16.4	77.4	21.1	80.9	40.9
Louisiana.....	46.2	22.3	51.6	29.1	61.3	23.3	76.2	26.9	79.6	47.8
Mississippi.....	72.4	35.2	75.9	45.1	80.0	35.4	89.2	35.2	90.2	60.8
Missouri.....	6.8	3.4	7.1	4.8	7.0	3.1	6.5	3.1	6.3	2.7
New Mexico.....	15.9	17.4	14.6	15.0	8.4	5.3	8.3	5.7	11.9	9.1
North Carolina.....	28.9	9.5	36.5	14.6	37.1	11.7	37.1	11.6	54.2	28.2
Oklahoma.....	22.5	8.8	26.8	10.3	37.1	10.5	48.4	13.1	60.6	26.7
South Carolina.....	61.3	23.9	67.0	30.2	69.4	24.7	81.1	27.2	83.2	47.7
Tennessee.....	27.7	13.0	28.9	15.9	28.4	11.2	31.3	11.0	36.0	17.1
Texas.....	43.0	30.2	46.2	37.6	45.2	24.0	65.3	31.1	79.7	54.9
Virginia.....	3.3	0.5	4.1	0.9	3.8	0.7	4.0	0.8	8.2	2.2
United States.....	18.1	5.7	20.6	7.7	20.8	5.4	26.1	7.1	31.6	12.0

TABLE 2.—FARM CASH RECEIPTS FROM COTTON AND COTTON-SEED AS PERCENT OF TOTAL FARM CASH RECEIPTS, FOR SPECIFIED STATES: 1924 to 1954

State	1924	1929	1934	1939	1944	1949	1954
	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent
Alabama.....	71.8	74.7	72.4	45.8	47.7	42.3	35.3
Arizona.....	31.5	32.2	28.3	24.1	17.3	36.4	50.4
Arkansas.....	70.1	68.9	67.9	54.4	50.7	56.7	50.9
California.....	2.4	3.0	4.6	5.4	2.8	11.7	11.4
Florida.....	3.0	2.8	2.4	0.4	0.4	0.6	0.9
Georgia.....	62.0	58.7	58.3	35.2	28.6	23.7	21.3
Louisiana.....	45.8	53.2	48.2	35.6	31.1	34.3	32.3
Mississippi.....	77.5	78.2	76.3	67.2	70.2	67.9	60.6
Missouri.....	8.3	5.6	10.4	9.1	7.2	8.0	8.9
New Mexico.....	13.6	15.3	21.1	10.8	14.1	24.0	38.7
North Carolina.....	40.9	30.6	23.3	10.4	13.9	12.6	8.3
Oklahoma.....	52.0	40.2	30.9	14.6	14.2	12.8	9.9
South Carolina.....	69.8	64.4	62.1	46.8	44.8	34.4	31.1
Tennessee.....	29.0	30.6	32.1	19.6	21.8	24.8	23.7
Texas.....	70.2	52.9	51.2	30.7	23.6	37.8	38.0
Virginia.....	3.7	2.8	3.2	0.6	1.1	0.9	0.5
United States.....	16.2	13.4	13.6	8.0	7.5	9.5	9.0

Source: USDA, AMS Statistical Bulletin No. 186.

of the major cotton-producing States.

The fact that the States that grow cotton constitute a vast contiguous area extending from the Atlantic Ocean to the Pacific precludes consideration of cotton as a regional crop in any usual sense of that term (see figs. 1 and 2).

Cotton and the salient economic facts and characteristics of cotton production are of significance to thousands of people who are not on farms but who are engaged in cotton-oriented services and processing industries. Problems associated with cotton production even concern all consumers of fibers, for despite the tremendous increase during the last 15 years in the production and consumption of synthetic fibers, the per capita domestic consumption of cotton has remained relatively stable. In 1954, it accounted for more than two-thirds of all fiber used in the United States.

A further general fact of widely ramifying import is that, although the United States is, and has long been, the largest single consumer of cotton, it is also the world's leading exporter of raw cotton, thus making this commodity a notable factor in the international trade of the United States.

FARMERS AND FARM PRODUCTION

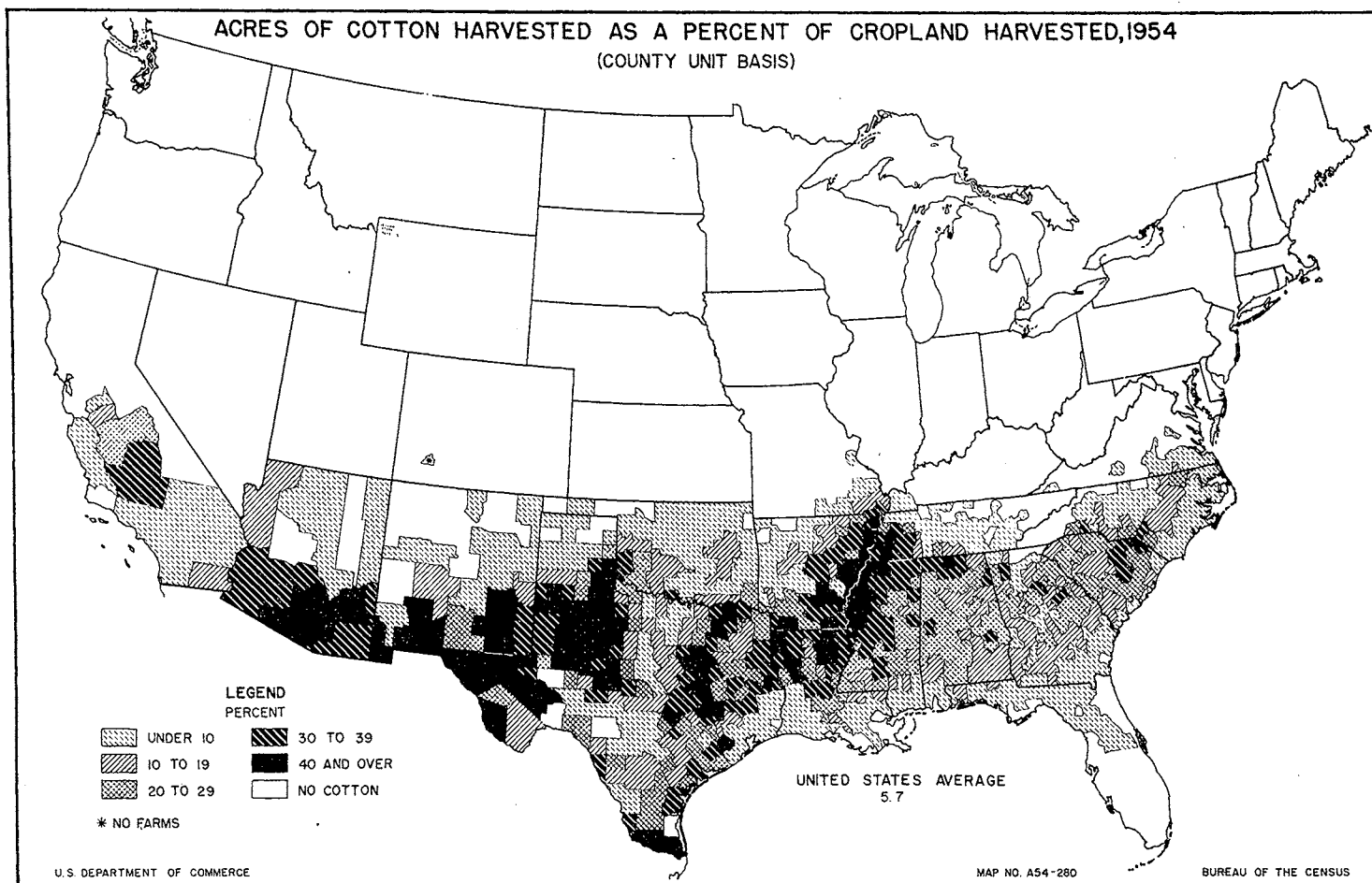


FIGURE 1.

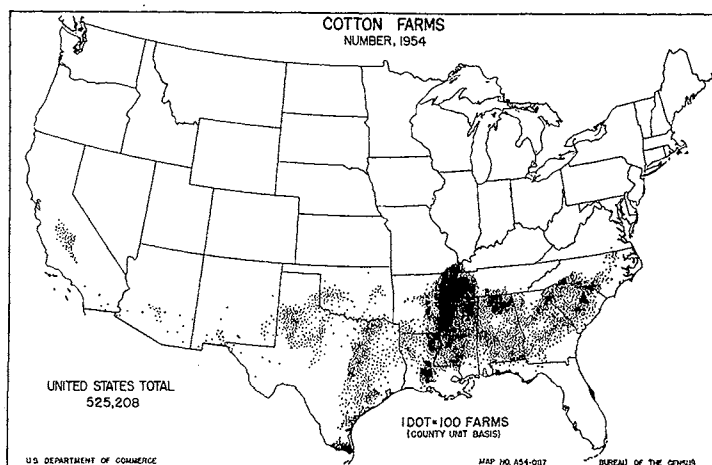


FIGURE 2.

SCOPE AND PURPOSE OF THIS REPORT

It would seem, therefore, that additional information concerning the economic structure, and the resource-use characteristics of this industry, and of the farms which comprise it, would be

valuable to producers, consumers, handlers, and processors, and to those responsible for the planning and execution of governmental policy.

Data gathered by the Bureau of the Census have long been a mainstay of analyses of this type. The Agriculture Census of 1954 provided, for the first time, special tabulations of farm characteristics for type of farm, cross classified by economic class of farm. Census types of farms are delineated by the criterion of the commodity source of 50 percent or more of farm sales. One of the farm types so established is the cotton farm. This is a farm on which 50 percent or more of all sales are from cotton and cottonseed. The economic classes of farms used by Census since 1950 are volume or size-of-business groups classified according to the value of total sales of farm products. These groups range from Class I farms, having total sales of \$25,000 or more, to Class VI farms which are characterized by sales of \$250 to \$1,199.

Analysis of the 1954 Census data made available, for selected subregions, by the special tabulations of data for cotton farms by economic class, sheds new light upon the economic structure and characteristics of the industry of cotton production and of the farms which comprise it.

Most of this report is concerned with these new data which have been supplemented by other statistics from the Bureau of the Census and other sources.

SUBREGIONS FOR WHICH SPECIAL TABULATIONS ARE AVAILABLE

The special tabulations for cotton farms by economic class were made for the 30 subregions in which cotton growing is of considerable importance. The location of these subregions and the distribution of cotton acreage in 1954 is shown in figure 3.

To facilitate the presentation and analysis of the new data the selected subregions were grouped into 10 regions (see fig. 4). Regions I through VI, extending from North Carolina to eastern Texas, comprise most of the humid area of cotton growing in this country. Moving west, Regions VII and VIII represent the bulk of production under subhumid climatic conditions. In Region IX is found the major part of cotton production under semiarid climatic conditions. Virtually all cotton grown in subregion 103 is found in the more southerly of the Texas counties included. Much of the crop in this region is irrigated from wells. Region X encompasses most of the cotton growing under irrigation in the arid southwest of Texas, New Mexico, and Arizona, and the arid San Joaquin Valley of California.

The six regions which comprise the humid climatic belt include some striking differences. The easternmost region (Region I) represents, in general, cotton production on the Eastern Coastal Plain of the United States. In some places in this region flue-cured tobacco and peanuts are more important crops than cotton. The region, in general, has larger reaches of level land than are to be found in either of the next two regions to the west.

Adjoining the Eastern Coastal Plain to the west is Region II, the Southern Piedmont. This region has some stretches of level

land but in general it is hilly, and the characteristic fields are small and irregular in shape.

The next region to the west, Region III, can perhaps be described as midsouthern hilly, with some level land. This region has rather disparate areas within it. Examples are the Black Prairie (Black Belt) of Alabama and Mississippi, the Sand Mountain area of Alabama, the brown loam areas of Tennessee and Mississippi, and the sand-clay hills of Alabama, Mississippi, and Tennessee.

Immediately to the west of Region III lies the fabulous so-called "Delta"—the Alluvial Valley of the Mississippi and Red Rivers, extending from the "Boot Heel" of Missouri to the sugarcane country of southern Louisiana.

Region V is comprised mostly of the Western Sandy Coastal Plains of northeastern Texas, northwestern Louisiana, and southwestern Arkansas. It also includes the piney woods of eastern Texas and west central Louisiana, the so-called "Post Oak" area of east central Texas and the Arkansas River Valley and uplands of central Arkansas. It is in some respects the western counterpart of Region III.

The final region in the humid belt (Region VI) is coextensive with subregion 78. It is the Gulf Coast Prairie of Texas and Louisiana. Most of the cotton here is found in the Texas part; much of which is on the alluvial lands of the several streams that find their final passage to the Gulf through this region. The region includes, also, most of the specialized rice-growing farms of Texas and Louisiana. These are generally located on the heavy, rather poorly drained soils most typical of the region. Cotton and rice are not often grown on the same farms.

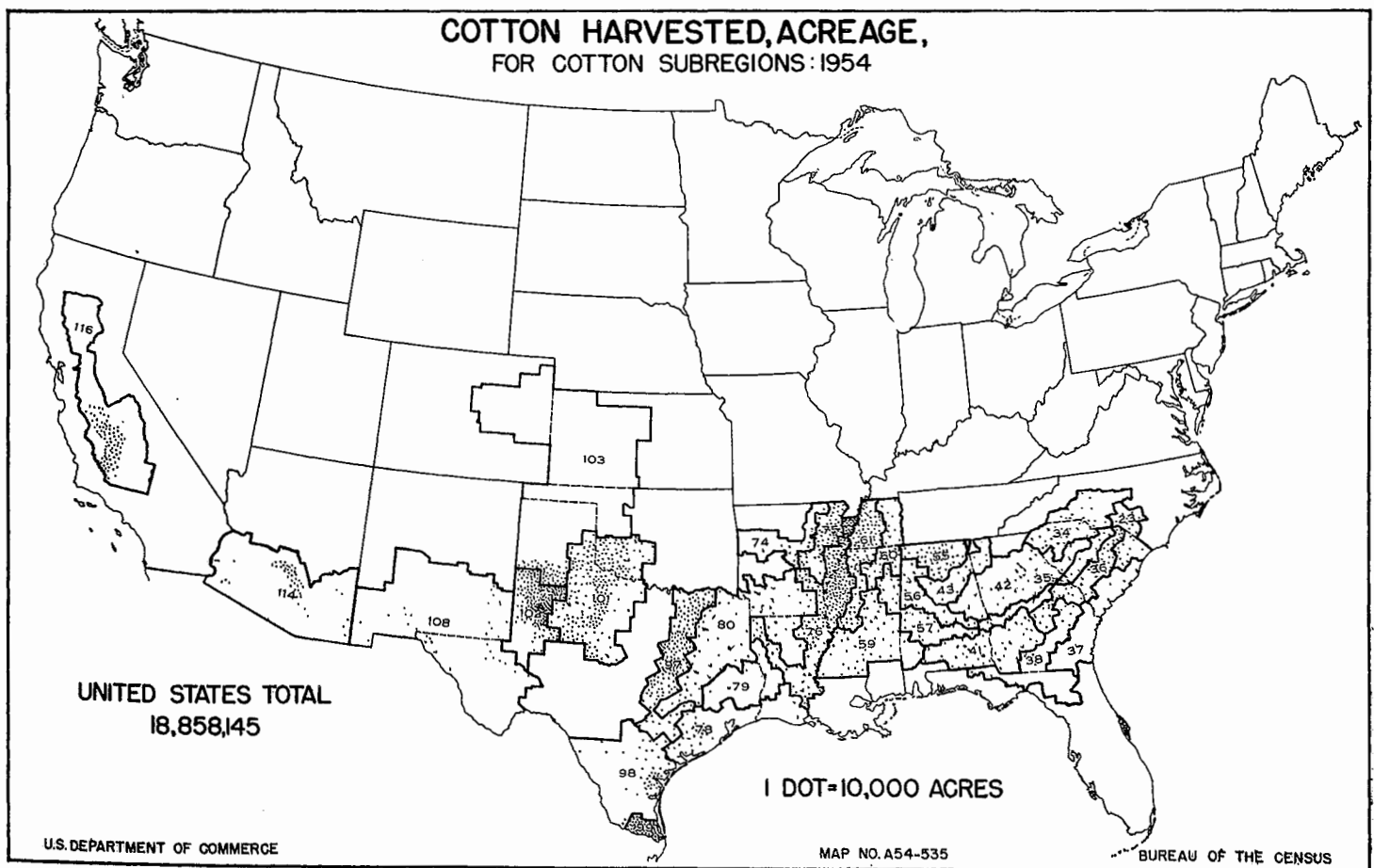


FIGURE 3.

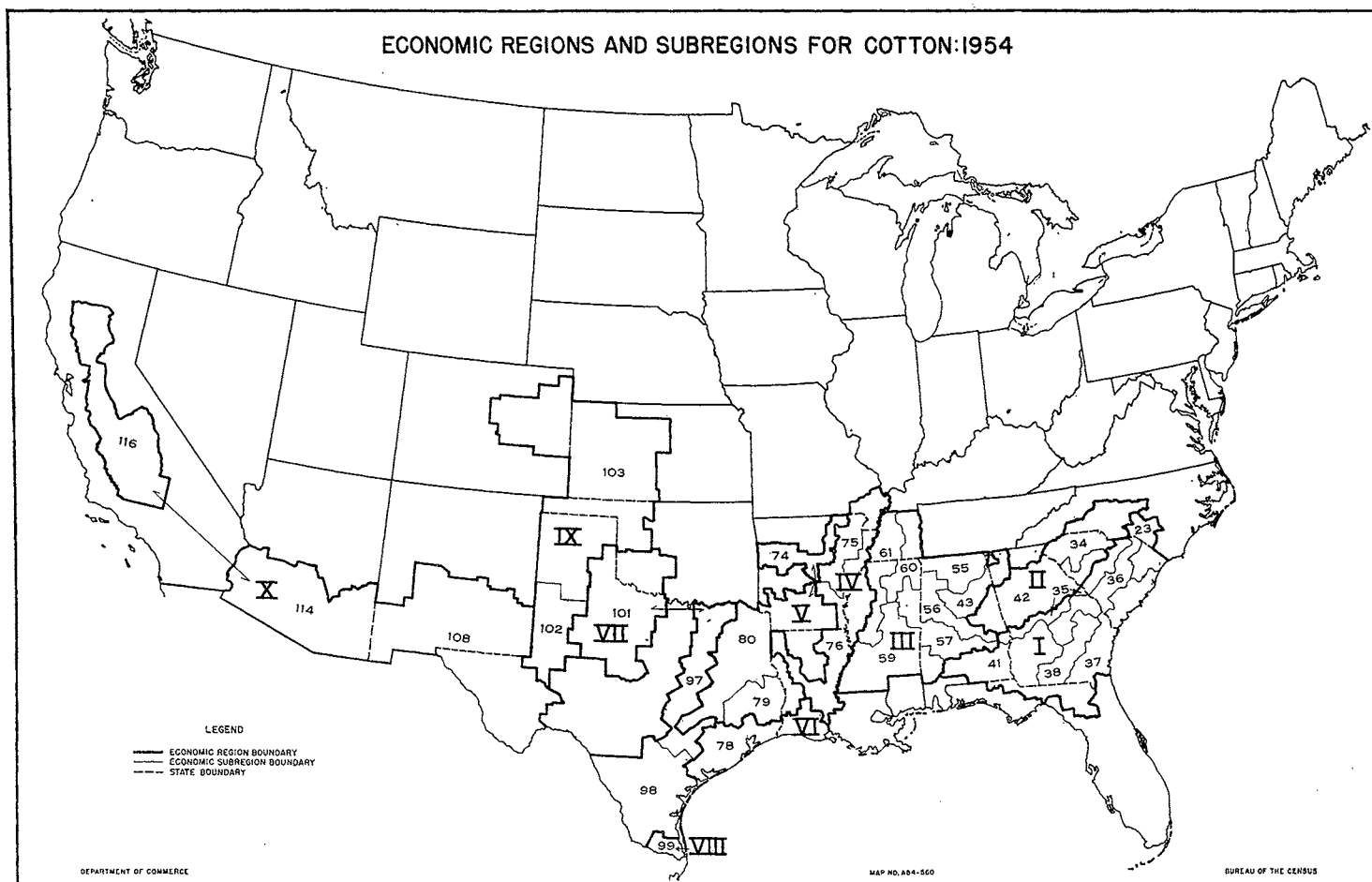


FIGURE 4.

Regions VII and VIII, in the subhumid belt, are most dissimilar. The first named is composed of the Black Prairie of Texas, the Rio Grande Plains of southern Texas, and the rolling plains of west central Texas and southwestern Oklahoma. Region VIII is the lower Rio Grande Valley and has, in comparatively recent years, become a rather highly specialized cotton-growing area. Irrigation is general here but the water supply, mostly from the Rio Grande, is generally not adequate to permit irrigation of all land in cotton.

The final two regions (Regions IX and X) encompass, respectively, most of the cotton production under semiarid and arid climatic conditions.

In Region IX, most of the cotton is grown in the High Plains of Texas area. This area was developed for crop farming relatively late, and its farms have always been characterized by relatively large areas of land and other resources per man. Supplemental irrigation from wells has become a very significant factor in the agriculture of the cotton-growing section of this region during the past 10 to 12 years.

In Region X, cotton is grown only under irrigation. Included in this region are the Trans-Pecos and upper Rio Grande cotton-producing areas of Texas, nearly all cotton-producing areas in New Mexico and Arizona, and the fabulous Central Valley of California.

The 30 subregions included in these 10 regions accounted, in the aggregate, for 94 percent of all cotton farms and for 97 percent of both the cotton acreage and production of cotton on such farms in 1954. During 1954, the 30 selected subregions accounted for about 95 to 98 percent of the national total of cotton farms and of cotton acreage and production on cotton farms for each economic class.

Thus, it seems reasonable to conclude that the cotton farms of the selected subregions are, in the aggregate, representative of all cotton farms in the United States. To a remarkable degree cotton growing is concentrated on farms that are classified as cotton farms. In 1954, for example, 61 percent of all farms reporting cotton, and 80 and 84 percent, respectively, of all cotton acreage and production were on these farms. So although most of the data in this report pertain specifically only to the cotton-farm type, it would seem that most of the aggregate conclusions indicated could be accepted as applying to the general industry of cotton production in the United States. This supposition is buttressed by several facts: (1) These subregions, in 1954, accounted for 68 percent of the number of commercial farms, other than cotton farms, that reported cotton, and for 80 percent of the cotton acreage and production found on these farms. (2) In that year approximately 90 percent of the noncommercial farms reporting cotton, and of the cotton acreage and production on these farms, were encompassed by the selected subregions.

Section 1.—COTTON PRODUCTION BY ECONOMIC CLASS AND TYPE OF FARM

THE NATIONAL PICTURE

Information on the distributions by economic class of the number of farms reporting a crop, the acreage harvested, and the production, contributes notably to our knowledge of the overall structure of that crop production. Such data show in a general way the location of production and acreage with respect to the size of the farm and they are indicative of the income level of the farmers who grow the crop.

Table 3 shows this type of information for all farms reporting cotton in the United States during 1949 and 1954. Of the number of commercial farms reporting cotton, there was a considerable concentration in Classes V and VI in both 1949 and 1954. These classes, together with noncommercial farms, accounted for more than 60 percent of farms reporting cotton in 1954 and for more than 70 percent in 1949. This means that in 1954 three-fifths of the farm operators growing cotton had gross farm sales of less than \$2,500. As the noncommercial farms are presumed not to be primarily dependent upon agriculture for their income, this indicated low gross income from farming may not be important to them. But the large number of cotton producers found in Economic Classes V and VI does suggest that there is a concentration of farmers with low incomes from farming among the cotton farms. For all farms, the proportions classified as Classes V and VI were 30.1 in 1949 and 25.7 in 1954. It is thus evident that the concentration of these low-production commercial farms was almost twice as large among farms reporting cotton as among all farms, in both years.

An additional fact of interest is the significant decrease from 1949 to 1954 in the proportion that Economic Class VI and noncommercial farms were of all farms reporting cotton. These decreases were accompanied by significant increases for 1954 over 1949 in the proportions of all cotton-reporting farms in Economic Classes I through IV.

There was considerably less concentration of acreage and production on these low-production commercial and noncommercial farms. The striking fact in table 3 about acreage and production is their concentration, relative to numbers of farms reporting, on Economic Class I and Class II farms. The distributions of farms reporting cotton, cotton acreage, and cotton production by type of farm for the United States are shown in table 4 for 1949 and 1954. Cotton farms account for a preponderance of farms reporting, acres, and production in both years.

Other field-crop farms accounted for a much larger proportion of the farms growing cotton than any other commercial type largely because of a concentration of tobacco and peanut farms in parts of the Carolinas, Georgia, and Alabama, where the growing of cotton is also prevalent.

Perhaps the single outstanding fact brought out by the distributions in table 4 is that for more than a fourth of the commercial farms reporting, cotton is not the major source of farm income. These farms harvested about 16 percent of all cotton acreage in 1954 and accounted for about 14 percent of total cotton production.

The data in table 3 for economic class of farm reporting cotton are for all types of farms, while the data by type shown in table 4 are

TABLE 3.—PERCENT DISTRIBUTION OF FARMS REPORTING COTTON, ACRES OF COTTON HARVESTED, AND BALES OF COTTON PRODUCED, BY ECONOMIC CLASS OF FARM, FOR THE UNITED STATES: 1954 AND 1949

Item and year	All farms	Commercial farms by economic class							Noncommercial farms			
		Total	I	II	III	IV	V	VI	Total	Part-time	Residential	Abnormal
Farms reporting:												
1954.....	100.0	84.8	2.5	4.8	10.0	21.7	28.0	17.8	15.2	11.1	4.1	(Z)
1949.....	100.0	80.5	1.4	3.5	6.8	15.8	26.2	26.8	19.5	12.4	7.1	(Z)
Acres of cotton harvested:												
1954.....	100.0	96.1	23.3	16.3	16.1	19.1	15.5	5.7	3.9	3.2	0.6	0.2
1949.....	100.0	94.1	18.9	17.2	14.9	15.9	16.3	10.9	5.9	4.4	1.5	0.1
Bales of cotton produced:												
1954.....	100.0	97.5	37.8	14.8	12.8	15.9	12.5	3.7	2.5	2.0	0.3	0.2
1949.....	100.0	96.6	28.1	18.2	14.0	14.7	14.7	7.0	3.4	2.7	0.5	0.1

Z 0.05 percent or less.

TABLE 4.—PERCENT DISTRIBUTION OF FARMS REPORTING COTTON, ACRES OF COTTON HARVESTED, AND BALES OF COTTON PRODUCED, BY TYPE OF FARM, FOR THE UNITED STATES: 1954 AND 1949

Item and year	All farms	Type of commercial farm													Noncommercial farms			
		Total	Cash-grain	Cotton	Other field-crop	Vegetable	Fruit-and-nut	Dairy	Poultry	Other live-stock	General farms			Miscellaneous	Total	Part-time	Residential	Abnormal
											Crop	Live-stock	Crop and live-stock					
Farms reporting:																		
1954.....	100.0	84.8	1.7	60.9	10.0	0.2	0.2	1.5	0.8	2.5	3.6	0.2	3.1	0.2	15.2	11.1	4.1	(Z)
1949.....	100.0	80.5	0.8	54.9	11.5	0.3	0.2	1.2	0.7	2.7	3.3	0.3	4.0	0.4	19.5	12.4	7.1	(Z)
Acres of cotton harvested:																		
1954.....	100.0	96.1	2.8	79.8	3.0	0.3	0.2	1.0	0.4	2.2	3.8	0.1	2.5	0.1	3.9	3.2	0.6	0.2
1949.....	100.0	94.1	1.0	79.9	4.0	0.2	0.2	0.8	0.3	1.9	2.8	0.1	2.7	0.2	5.9	4.4	1.5	0.1
Bales of cotton produced:																		
1954.....	100.0	97.5	1.8	83.8	3.1	0.5	0.3	0.9	0.3	1.4	3.8	(Z)	1.6	0.1	2.5	2.0	0.3	0.2
1949.....	100.0	96.6	0.9	85.0	3.2	0.2	0.2	0.7	0.2	1.3	2.6	0.1	2.0	0.1	3.4	2.7	0.5	0.1

Z 0.05 percent or less.

for all commercial farms. For each economic class, cotton farms account for a preponderance of farms growing the crop, and even larger proportions of the acreage and production.

TABLE 5.—FARMS REPORTING COTTON, ACRES OF COTTON HARVESTED, AND COTTON PRODUCTION FOR COTTON FARMS AS A PERCENTAGE OF THE TOTAL FOR ALL COMMERCIAL FARMS REPORTING COTTON, FOR EACH ECONOMIC CLASS OF FARM, FOR THE UNITED STATES: 1954

Item	Economic class of farm						
	All classes	I	II	III	IV	V	VI
Farms reporting.....	72	71	62	54	62	78	88
Acres harvested.....	83	86	81	79	80	87	91
Bales harvested.....	86	86	85	81	84	91	94

THE PICTURE BY REGIONS

Data for the selected regions of this study which show the total number of farms, the number of farms reporting cotton, acres of cotton harvested, and bales of cotton produced, by economic class of farm and by type of farm are particularly useful in indicating the characteristics of cotton production. They make discernible a reasonably clear picture of: (1) The nature of the diverse agricultural economies in which cotton growing is carried on; (2) the role and relative importance of the cotton enterprise in the several regions and on different types of farms; (3) the structure, with respect to size of business, of the cotton-production industry in the regions.

Information of this kind for economic class of commercial farms and for types of noncommercial farms is shown in table 6.

The data relating to the number, and proportion, of all farms reporting cotton indicate the relative importance of cotton production in the agriculture of the region and show the relative importance of the enterprise to different size-of-business groups.

In Regions I, II, and III, the three humid regions east of the Mississippi River, cotton is grown on 74, 64, and 87 percent, respectively, of all commercial farms. This leaves little doubt that in these regions it is an extremely important enterprise. An examination of the proportions of the economic classes of commercial farms that report cotton presents some interesting implications. For example, in Region II, where 64 percent of all commercial farms report cotton, only about one-fourth of Economic Class I and Class II farms grow cotton, and only slightly more than one-third of Class III farms report the crop. To a less pronounced degree the same situation prevails in Region III. In Region I about the same proportion of Class III farms report cotton as of all commercial farms. But here too, smaller proportions of Economic Classes I and II farms report cotton than the proportion of all farms reporting cotton.

It is noteworthy that a larger proportion of the large farms in these areas do not grow cotton. Particularly for Regions II and III the general characteristics of the topography, and the effects of this upon the practicability of adopting labor-saving methods suggest that many of the larger farms may not find cotton as profitable as other enterprises. In this connection, data of table 7 show that in Regions I and II a large majority of the farms in Classes I through III that report cotton are not cotton farms. These same data reveal that in Region III where 89 percent of all commercial farms that report cotton are cotton farms, a majority of the farms reporting cotton in Classes I and II are not cotton farms.

A somewhat similar situation with respect to the proportions of farms in different economic classes that report cotton is found in

TABLE 6.—NUMBER OF FARMS, FARMS REPORTING COTTON, AND ACRES AND BALES OF COTTON HARVESTED, FOR COMMERCIAL FARMS, BY ECONOMIC CLASS AND FOR NONCOMMERCIAL FARMS, BY REGIONS: 1954

Region and item	All farms	Commercial farms by economic class							Noncommercial farms			
		Total	I	II	III	IV	V	VI	Total	Part-time	Residen- tial	Abnor- mal
REGION I												
All farms, number	223,910	160,682	1,784	6,087	20,608	51,288	51,172	29,743	63,228	25,919	37,230	79
Percent distribution	100.0	71.8	0.8	2.7	9.2	22.9	22.9	13.3	28.2	11.6	16.6	(Z)
Farms reporting cotton, number	135,573	118,761	988	3,898	15,404	40,640	38,267	19,564	16,812	12,132	4,671	9
Percent of all farms	60.5	73.9	55.4	64.0	74.7	79.2	74.8	65.8	26.6	46.8	12.5	11.4
Percent distribution	100.0	87.6	0.7	2.9	11.4	30.0	28.2	14.4	12.4	8.9	3.5	(Z)
Acres of cotton harvested	1,580,374	1,508,759	109,658	161,345	280,983	485,708	349,322	121,743	71,615	60,087	11,132	396
Percent distribution	100.0	95.5	6.9	10.2	17.8	30.7	22.1	7.7	4.5	3.8	0.7	(Z)
Bales of cotton harvested	986,051	951,156	73,797	108,919	195,394	317,832	196,938	58,276	34,895	30,025	4,616	254
Percent distribution	100.0	96.5	7.5	11.0	19.8	32.2	20.0	5.9	3.5	3.0	0.5	(Z)
REGION II												
All farms, number	169,464	77,232	1,115	4,349	7,064	12,266	26,174	26,264	92,232	31,968	60,179	85
Percent distribution	100.0	45.6	0.7	2.6	4.2	7.2	15.4	15.5	54.4	18.9	35.5	(Z)
Farms reporting cotton, number	72,282	49,708	273	1,118	2,463	7,127	19,023	19,704	22,574	17,407	5,145	22
Percent of all farms	42.7	64.4	24.5	25.7	34.9	58.1	72.7	75.0	24.5	54.5	8.5	25.9
Percent distribution	100.0	68.8	0.4	1.5	3.4	9.9	26.3	27.3	31.2	24.1	7.1	(Z)
Acres of cotton harvested	692,432	579,074	13,770	30,955	46,426	124,512	228,017	135,394	113,358	98,914	14,215	229
Percent distribution	100.0	83.6	2.0	4.5	6.7	18.0	32.9	19.6	16.4	14.3	2.1	(Z)
Bales of cotton harvested	388,460	334,151	9,171	19,313	29,593	77,767	131,563	66,744	54,309	49,124	5,060	125
Percent distribution	100.0	86.0	2.4	5.0	7.6	20.0	33.9	17.2	14.0	12.6	1.4	(Z)
REGION III												
All farms, number	357,989	220,384	1,723	5,723	13,102	42,392	83,955	73,489	137,605	52,968	84,584	63
Percent distribution	100.0	61.6	0.5	1.6	3.7	11.8	23.5	20.5	38.2	14.7	23.5	(Z)
Farms reporting cotton, number	239,490	192,080	953	3,398	9,899	37,882	76,856	63,092	47,410	33,806	13,590	14
Percent of all farms	66.9	87.2	55.3	59.4	75.6	89.4	91.5	85.9	34.5	63.8	16.1	22.2
Percent distribution	100.0	80.2	0.4	1.4	4.1	15.8	32.1	26.3	19.8	14.1	5.7	(Z)
Acres of cotton harvested	2,507,604	2,324,630	122,869	150,780	252,504	629,820	790,406	378,251	182,974	152,016	29,905	1,053
Percent distribution	100.0	92.7	4.9	6.0	10.1	25.1	31.5	15.1	7.2	6.1	1.2	(Z)
Bales of cotton harvested	1,799,588	1,693,480	110,222	119,408	208,879	497,088	552,557	205,326	106,108	92,113	13,310	685
Percent distribution	100.0	94.1	6.1	6.6	11.6	27.6	30.7	11.4	5.9	5.1	0.7	(Z)

COTTON PRODUCERS AND COTTON PRODUCTION

11

TABLE 6.—NUMBER OF FARMS, FARMS REPORTING COTTON, AND ACRES AND BALES OF COTTON HARVESTED, FOR COMMERCIAL FARMS, BY ECONOMIC CLASS AND FOR NONCOMMERCIAL FARMS, BY REGIONS: 1954—Continued

Region and item	All farms	Commercial farms by economic class							Noncommercial farms			
		Total	I	II	III	IV	V	VI	Total	Part-time	Residen- tial	Abnor- mal
REGION IV												
All farms, number	174,753	145,977	4,979	8,898	17,937	39,321	54,397	20,445	28,776	11,740	17,000	36
Percent distribution	100.0	83.5	2.8	5.1	10.3	22.5	31.1	11.7	16.5	6.7	9.7	(Z)
Farms reporting cotton, number	143,524	135,411	3,821	7,267	16,657	37,743	52,301	17,622	8,113	6,535	1,566	12
Percent of all farms	82.1	92.8	76.7	81.7	92.9	96.0	96.1	86.2	28.2	55.7	9.2	33.3
Percent distribution	100.0	94.3	2.7	5.1	11.6	26.3	36.4	12.3	5.7	4.6	1.1	(Z)
Acres of cotton harvested	3,197,922	3,145,532	770,786	449,761	533,502	688,036	580,997	122,450	52,390	38,925	5,190	8,275
Percent distribution	100.0	98.4	24.1	14.1	16.7	21.5	18.2	3.8	1.7	1.2	0.2	0.3
Bales of cotton harvested	2,747,257	2,717,741	752,151	399,604	473,033	585,325	440,459	67,169	29,516	20,410	1,611	7,495
Percent distribution	100.0	98.9	27.4	14.5	17.2	21.3	16.0	2.4	1.0	0.7	(Z)	0.3
REGION V												
All farms, number	150,257	57,109	962	3,329	6,019	9,014	17,083	20,702	93,148	31,859	61,265	24
Percent distribution	100.0	38.0	0.6	2.2	4.0	6.0	11.4	13.8	62.0	21.2	40.8	(Z)
Farms reporting cotton, number	47,102	31,651	374	1,129	2,775	5,465	10,305	11,603	15,451	9,749	5,695	7
Percent of all farms	31.3	55.4	38.9	33.9	46.1	60.6	60.3	56.0	16.6	30.6	9.3	2.9
Percent distribution	100.0	67.2	0.8	2.4	5.9	11.6	21.9	24.6	32.8	20.7	12.1	(Z)
Acres of cotton harvested	811,339	711,278	85,359	80,329	110,436	155,139	176,122	103,893	100,061	74,775	23,870	1,416
Percent distribution	100.0	87.7	10.5	9.9	13.6	19.1	21.7	12.8	12.2	9.2	2.9	0.1
Bales of cotton harvested	333,306	307,236	62,407	40,940	51,425	62,344	61,831	28,289	26,070	19,525	5,455	1,090
Percent distribution	100.0	92.2	18.7	12.3	15.4	18.7	18.6	8.5	7.8	5.9	1.6	0.3
REGION VI												
All farms, number	33,654	19,589	2,364	2,866	3,398	4,170	3,809	2,982	14,065	4,802	9,256	7
Percent distribution	100.0	58.2	7.0	8.5	10.1	12.4	11.3	8.9	41.8	14.3	27.5	(Z)
Farms reporting cotton, number	10,517	9,456	275	895	2,034	2,859	2,183	1,210	1,061	800	255	6
Percent of all farms	31.3	48.3	11.6	31.2	59.9	68.6	57.3	40.6	7.5	16.7	2.8	85.7
Percent distribution	100.0	89.9	2.6	8.5	19.3	27.2	20.8	11.5	10.1	7.6	2.4	(Z)
Acres of cotton harvested	295,655	282,066	43,848	60,089	77,120	57,380	26,214	8,445	13,559	4,530	705	8,324
Percent distribution	100.0	95.4	14.8	23.4	26.1	19.4	8.9	2.9	4.6	1.5	0.3	2.8
Bales of cotton harvested	214,047	201,363	33,534	51,399	56,825	40,081	15,614	3,910	12,684	2,075	280	10,329
Percent distribution	100.0	94.1	15.7	24.0	26.5	18.7	7.3	1.8	5.9	1.0	0.1	4.8
REGION VII												
All farms, number	129,347	94,900	2,918	10,494	18,764	26,204	24,289	12,231	34,447	16,559	17,868	20
Percent distribution	100.0	73.4	2.3	8.1	14.5	20.4	18.8	9.5	26.6	12.8	13.8	(Z)
Farms reporting cotton, number	73,873	67,378	1,868	7,561	14,540	20,545	16,598	6,266	6,495	5,196	1,296	3
Percent of all farms	57.1	71.0	64.0	72.2	77.5	78.4	68.3	51.2	18.9	31.4	7.3	15.0
Percent distribution	100.0	91.2	2.5	10.2	19.7	27.8	22.5	8.5	8.8	7.0	1.8	(Z)
Acres of cotton harvested	4,194,710	4,097,763	457,461	923,182	1,126,042	992,309	489,467	109,302	96,947	85,895	7,878	3,174
Percent distribution	100.0	97.7	10.9	22.0	26.8	23.7	11.7	2.6	2.3	2.0	0.2	0.1
Bales of cotton harvested	1,285,179	1,269,085	275,358	318,368	313,137	240,810	102,402	19,010	16,094	14,212	1,195	687
Percent distribution	100.0	98.7	21.4	24.8	24.4	18.7	8.0	1.5	1.2	1.1	0.1	(Z)
REGION VIII												
All farms, number	7,779	6,286	1,067	1,493	1,287	1,071	927	441	1,493	692	796	5
Percent distribution	100.0	80.8	13.7	19.2	16.5	13.8	11.9	5.7	19.1	8.9	10.2	(Z)
Farms reporting cotton, number	6,163	5,747	1,027	1,444	1,243	962	791	280	416	386	30	-----
Percent of all farms	79.7	91.4	96.3	96.8	96.6	89.8	85.3	63.5	27.9	55.8	3.8	-----
Percent distribution	100.0	93.2	16.7	23.4	20.2	15.6	12.8	4.5	6.8	6.3	0.5	-----
Acres of cotton harvested	448,047	445,335	243,104	110,190	53,372	20,898	10,446	2,325	2,712	2,607	105	-----
Percent distribution	100.0	99.4	55.4	24.6	11.9	4.7	2.3	0.5	0.6	0.6	(Z)	-----
Bales of cotton harvested	396,452	395,108	234,819	97,876	40,012	14,594	6,672	1,135	1,344	1,304	40	-----
Percent distribution	100.0	99.7	59.2	24.7	10.1	3.7	1.7	0.3	0.3	0.3	(Z)	-----
REGION IX												
All farms, number	78,374	70,755	8,300	18,864	18,225	14,076	8,452	2,838	7,619	3,749	3,820	50
Percent distribution	100.0	90.3	10.6	24.1	23.3	18.0	10.8	3.6	9.7	4.8	4.9	(Z)
Farms reporting cotton, number	18,125	17,845	4,878	6,742	2,922	2,084	1,044	175	280	255	20	5
Percent of all farms	23.2	25.2	58.8	35.7	16.0	14.8	12.4	6.2	3.7	6.8	5.2	10.0
Percent distribution	100.0	98.5	26.9	37.2	16.1	11.5	5.8	1.0	1.5	1.4	0.1	(Z)
Acres of cotton harvested	2,286,957	2,281,822	1,085,448	796,839	248,358	107,138	40,954	3,085	5,135	4,590	195	350
Percent distribution	100.0	99.8	47.5	34.8	10.9	4.7	1.8	0.1	0.2	0.2	(Z)	-----
Bales of cotton harvested	1,404,491	1,403,496	848,469	437,073	82,871	27,360	7,013	710	995	730	15	250
Percent distribution	100.0	99.9	60.4	31.1	5.9	1.9	0.5	0.1	0.1	0.1	(Z)	(Z)
REGION X												
All farms, number	67,292	53,396	12,515	12,636	11,441	8,604	6,416	1,784	13,896	5,885	7,938	73
Percent distribution	100.0	79.3	18.6	18.8	17.0	12.8	9.5	2.7	20.6	8.7	11.8	0.1
Farms reporting cotton, number	15,653	15,322	5,997	4,083	2,630	1,660	751	201	331	275	30	26
Percent of all farms	23.3	28.7	47.9	32.3	23.0	19.3	11.7	11.3	2.7	4.7	0.4	35.6
Percent distribution	100.0	97.9	38.3	26.1	16.8	10.6	4.8	1.3	2.1	1.8	0.2	0.1
Acres of cotton harvested	1,515,865	1,508,355	1,266,867	158,146	54,084	21,824	6,279	1,155	7,510	1,155	30	6,325
Percent distribution	100.0	99.5	83.6	10.4	3.6	1.4	0.4	0.1	0.5	0.1	(Z)	0.4
Bales of cotton harvested	2,619,438	2,609,709	2,269,282	234,309	72,012	25,829	7,210	1,067	9,729	1,080	30	8,619
Percent distribution	100.0	99.6	86.6	8.9	2.7	1.0	0.3	(Z)	0.3	(Z)	(Z)	0.3
TOTAL, 10 REGIONS												
All farms, number	1,392,819	906,310	37,727	74,739	117,845	208,406	276,674	100,919	486,509	186,131	299,936	442
Percent distribution	100.0	65.1	2.7	5.4	8.5	15.0	19.9	7.2	34.9	13.4	21.5	(Z)
Farms reporting cotton, number	762,302	643,359	20,454	37,535	70,567	156,967	218,119	139,717	118,943	86,541	32,298	104
Percent of all farms	54.7	71.0	54.2	50.2	59.9	75.3	78.8	73.2	24.5	46.5	10.8	23.5
Percent distribution	100.0	84.4	2.7	4.9	9.3	20.6	28.6	18.3	15.6	11.4	4.2	(Z)
Acres of cotton harvested	17,530,905	16,884,644	4,204,170	2,930,616	2,782,827	3,282,764	2,698,224	986,043	646,261	523,494	93,225	29,542
Percent distribution	100.0	96.3	24.0	16.7	15.9	18.7	15.4	5.6	3.8	3.1	0.6	0.1
Bales of cotton harvested	12,174,269	11,882,525	4,669,210	1,827,209	1,523,181	1,889,030	1,522,259	451,636	291,744	230,598	31,612	29,534
Percent distribution	100.0	97.6	38.3	15.0	12.5	15.5	12.5	3.7	2.4	1.9	0.3	0.2

Z 0.05 percent or less.

Regions V and VI. The general explanation offered for Regions II and III would seem to be valid also for Region V. In Region VI it is probable that the smaller proportion of the larger farms reporting cotton stems largely from the prevalence of large-scale rice (cash-grain) farms, for, generally speaking, they do not grow cotton. The situation for this region is probably similar to that in Region I, where, in general, the topography facilitates the adoption of modern mechanized methods. The prevalence in Region I of farms with large tobacco- and peanut-acreage allotments probably explains the preponderance of noncotton farms among the larger farms that report cotton, as well as the smaller-than-average proportions of Class I and Class II farms that report cotton.

The remaining region of the humid belt, the Alluvial Valley of the Mississippi and Red Rivers (the "Delta"), Region IV, is one of the most highly specialized cotton-production regions in the world. Table 6 shows that 93 percent of all commercial farms in the region report cotton. Table 7 shows that the vast majority of these farms in all economic classes are cotton farms. The somewhat smaller proportions—three-fourths and four-fifths

respectively—of Class I and Class II farms that report cotton are no doubt due to the inclusion within the region of a relatively small area that has many specialized rice farms.

Region VII comprises most of the subhumid belt of cotton production. Here 71 percent of all commercial farms report cotton and, except for Class VI farms, each economic class shows about or slightly above the all-farm percentage reporting cotton. Fewer Class VI farms report cotton than the average for all commercial farms.

Region VIII, the Lower Rio Grande Valley of Texas, is by far the smallest in point of area. It ranks with Region IV and the cotton-growing parts of Regions IX and X, however, as one of the most highly specialized cotton-producing regions of the country. More than 90 percent of all commercial farms here grow cotton, and the percentage of farms in Classes I, II, and III that report cotton is higher than that for all commercial farms. Table 7 shows that around 90 percent or more of the farms reporting cotton for each economic class are cotton farms. These facts suggest that this region has a strong comparative advantage for cotton.

TABLE 7.—DISTRIBUTION BETWEEN COTTON FARMS AND COMMERCIAL FARMS OTHER THAN COTTON FARMS, OF FARMS REPORTING, ACRES HARVESTED, AND PRODUCTION OF COTTON ON COMMERCIAL FARMS, BY ECONOMIC CLASS OF FARM, BY REGIONS: 1954

Region and item	Economic class of farm						
	All classes	I	II	III	IV	V	VI
REGION I							
Farms reporting cotton harvested:							
All commercial farms.....	number.....	118,761	988	3,898	15,404	40,640	38,267
Cotton farms.....	percent.....	48.3	29.1	31.7	28.6	36.6	54.5
Other commercial farms.....	percent.....	51.7	70.9	68.3	71.4	63.4	45.5
Acres of cotton harvested:							
All commercial farms.....	acres.....	1,508,759	109,658	161,345	280,983	485,708	349,322
Cotton farms.....	percent.....	62.7	58.8	56.6	51.6	59.0	72.3
Other commercial farms.....	percent.....	37.3	41.2	43.4	48.4	41.0	27.7
Bales of cotton produced:							
All commercial farms.....	bales.....	951,156	73,797	108,919	195,394	317,832	196,938
Cotton farms.....	percent.....	62.6	59.7	57.0	52.2	59.9	73.4
Other commercial farms.....	percent.....	37.4	40.3	43.0	47.8	40.1	26.6
REGION II							
Farms reporting cotton harvested:							
All commercial farms.....	number.....	49,708	273	1,118	2,463	7,127	19,023
Cotton farms.....	percent.....	81.0	8.4	16.1	30.3	67.4	84.3
Other commercial farms.....	percent.....	19.0	91.6	83.9	69.7	32.6	15.7
Acres of cotton harvested:							
All commercial farms.....	acres.....	579,074	13,770	30,955	46,426	124,512	228,017
Cotton farms.....	percent.....	86.3	36.6	48.2	63.3	85.9	93.0
Other commercial farms.....	percent.....	13.7	63.4	51.8	36.7	14.1	7.0
Bales of cotton produced:							
All commercial farms.....	bales.....	334,151	9,171	19,313	29,593	77,767	131,563
Cotton farms.....	percent.....	86.0	37.5	50.4	65.0	86.6	93.4
Other commercial farms.....	percent.....	14.0	62.5	49.6	35.0	13.4	6.6
REGION III							
Farms reporting cotton harvested:							
All commercial farms.....	number.....	192,080	963	3,398	9,899	37,882	76,856
Cotton farms.....	percent.....	89.1	49.8	49.2	69.6	86.4	90.8
Other commercial farms.....	percent.....	10.9	50.2	50.8	30.4	13.6	9.2
Acres of cotton harvested:							
All commercial farms.....	acres.....	2,324,630	122,869	150,780	252,504	629,820	790,406
Cotton farms.....	percent.....	92.2	80.8	77.6	86.5	93.3	95.5
Other commercial farms.....	percent.....	7.8	19.2	22.4	13.5	6.7	4.5
Bales of cotton produced:							
All commercial farms.....	bales.....	1,693,480	110,222	119,408	208,879	497,088	552,557
Cotton farms.....	percent.....	92.8	83.4	79.6	88.0	94.3	96.1
Other commercial farms.....	percent.....	7.2	16.6	20.4	12.0	5.7	3.9
REGION IV							
Farms reporting cotton harvested:							
All commercial farms.....	number.....	135,411	3,821	7,267	16,657	37,743	52,301
Cotton farms.....	percent.....	94.6	78.3	82.0	90.5	94.9	97.3
Other commercial farms.....	percent.....	5.4	21.7	18.0	9.5	5.1	2.7
Acres of cotton harvested:							
All commercial farms.....	acres.....	3,145,532	770,786	449,761	533,502	688,036	580,997
Cotton farms.....	percent.....	95.3	91.5	91.8	95.4	97.8	99.3
Other commercial farms.....	percent.....	4.7	8.5	8.2	4.6	2.2	0.7
Bales of cotton produced:							
All commercial farms.....	bales.....	2,717,741	752,151	390,604	473,033	585,325	440,459
Cotton farms.....	percent.....	95.5	92.2	92.8	96.2	97.7	99.1
Other commercial farms.....	percent.....	4.5	7.8	7.2	3.8	2.3	0.9

COTTON PRODUCERS AND COTTON PRODUCTION

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TABLE 7.—DISTRIBUTION BETWEEN COTTON FARMS AND COMMERCIAL FARMS OTHER THAN COTTON FARMS, OF FARMS REPORTING, ACRES HARVESTED, AND PRODUCTION OF COTTON ON COMMERCIAL FARMS, BY ECONOMIC CLASS OF FARM, BY REGIONS: 1954—Continued

Region and item	Economic class of farm						
	All classes	I	II	III	IV	V	VI
REGION V							
Farms reporting cotton harvested:							
All commercial farms.....number..	31,651	374	1,129	2,775	5,465	10,305	11,603
Cotton farms.....percent..	70.3	57.0	48.9	54.8	67.2	69.8	78.5
Other commercial farms.....percent..	29.7	43.0	51.1	45.2	32.8	30.2	21.5
Acres of cotton harvested:							
All commercial farms.....acres..	711,278	85,359	80,329	110,436	155,139	176,122	103,893
Cotton farms.....percent..	80.9	82.3	72.3	78.2	81.3	82.7	85.7
Other commercial farms.....percent..	19.1	17.7	27.7	21.8	18.7	17.3	14.3
Bales of cotton produced:							
All commercial farms.....bales..	307,236	62,407	40,940	51,425	62,344	61,831	28,289
Cotton farms.....percent..	85.5	86.9	79.3	84.1	86.4	87.2	88.7
Other commercial farms.....percent..	14.5	13.1	20.7	15.9	13.6	12.8	11.3
REGION VI							
Farms reporting cotton harvested:							
All commercial farms.....number..	9,456	275	895	2,034	2,859	2,183	1,210
Cotton farms.....percent..	84.5	61.1	86.4	87.3	83.8	83.2	88.0
Other commercial farms.....percent..	15.5	38.9	13.6	12.7	16.2	16.8	12.0
Acres of cotton harvested:							
All commercial farms.....acres..	282,096	43,848	69,089	77,120	57,380	26,214	8,445
Cotton farms.....percent..	91.4	78.7	94.5	95.6	92.2	90.6	91.9
Other commercial farms.....percent..	8.6	21.3	5.5	4.4	7.8	9.4	8.1
Bales of cotton produced:							
All commercial farms.....bales..	201,363	33,534	51,399	56,825	40,081	15,614	3,910
Cotton farms.....percent..	92.7	80.8	95.4	95.9	94.2	93.2	94.7
Other commercial farms.....percent..	7.3	19.2	4.6	4.1	5.8	6.8	5.3
REGION VII							
Farms reporting cotton harvested:							
All commercial farms.....number..	67,378	1,868	7,561	14,540	20,545	16,598	6,266
Cotton farms.....percent..	66.7	63.9	58.7	65.1	67.2	68.5	74.4
Other commercial farms.....percent..	33.3	36.1	41.3	34.9	32.8	31.5	25.6
Acres of cotton harvested:							
All commercial farms.....acres..	4,097,763	457,461	923,182	1,126,042	992,309	489,467	109,302
Cotton farms.....percent..	78.2	77.9	73.8	79.5	79.2	81.3	82.0
Other commercial farms.....percent..	21.8	22.1	26.2	20.5	20.8	18.7	18.0
Bales of cotton produced:							
All commercial farms.....bales..	1,269,085	275,358	318,368	313,137	240,810	102,402	19,010
Cotton farms.....percent..	83.2	85.0	80.5	83.8	82.9	85.2	85.8
Other commercial farms.....percent..	16.8	15.0	19.5	16.2	17.1	14.8	14.2
REGION VIII							
Farms reporting cotton harvested:							
All commercial farms.....number..	5,747	1,027	1,444	1,243	962	791	280
Cotton farms.....percent..	92.2	88.9	90.5	91.9	94.7	95.6	96.4
Other commercial farms.....percent..	7.8	11.1	9.5	8.1	5.3	4.4	3.6
Acres of cotton harvested:							
All commercial farms.....acres..	445,335	248,104	110,190	53,372	20,898	10,446	2,325
Cotton farms.....percent..	94.8	94.5	95.3	95.1	95.5	92.9	97.8
Other commercial farms.....percent..	5.2	5.5	4.7	4.9	4.5	7.1	2.2
Bales of cotton produced:							
All commercial farms.....bales..	395,108	234,819	97,876	40,012	14,594	6,672	1,135
Cotton farms.....percent..	95.6	94.7	96.6	97.3	96.9	98.0	96.5
Other commercial farms.....percent..	4.4	5.3	3.4	2.7	3.1	2.0	3.5
REGION IX							
Farms reporting cotton harvested:							
All commercial farms.....number..	17,845	4,878	6,742	2,922	2,084	1,044	175
Cotton farms.....percent..	82.1	86.0	86.0	80.2	69.0	73.8	60.0
Other commercial farms.....percent..	17.9	14.0	14.0	19.8	31.0	26.2	40.0
Acres of cotton harvested:							
All commercial farms.....acres..	2,281,822	1,085,448	796,839	248,358	107,138	40,954	3,085
Cotton farms.....percent..	92.3	93.0	92.9	91.8	84.3	88.3	57.5
Other commercial farms.....percent..	7.7	7.0	7.1	8.2	15.7	11.7	42.5
Bales of cotton produced:							
All commercial farms.....bales..	1,403,496	848,469	437,073	82,871	27,360	7,013	710
Cotton farms.....percent..	93.1	93.0	93.9	92.6	86.3	89.3	44.4
Other commercial farms.....percent..	6.9	7.0	6.1	7.4	13.7	10.7	55.6
REGION X							
Farms reporting cotton harvested:							
All commercial farms.....number..	15,322	5,997	4,083	2,630	1,660	751	201
Cotton farms.....percent..	77.4	75.1	75.1	77.4	83.7	90.0	94.5
Other commercial farms.....percent..	22.6	24.9	24.9	22.6	16.3	10.0	5.5
Acres of cotton harvested:							
All commercial farms.....acres..	1,508,355	1,266,867	158,146	54,084	21,824	6,279	1,155
Cotton farms.....percent..	85.0	84.7	86.3	85.6	90.9	86.8	77.1
Other commercial farms.....percent..	15.0	15.3	13.7	14.4	9.1	13.2	22.9
Bales of cotton produced:							
All commercial farms.....bales..	2,609,709	2,269,282	234,309	72,012	25,829	7,210	1,067
Cotton farms.....percent..	85.2	84.9	86.8	87.2	93.1	85.0	76.9
Other commercial farms.....percent..	14.8	15.1	13.2	12.8	6.9	15.0	23.1

Region IX contains most of the semiarid area of the United States where cotton is produced. Most of the cotton in the region is found in subregion 102, the High Plains cotton area of Texas. A much smaller proportion of the total for the region is found in the southerly Texas counties of subregion 103, although in most of this subregion no cotton is grown. As subregion 103 is considerably larger than subregion 102, the overall figures for the region with respect to the proportion of farms reporting cotton do not reflect the intense specialization which characterizes the cotton-growing part. But it is noteworthy that, although only 25 percent of all commercial farms of the region report cotton, 59 percent of Class I farms report the crop and more than 86 percent of these are cotton farms. In fact, except for Class VI, from 69 to 86 percent of the farms reporting cotton in each class are cotton farms (see table 7).

The general situation, with respect to the proportion of all commercial farms that report cotton, in Region X, (which includes most of the United States total of cotton production under irrigation in an arid climate) is much the same as that just outlined for Region IX. In large parts of Region X no cotton is grown. Most of the farms in the region that do not grow cotton are in the large Central Valley of California which comprises the agriculturally variegated subregion 116. But subregion 116 is one of the principal cotton subregions of the country, and Region X, as a whole, produced about 2.7 million bales of cotton in 1954.

It may be noted (table 6) that about 29 percent of all commercial farms in Region X reported cotton, and that 48 and 32 percent, respectively, of Class I and Class II farms reported the crop. It is also noteworthy that three-fourths or more of all farms reporting cotton in each economic class are cotton farms (table 7).

DISTRIBUTION OF FARMS, ACREAGE, AND PRODUCTION BY ECONOMIC CLASS FOR ALL COMMERCIAL FARMS

In the preceding section we looked at the proportions of all commercial farms reporting cotton, by economic class, and at some of the possible implications. In this section we look at the facts, and their implications, which relate to the distribution of cotton-growing farms, cotton acreage, and cotton production among the several economic classes of commercial farms.

Since economic classes of farms represent farms grouped according to specified values of production for sale, we may, within certain limits, draw from data presented by economic class some inferences regarding the levels of income from farming of families who operate farms of various economic classes. More detailed data concerning income for cotton farms by economic class are found in the last two sections of this report.

In general, the American agriculture sector has participated in and contributed to economic growth of the country by producing increasing quantities of food and fiber while employing, directly, a steadily decreasing number of people. There has been a steady secular decline in the farm population of the United States since 1916. These transfers of labor resources from the farms to the nonfarm sectors of the economy have taken place mainly because farm people have moved to nonfarm employment which they judged to be more attractive than the alternatives available to them in agriculture.

Gross indications of income levels such as those afforded by economic classes of farms are to be used with some caution, but it does appear that from these economic-class data regarding farms

growing cotton some useful inferences can be drawn. They concern: (1) The regions and classes of farms where changes in size and organization of farms growing cotton would seem most likely, and (2) the effect that such changes might have upon cotton production in the country at large and within the several regions.

In this connection it would seem reasonable to regard the farms in Classes V and VI as a group likely to change. Part of these represent farms where the operators are in the older age groups and upon retirement of present operator may be combined to form large farms. Many of the younger operators on these classes of farms may seek to increase their income by farm enlargement or off-farm employment.

Many factors besides relative income influence the individual farmer's decisions. Information concerning some of these other influences will be found later in this report. In particular, the sections dealing with tenure, labor force, and investment characteristics of cotton farms by economic class of farm are relevant to this problem. In addition, the nature of government programs and acreage controls will have a strong bearing on acreage and production trends. But it is of some interest to consider the picture for each of the ten selected regions as it is indicated by (1) the number of farms growing cotton, (2) the acreage of cotton harvested, and (3) the bales of cotton produced by farms in Classes I through III and those in Classes V and VI.

The Humid Belt Regions (Regions I to VI)

Table 6 shows that throughout the humid belt (Regions I through VI) from about one-third to almost three-fifths of all farms reporting cotton are found in Classes V and VI. The proportions of cotton acreage and production that are found on these two economic classes varies more widely among these regions than does the percentage of farms reporting cotton. The range, in the instance of acreage, is from 12 percent in Region VI to more than 50 percent in Region II, while for percentage of production, the range is from 9 percent in Region VI to 51 percent in Region II.

The most striking concentrations of farms reporting cotton and of cotton acreage and production in Economic Classes V and VI are found in Regions II and III—the Piedmont and midsouthern hilly regions. Around 50 percent of the farms producing cotton and of cotton acreage and production are accounted for by these two smallest size-of-business groups of farms.

From an overall standpoint Regions I and V indicate about equal degrees of concentration of cotton production on Class V and VI farms. In each region more than 40 percent of the farms are found in these classes, while around one-third of the cotton acreage, and about one-fourth of cotton production is on such farms.

Region IV, the Mississippi Delta, presents a somewhat different picture. The proportion of farms reporting cotton that falls in Classes V and VI (49 percent) is exceeded only in Regions II and III. In Region IV the approximately 20 percent of cotton acreage and production that these farms account for, however, is smaller than for any other humid region except Region VI.

The Gulf Coast Prairie of Texas and Louisiana, Region VI, is more similar to the subhumid belt than to the other regions of the humid belt with respect to the distribution, among economic classes, of farms growing cotton, cotton acreage, and cotton production. About one-third of the farms that grow cotton in this region fall in Classes V and VI. These farms, however, account for only 12 and 9 percent, respectively, of regional acreage and production of cotton.

In Regions II and III farms in Economic Classes I to III account for only 5 and 6 percent, respectively, of farms reporting cotton. There is more variation between these two regions with respect to the proportions of cotton acreage and production that are found on these three largest size-of-business groups. The proportions are definitely minor, however, in both instances. In Region II these farms account for 13 and 15 percent, respectively, of cotton acreage and production. The comparable percentages for Region III are 23 and 24.

It will be recalled that Regions I and V showed rather similar distributions for Classes V and VI farms. In the case of the three larger economic classes, however, there is more difference than similarity. In Region I, 15 percent of all farms reporting cotton fall in Classes I through III, while in Region V only 9 percent are so classified. But in Region V these farms account for 47 percent of cotton production as compared to 38 percent for Region I. The proportions of cotton acreage found on these larger farms are almost the same for the two regions, 35 percent in Region I, and 34 percent in Region V. The nature of these distributions suggests that farms in these classes are larger in Region V than in Region I, and that in Region V cotton yields on these classes are larger, relative to yields on farms in other economic classes, than is the case in Region I.

In Region IV, farms in Classes V and VI accounted for almost 50 percent of all farms growing cotton, but for only about 20 percent of the acreage and production. The relevant distributions for Economic Classes I through III for this region are almost the reverse of this. These larger classes account for only 20 percent of the farms reporting cotton, but for 55 and 59 percent, respectively, of the cotton acreage and production of the region.

Region VI has a smaller proportion of its cotton-growing farms, cotton acreage, and cotton production in Economic Classes V and VI than any other humid region. It is not surprising that the proportions of each of these items accounted for by Economic Classes I, II, and III is larger here than in any other humid region. About one-third of all farms reporting cotton, and roughly two-thirds of the region's acreage and production of cotton are found in Economic Classes I through III.

The Subhumid Belt Regions (Regions VII and VIII)

The two regions that represent cotton production under sub-humid conditions display distinctly less concentration of farms, acreage, and production in Classes V and VI than in the regions of the humid belt. On the other hand, significantly larger proportions of acreage, of production, and of farms growing cotton are found in Economic Classes I, II, and III.

Regions VII and VIII, the two in the subhumid climatic belt, do not have much in common in regard to cotton production. The differentiation is due mostly to the extensive irrigation of cotton in Region VIII and the virtual absence of irrigation in Region VII. As there is frequently a shortage of rainfall, at least at the right time for crop production, in both regions, Region VIII, with its irrigation, has average yields of cotton more than twice as large as those in Region VII. In Region VII, about one-third of the farms reporting cotton and 14 and 9 percent, respectively, of cotton acreage and production are accounted for by farms in Classes V

and VI. The comparable figures for Region VIII are 17 percent, 3 percent, and 2 percent.

Region VIII has a considerable concentration of farms growing cotton, and of cotton acreage and production in Economic Classes I, II, and III farms. Sixty percent of the farms reporting cotton and more than 90 percent of both cotton acreage and production are accounted for by farms in these classes.

About one-third of all farms reporting cotton in Region VII are found in Classes I, II, and III. These larger size-of-business classes, however, account for 60 percent of the region's cotton acreage, and more than 70 percent of regional cotton production. It is thus evident that, although Region VII has a much larger proportion of low-total-output commercial farms growing cotton than does Region VIII, cotton production in both regions is largely concentrated on the three largest size-of-business farm groups.

The Semiarid and Arid Cotton Production Regions (Regions IX and X)

In Regions IX and X the number of farms reporting cotton, cotton acreage, and cotton production which are accounted for by Classes V and VI farms are negligible. Farms in Classes I, II, and III account for four-fifths or more of all farms reporting cotton. For the arid belt region (Region X) these three classes harvest 98 percent of both cotton acreage and production. The semiarid Region IX almost matches these figures with 93 and 97 percent, respectively, of cotton acreage and production found on Class I, II, and III farms.

COTTON PRODUCTION ON NONCOMMERCIAL FARMS

In the 10 selected cotton-producing regions, noncommercial farms account for about 16 percent of the farms reporting cotton, but for only 4 percent of the acreage, and about 2 percent of cotton production. These farms comprise 35 percent of all Census farms in the 10 regions. It becomes evident, therefore, that relatively small proportions of noncommercial farms grow cotton, and that when they do the acreages are small, and yields are generally less than average for the region.

There is considerable variation among regions with respect to the proportion of all farms accounted for by noncommercial farms, and with respect to the percent of noncommercial farms that grow cotton. In the 6 regions that comprise the humid belt, only in Region III do as many as a third (34 percent) of the farms grow cotton. In Regions V and VI only 16 percent and 8 percent, respectively, of noncommercial farms report cotton. In the remaining three regions of the humid belt about a fourth of noncommercial farms grow cotton.

In none of the 4 regions outside the humid belt do as many as 10 percent of noncommercial farms grow the crop.

Only in the Piedmont, Region II, do noncommercial farms account for as much as 10 percent of regional cotton production; here they account for 14 percent. Excluding the Delta, where they account for only 1 percent of production, noncommercial farms account for from 4 to 8 percent of production in the other regions of the humid belt.

In each region outside the humid belt, noncommercial farms account for 1 percent or less of total cotton production.

FARMERS AND FARM PRODUCTION

COTTON PRODUCTION ON COTTON FARMS AND ON COMMERCIAL FARMS OTHER THAN COTTON FARMS

In preceding sections we have examined the distribution in each of our regions of farms growing cotton, of cotton acreage, and of cotton production among economic classes for all commercial farms, and for noncommercial farms. In this section the examination relates to similar distributions for cotton farms (those commercial farms for which sales of cotton and cottonseed account for 50 percent or more of total farm sales) and for all commercial farms other than cotton farms. These latter are the residuals after subtracting for each item the relevant numbers for each economic class of cotton farm from all commercial farms shown in table 6. The distributions are shown for cotton farms in table 8, and for commercial farms other than cotton farms in table 9.

In addition to contributing to our basic general information about the size of business structure of farms that produce cotton,

TABLE 8.—PERCENT DISTRIBUTION OF NUMBER OF FARMS AND ACRES AND BALES OF COTTON HARVESTED, FOR COTTON FARMS, BY ECONOMIC CLASS OF FARM, BY REGIONS: 1954

Region and Item	All classes	Economic class of farm					
		I	II	III	IV	V	VI
REGION I							
Number of farms.....	57,374	0.5	2.1	7.7	25.9	36.3	27.5
Acres of cotton harvested.....	946,387	6.8	9.6	15.3	30.3	26.7	11.3
Bales of cotton harvested.....	595,510	7.4	10.4	17.1	32.0	24.3	8.8
REGION II							
Number of farms.....	40,263	0.1	0.4	1.9	11.9	39.8	45.9
Acres of cotton harvested.....	499,709	1.0	3.0	5.9	21.4	42.4	26.3
Bales of cotton harvested.....	287,513	1.2	3.4	6.7	23.4	42.7	22.6
REGION III							
Number of farms.....	171,185	0.3	1.0	4.0	19.1	40.8	34.8
Acres of cotton harvested.....	2,144,015	4.6	5.5	10.2	27.4	35.2	17.1
Bales of cotton harvested.....	1,571,294	5.9	6.0	11.7	20.8	33.8	12.8
REGION IV							
Number of farms.....	128,046	2.3	4.6	11.8	28.0	39.8	13.5
Acres of cotton harvested.....	2,997,248	23.5	13.8	17.0	22.5	19.2	4.0
Bales of cotton harvested.....	2,504,642	26.7	14.3	17.5	22.1	16.8	2.6
REGION V							
Number of farms.....	22,257	1.0	2.5	6.8	16.5	32.3	40.9
Acres of cotton harvested.....	575,424	12.2	10.1	15.0	21.9	25.3	15.5
Bales of cotton harvested.....	262,820	20.6	12.3	16.5	20.5	20.5	9.6
REGION VI							
Number of farms.....	7,995	2.1	9.7	22.2	30.0	22.7	13.3
Acres of cotton harvested.....	257,924	13.4	25.3	28.6	20.5	9.2	3.0
Bales of cotton harvested.....	186,638	14.5	20.3	29.2	20.2	7.8	2.0
REGION VII							
Number of farms.....	44,947	2.6	9.9	21.1	30.7	25.3	10.4
Acres of cotton harvested.....	3,206,187	11.1	21.3	27.9	24.5	12.4	2.8
Bales of cotton harvested.....	1,056,045	22.2	24.3	24.8	18.9	8.3	1.5
REGION VIII							
Number of farms.....	5,299	17.2	24.6	21.6	17.2	14.3	5.1
Acres of cotton harvested.....	422,103	55.5	24.9	12.0	4.7	2.3	0.6
Bales of cotton harvested.....	377,546	58.9	25.0	10.3	3.8	1.7	0.3
REGION IX							
Number of farms.....	14,650	28.6	39.6	16.0	9.8	5.3	0.7
Acres of cotton harvested.....	2,105,800	47.9	35.2	10.8	4.3	1.7	0.1
Bales of cotton harvested.....	1,305,958	60.4	31.4	5.9	1.8	0.5	(Z)
REGION X							
Number of farms.....	11,858	37.9	25.9	17.2	11.7	5.7	1.6
Acres of cotton harvested.....	1,282,203	83.7	10.7	3.6	1.5	0.4	0.1
Bales of cotton harvested.....	2,223,185	86.6	9.2	2.8	1.1	0.3	(Z)
TOTAL, 10 REGIONS							
Number of farms.....	503,874	3.0	5.0	9.0	22.1	35.8	25.1
Acres of cotton harvested.....	14,437,000	25.3	16.8	15.8	19.0	16.7	6.4
Bales of cotton harvested.....	10,461,151	39.1	15.1	12.4	15.8	13.5	4.1

Z 0.05 percent or less.

the data in these 2 tables highlight the facts concerning the distribution, for the 10 regions, of farms growing cotton, and of cotton acreage and production on the 3 largest and the 2 smallest size-of-business groups for commercial farms.

In general, in the regions of the humid belt (Regions I through VI) there is a higher concentration of farms, and of acres and production of cotton in Classes V and VI on cotton farms than on other commercial farms that grow cotton.

In Regions VII through X the economic class structure of the number of farms growing and of the acreage and production of cotton is dominated by Classes I, II, and III. In these regions cotton farms show either approximately the same distribution by economic class as other commercial farms that grow cotton, or indicate relatively higher concentration in Classes I, II, and III.

TABLE 9.—PERCENT DISTRIBUTION OF NUMBER OF FARMS REPORTING COTTON AND ACRES AND BALES OF COTTON HARVESTED, FOR COMMERCIAL FARMS OTHER THAN COTTON FARMS, BY ECONOMIC CLASS, BY REGIONS: 1954

Region and item	Economic class of farm						
	All classes	I	II	III	IV	V	VI
REGION I							
Number of farms.....	100.0	1.1	4.4	18.0	41.9	28.4	6.2
Acres of cotton harvested.....	100.0	8.0	12.4	24.2	35.5	17.2	2.7
Bales of cotton harvested.....	100.0	8.4	13.2	26.2	35.8	14.7	1.7
REGION II							
Number of farms.....	100.0	2.7	9.9	18.1	24.6	31.7	13.0
Acres of cotton harvested.....	100.0	11.0	20.2	21.4	22.1	20.1	5.2
Bales of cotton harvested.....	100.0	12.3	20.5	22.3	22.3	18.6	4.0
REGION III							
Number of farms.....	100.0	2.3	8.3	14.5	24.7	33.6	16.6
Acres of cotton harvested.....	100.0	13.0	18.6	18.8	23.4	20.1	6.1
Bales of cotton harvested.....	100.0	14.9	20.0	20.5	23.1	17.5	4.0
REGION IV							
Number of farms.....	100.0	11.4	17.8	21.5	26.1	18.8	4.6
Acres of cotton harvested.....	100.0	43.5	23.2	15.5	11.7	5.0	1.1
Bales of cotton harvested.....	100.0	47.5	23.2	14.5	10.7	3.6	0.5
REGION V							
Number of farms.....	100.0	1.7	6.2	13.4	19.1	32.9	26.7
Acres of cotton harvested.....	100.0	11.1	16.4	17.7	21.4	22.5	10.9
Bales of cotton harvested.....	100.0	18.4	19.1	18.4	19.1	17.8	7.2
REGION VI							
Number of farms.....	100.0	7.3	8.3	17.7	31.7	25.1	9.9
Acres of cotton harvested.....	100.0	38.5	15.7	14.0	18.9	10.1	2.8
Bales of cotton harvested.....	100.0	43.5	16.0	15.7	16.2	7.2	1.4
REGION VII							
Number of farms.....	100.0	3.0	13.9	22.6	30.0	23.3	7.2
Acres of cotton harvested.....	100.0	11.3	27.1	26.0	23.1	10.3	2.2
Bales of cotton harvested.....	100.0	19.4	29.3	23.9	19.0	7.1	1.3
REGION VIII							
Number of farms.....	100.0	25.4	30.6	22.5	11.4	7.8	2.2
Acres of cotton harvested.....	100.0	58.4	23.1	11.1	4.0	3.2	0.2
Bales of cotton harvested.....	100.0	70.6	19.8	6.2	2.5	0.7	0.2
REGION IX							
Number of farms.....	100.0	21.4	29.6	18.1	20.2	8.5	2.2
Acres of cotton harvested.....	100.0	43.3	32.1	11.6	9.5	2.7	0.8
Bales of cotton harvested.....	100.0	61.2	27.5	6.3	3.8	0.8	0.4
REGION X							
Number of farms.....	100.0	43.2	29.4	17.2	7.8	2.2	0.3
Acres of cotton harvested.....	100.0	85.7	9.5	3.4	0.9	0.4	0.1
Bales of cotton harvested.....	100.0	88.8	8.0	2.4	0.5	0.3	(Z)
TOTAL, 10 REGIONS							
Number of farms.....	100.0	3.9	9.0	18.1	32.4	27.1	9.5
Acres of cotton harvested.....	100.0	22.6	20.7	20.4	21.8	11.7	2.8
Bales of cotton harvested.....	100.0	41.1	17.1	15.8	16.6	8.0	1.4

Z 0.05 percent or less.

SOME IMPLICATIONS OF DISTRIBUTION OF COTTON PRODUCTION BY ECONOMIC CLASS AND REGION

In the United States, secular trends are toward increasing size of farm business and transfer of labor resources from the farm to nonfarm sectors of the economy. In recent years considerable emphasis has been placed on solving the low-income problem, involving the acceleration of the process of reduction in numbers of low-income farms through farm enlargement and development and the increase in nonfarm employment. In this context it is interesting to review the possible implications for cotton acreage and production of the reduction in numbers of Classes V and VI farms, and of increases in size of farms. This review covers the various areas or regions, and is based on current variations in farm organizations by economic class of farm. The following appear to be some of the more important implications of a further reduction in Classes V and VI farms and of increases in size of commercial farms in the 10 cotton regions.

In Region I (Eastern Coastal Plains), 43 percent of all commercial farms that grow cotton and about 30 percent and 26 percent, respectively, of the acreage and production of cotton are found in Classes V and VI. There is some indication that of the larger sizes of farms, fewer grow cotton, and that, of those that continue to grow it, fewer are cotton farms. The indication of these latter tendencies is not, however, nearly so conclusive in this as in some other regions.

In light of this, a continuation of the trends toward increasing size of farm, and a continued reduction in the number of Classes V and VI farms might result in continued, though probably not a large, reduction in aggregate cotton acreage in the region. The extent to which cotton acreage might be affected by a reduction in the numbers of Classes V and VI farms would seem to depend to some degree upon the extent to which such farms were used as part-time units, or combined into larger units. The smaller proportion of noncommercial farms having cotton would suggest a tendency toward reduction of aggregate cotton acreage on farms which become part-time units.

In Regions II, III, and V (Southern Piedmont, Eastern and Western Hilly Regions) where Classes V and VI cotton farms are numerous and the cotton enterprise is relatively less important on larger farms, further changes in farm size, and a reduction in low-income farms would appear likely to encourage more emphasis on other enterprises and to reduce acreages of cotton. The essential facts upon which these tentative inferences rest are: (1) In each of these regions the proportion of commercial farms that grow cotton is substantially lower for Classes I through III than for Classes V and VI. (2) In each of these regions there is considerably more concentration of farms and acreage and production of cotton in Classes V and VI for cotton farms than for other commercial farms that report cotton. (3) In these regions, Classes V and VI farms comprise around 50 percent of all farms growing cotton and they account for approximately 35 to 50 percent of cotton acreage, and 27 to 50 percent of cotton production. The concentration in these smallest size-of-business groups is much larger for cotton farms than for other commercial farms. In these regions, cotton farms account for from 84 to 97 percent of the acreage and production of cotton on Classes V and VI farms.

As an aid to the reader's perspective, it may be pointed out that, in 1954, these three regions accounted for 42 percent of all farms reporting cotton in the United States, and for 21 and 20 percent, respectively, of the national total of cotton acreage and production.

In Regions IV and VI (Delta and Gulf Coastal Regions) the implications of the data, by economic classes for farms reporting cotton and the acreage and production of cotton, are considerably different. In general, there would seem to be little indication that a reduction in numbers of Classes V and VI farms would significantly affect cotton acreage in these regions. In each of these

regions substantial proportions of all farms reporting cotton fall into Classes V and VI (49 percent for Region IV and 32 percent for Region VI). In this respect there is similarity to Regions II, III, and V. Another similarity between these regions and Regions II, III, and V, is that smaller percentages of farms in Classes I and II report cotton than is the case for the smaller size-of-business classes. But this condition is less pronounced and is believed to result mainly from the presence in each of specialized rice farms. Particularly in Region VI, and to a marked but lesser degree in Region IV, rice farms do not grow cotton. In both regions rice farms tend to be concentrated in the larger size-of-business groups.

Other significant facts about Regions IV and VI that differentiate them from other regions of the humid belt are (1) in both regions significant proportions (one-fifth for Region IV and about one-third for Region VI) of farms reporting cotton fall in Classes I, II, and III, and (2) in Region IV, 55 and 59 percent, respectively, of regional acreage and production of cotton are found on the three largest size-of-business groups. The comparable percentages for Region VI are 64 and 66 percent.

The general terrain characteristics of these regions would make feasible the use of modern mechanical equipment adapted to larger cotton farms. A continued increase in the size of farms, given the generally higher yields which characterize larger farms, may well result in an increase for these regions in their proportion of the national total acreage and production of cotton.

In 1954, Regions IV and VI accounted for about 19 and 23 percent, respectively, of all acreage and production of cotton in the United States, and for 18 percent of all farms that grew cotton.

In Region VII (Black Prairie and Plains Regions), it will be recalled, about 31 percent of all farms reporting cotton are in Classes V and VI. These small size-of-business groups have, however, only 14 and 9 percent, respectively, of the region's total acreage and production of cotton. About one-third of all farms that grow cotton and three-fifths of the region's acreage of cotton are in the three large size-of-business groups, Classes I through III. These three groups of farms account for more than 70 percent of the cotton produced in the region. About as large a proportion of all farms in Classes I through III report cotton as of those in smaller size-of-business groups. To these considerations may be added the fact that about four-fifths of all commercial farms in Classes I through III that report cotton are cotton farms (which is about the same percentage as for other classes). Part-time and residential farms are not as important in the subhumid region. In view of these considerations, there does not seem to be any reason to expect a tendency for cotton acreage to be materially reduced in the region as a result of increases in size of farms.

Region VII, in 1954, contained about 9 percent of all farms in the United States that reported cotton, and accounted for 22 and 10 percent, respectively, of the United States total acreage and production of the crop.

In the three remaining regions, VIII, IX, and X, the production of cotton is now heavily concentrated in the three largest size-of-business groups. Effects on cotton acreage or production of reduced numbers of Class V and Class VI farms would appear to be virtually negligible. The general tendency toward increasing size might work in the direction of increasing emphasis on the cotton enterprise.

But it should be pointed out that these represent implications of how reduction in low-income farms and increased farm size might tend to influence farm organization and are based on the current size structure in these regions. They are not predictions of trends since many other factors, including governmental programs, technological developments, and changes in alternatives for use of resources, will affect actual trends.

Section 2.—TRENDS IN COTTON PRODUCTION BY REGIONS

Historical data concerning the geographic location and the acreage, yield, and output of cotton, can give valuable insights on the role cotton plays in the several regions. The picture drawn by data on trends of the acreage, yield, and production of cotton for each region shows, in the aggregate, the results of the responses of thousands of actual and potential growers of cotton to the whole continuously changing range of economic forces and institutional arrangements that affect the production of cotton. Figure 5 indicates the aggregate changes in acreage and production of cotton in the United States during the 75-year period 1879-1954.

regions with which we are dealing (VIII, IX, and X) had far greater acreages of cotton in cultivation in 1954 than during the 1928-32 period. One additional region, the Mississippi Delta (Region IV), produced 28 percent more cotton from 29 percent fewer acres than in 1928-32. Production during 1954 in Regions VIII, IX, and X was, respectively, 590, 347, and 937 percent of their average for 1928-32. These four regions, in 1954, accounted for 39 and 54 percent, respectively, of the United States total of cotton acreage and production. Comparable percentages for 1928-32 are 17 and 21 percent.

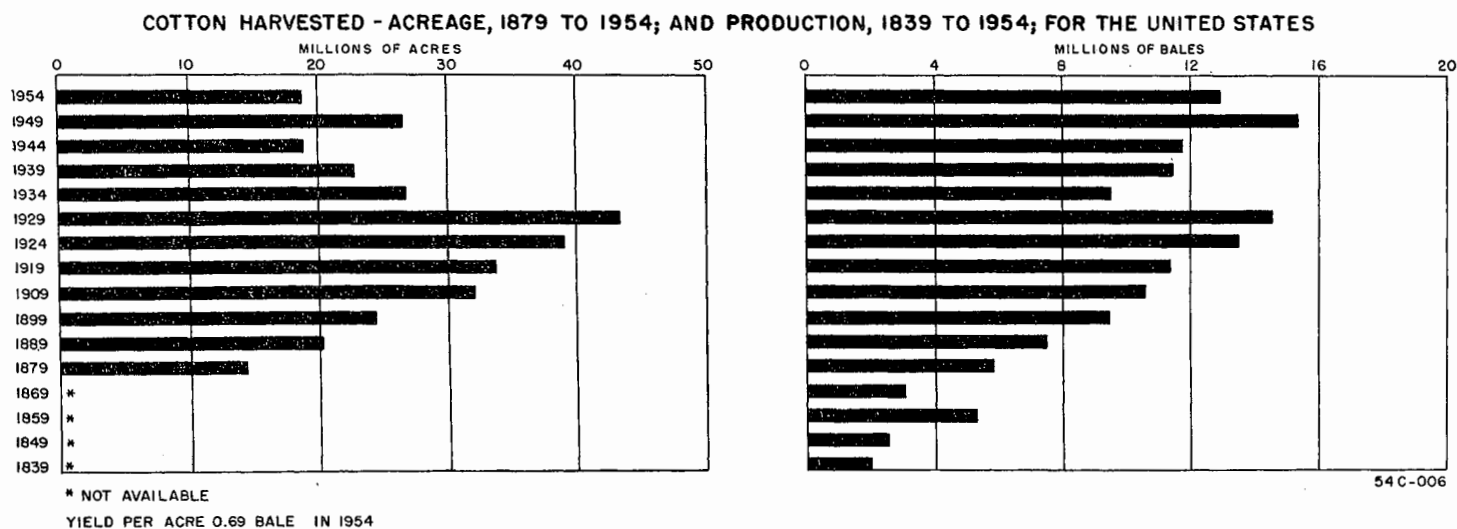


FIGURE 5.

Great changes have taken place during the past quarter-century in the overall picture of cotton production. In the 5-year period, 1928-32, an average of almost 41.5 million acres of cotton was in cultivation annually in the United States, whereas for the 5 years, 1950-54, the average acreage in cultivation was only 19.8 million acres—56 percent of the average acreage 22 years before. But the production of cotton in the period 1950-54 averaged 96 percent of that for the period 1928-32.

Behind these averages for two widely separated 5-year periods there is an interesting story of national and interregional adjustments to changing conditions of production and demand for cotton and for the resources used in its production.

The gist of this story is presented in the data of table 10.

The period 1928-32 represents the last 5 years of cotton production in this country prior to initiation of governmental price-support and acreage-control programs. The change in the acreage and production of cotton since 1928-32 is the result of widely varying regional adaptations to the changing conditions of production and demand.

For example, in 1954, the United States as a whole had in cultivation, on July 1, only 48 percent of the average cotton acreage for that date during the 1928-32 period. Three of the ten

In two of the regions (II and V) there has been a steady decline in cotton acreage and production since 1928-32. In Region II, cotton acreage in 1954 was only 24 percent of the regional average for 1928-32, while in Region V only 17 percent as much acreage was in cultivation as the average for the earlier period. The comparable figures for production in 1954 are 29 percent for Region II and 24 percent for Region V.

In the remaining regions (I, III, VI, and VII), the 1954 acreage as a percentage of each region's 1928-32 average acreage varies from 41 to 46 percent. The 1954 production, as a percentage of the 1928-32 average, ranges from 44 to 79 percent. In Regions I, III, and VI the range is only from 76 to 79 percent. It is thus evident that the fourth of these regions, Region VII, merits special attention in these comparisons, especially in regard to yields. For example, 1954 yields for Regions I, III, and VI, as percentages of their own 1928-32 averages, are, respectively, 169, 179, and 154. The comparable figure for Region VII is 108. The probable reasons for this virtually unchanged yield level since 1928 is that water limits the production in much of this region, and water is not available in sufficient quantity to permit the effective use of the commercial fertilizers that have played a major part in increasing the yields in other nonirrigated regions.

COTTON PRODUCERS AND COTTON PRODUCTION

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TABLE 10.—COTTON ACREAGE, YIELD PER ACRE, AND PRODUCTION FOR SPECIFIED 5-YEAR PERIODS, FOR THE UNITED STATES AND REGIONS:
1928 TO 1954¹

Item	Region										Total, 10 regions	United States
	I	II	III	IV	V	VI	VII	VIII	IX	X		
Average 1928-32:												
Acres.....	3,665.6	3,029.3	5,569.7	4,825.6	4,828.3	727.5	10,903.6	214.0	1,716.4	387.0	35,867.0	41,423.0
Percent of U. S. total.....	8.8	7.3	13.4	11.6	11.7	1.8	26.3	0.5	4.1	0.9	86.6	100.0
Lint yield.....	180	216	188	225	140	196	139	153	131	325	172	170
Percent of U. S. average.....	106	127	111	132	82	116	82	90	77	191	101	100
Production.....	1,374.9	1,361.9	2,175.9	2,263.7	1,411.3	305.1	3,166.8	68.9	468.6	261.7	12,858.8	14,667.0
Percent of U. S. total.....	9.4	9.3	14.8	15.4	9.6	2.1	21.6	0.5	3.2	1.8	87.7	100.0
Average 1933-37:												
Acres.....	2,983.2	2,384.1	4,173.2	4,027.8	3,410.5	648.6	8,070.9	179.4	1,621.9	680.3	28,179.9	32,178.0
Percent of U. S. total.....	9.3	7.4	13.0	12.5	10.6	2.0	25.1	0.6	5.0	2.1	87.6	100.0
Percent of 1928-32 average.....	81	79	75	83	71	89	74	84	94	176	79	78
Lint yield.....	230	233	232	280	141	168	142	193	144	492	196	192
Percent of U. S. average.....	120	121	121	146	73	87	74	101	75	256	102	100
Percent of 1928-32 average.....	128	108	123	124	101	86	102	126	110	151	114	113
Production.....	1,428.6	1,159.0	2,018.9	2,349.3	1,000.7	228.1	2,392.3	74.3	487.3	697.6	11,836.1	12,933.0
Percent of U. S. total.....	11.0	9.0	15.6	18.2	7.7	1.8	18.5	0.6	3.8	5.4	91.5	100.0
Percent of 1928-32 average.....	104	85	93	104	71	75	76	108	104	267	92	88
Average 1938-42:												
Acres.....	2,248.6	1,746.5	3,431.5	3,334.5	2,303.6	424.0	5,442.9	197.9	1,414.5	703.0	21,247.0	24,201.0
Percent of U. S. total.....	9.3	7.2	14.2	13.8	9.5	1.8	22.5	0.8	5.8	2.9	87.8	100.0
Percent of 1928-32 average.....	61	58	62	60	48	58	50	92	82	182	59	58
Lint yield.....	219	267	263	388	179	200	162	212	172	522	206	237
Percent of U. S. average.....	92	113	111	164	76	84	68	89	73	220	87	100
Percent of 1928-32 average.....	122	124	140	172	128	102	117	139	131	161	120	139
Production.....	1,025.4	971.5	1,882.8	2,693.4	860.0	178.8	1,835.3	89.3	508.2	763.9	10,808.6	11,977.0
Percent of U. S. total.....	8.6	8.1	15.7	22.5	7.2	1.5	15.3	0.7	4.2	6.4	90.2	100.0
Percent of 1928-32 average.....	75	71	87	119	61	59	58	130	108	292	84	82
Average 1943-47:												
Acres.....	1,609.8	1,377.3	3,054.2	3,272.6	1,150.3	349.3	4,805.1	254.0	1,231.6	828.8	17,942.0	19,821.0
Percent of U. S. total.....	8.1	6.9	15.4	16.5	5.8	1.8	24.2	1.3	6.2	4.2	90.5	100.0
Percent of 1928-32 average.....	44	45	55	68	24	48	44	119	72	214	50	48
Lint yield.....	285	311	310	368	189	198	146	300	202	570	268	256
Percent of U. S. total.....	111	121	121	144	74	77	57	117	79	223	105	100
Percent of 1928-32 average.....	158	144	165	164	135	101	105	196	154	175	156	151
Production.....	955.2	892.4	1,971.6	2,506.9	456.0	141.0	1,464.4	160.7	519.5	984.9	10,052.6	10,634.0
Percent of U. S. total.....	9.6	8.4	18.5	23.6	4.3	1.3	13.8	1.5	4.9	9.3	94.6	100.0
Percent of 1928-32 average.....	69	66	91	111	32	46	46	234	111	376	78	72
Average 1948-52:												
Acres.....	1,939.1	1,071.3	3,179.6	4,086.2	1,206.8	410.1	5,859.4	639.1	2,843.1	1,828.9	23,063.6	24,961.0
Percent of U. S. total.....	7.8	4.3	12.7	16.4	4.8	1.6	23.5	2.6	11.4	7.3	92.4	100.0
Percent of 1928-32 average.....	53	35	57	85	25	56	54	290	166	473	64	60
Lint yield.....	274	270	310	366	191	289	154	321	261	588	285	274
Percent of U. S. average.....	100	99	113	134	70	105	56	117	95	215	104	100
Percent of 1928-32 average.....	152	125	165	163	136	147	111	210	199	191	166	161
Production.....	1,105.7	603.7	2,055.3	3,117.7	481.0	249.2	1,878.7	417.3	1,547.8	2,241.7	13,698.1	14,259.0
Percent of U. S. total.....	7.8	4.2	14.4	21.9	3.4	1.7	13.2	2.9	10.9	15.7	96.1	100.0
Percent of 1928-32 average.....	80	44	94	138	34	82	59	606	330	857	107	97
Average 1950-54:												
Acres.....	2,013.5	891.4	2,912.3	3,845.6	974.5	416.7	5,544.2	640.6	2,796.3	1,954.7	21,989.8	23,248.0
Percent of U. S. total.....	8.7	3.8	12.5	16.5	4.2	1.8	23.8	2.8	12.0	8.4	94.6	100.0
Percent of 1928-32 average.....	55	29	52	80	20	57	51	299	163	505	61	56
Lint yield.....	277	280	321	368	194	286	139	286	282	685	289	270
Percent of U. S. average.....	103	104	119	136	72	106	51	106	104	254	107	100
Percent of 1928-32 average.....	154	130	171	164	139	146	100	187	215	211	168	159
Production.....	1,162.9	519.9	1,945.5	2,947.0	393.5	255.8	1,601.9	381.5	1,644.0	2,790.2	13,642.2	14,061.0
Percent of U. S. total.....	8.3	3.7	13.8	21.0	2.8	1.8	11.4	2.7	11.7	19.8	97.0	100.0
Percent of 1928-32 average.....	85	38	89	130	28	84	51	554	351	1,066	106	96
1954:												
Acres.....	1,658.7	741.3	2,469.5	3,414.9	833.7	332.1	4,493.8	474.0	2,446.9	1,398.1	18,263.0	19,791.0
Percent of U. S. total.....	8.4	3.7	12.5	17.3	4.2	1.7	22.7	2.4	12.4	7.1	92.3	100.0
Percent of 1928-32 average.....	45	24	44	71	17	46	41	221	143	361	51	48
Lint yield.....	304	259	336	406	195	302	150	412	319	842	329	332
Percent of U. S. average.....	92	78	101	122	59	91	45	124	96	254	99	100
Percent of 1928-32 average.....	169	120	179	180	139	154	108	269	244	259	191	195
Production.....	1,049.1	400.2	1,728.5	2,886.8	339.4	232.9	1,406.1	407.0	1,627.8	2,453.3	12,531.1	13,679.0
Percent of U. S. total.....	7.7	2.9	12.6	21.1	2.5	1.7	10.3	3.0	11.9	17.9	91.6	100.0
Percent of 1928-32 average.....	76	29	79	128	24	76	44	591	347	937	97	93

¹ Source: Agricultural Marketing Service, U. S. Department of Agriculture. Acres represent acres in cultivation July 1 and yield represents yield per acre in cultivation July 1.

In spite of these low yields relative to all other regions, cotton continues as the major crop on most farms in Region VII, and the region has maintained a relatively stable proportion of the United States total acreage of cotton from 1928-32 to 1954.

While the data of table 10 gives actual average yields, and production of cotton along with percentages, for later 5-year periods, of relevant 1928-32 averages, and of the United States totals or averages, table 11 presents relative numbers that indicate for each region how that region's changes compare with changes for the United States as a whole in acreage, yield, and production of cotton, in comparison with its own past. For

example, under the column headed "Region IV" and opposite the item "Acres of cotton in cultivation July 1—1950-54 average" is the number 143. This means that for Region IV the 1950-54 acreage of cotton, as a percentage of the average for the period 1928-32, is 143 percent of the United States 1950-54 acreage expressed as a percentage of the acreage for 1928-32.

In general, the important figures here are those relating to yield. It will generally be found that, if the relative numbers for a region are high, that region has maintained or increased its importance as a cotton-producing region.

TABLE 11.—RATIO OF CHANGE SINCE 1928-32 IN ACREAGE, YIELD, AND PRODUCTION OF COTTON IN EACH REGION TO CHANGE FOR THE UNITED STATES FOR SPECIFIED PERIODS: 1933 TO 1954

[United States Change=100]

Item and period	Region										Total, 10 regions	United States
	I	II	III	IV	V	VI	VII	VIII	IX	X		
Acres of cotton in cultivation, July 1:												
Average 1933-37.....	104	101	96	106	91	114	95	108	121	226	101	100
Average 1938-42.....	105	100	107	119	83	100	86	160	141	314	102	100
Average 1943-47.....	92	94	115	142	50	100	92	248	150	446	104	100
Average 1948-52.....	88	58	95	142	42	93	90	498	277	788	107	100
Average 1950-54.....	98	52	93	143	36	102	91	534	291	902	109	100
1954.....	94	50	92	148	35	96	85	460	298	752	106	100
Yield of lint per acre:												
Average 1933-37.....	113	96	109	110	89	76	90	111	97	134	101	100
Average 1938-42.....	88	89	101	124	92	73	84	100	94	116	86	100
Average 1943-47.....	105	95	109	109	80	67	70	130	102	116	103	100
Average 1948-52.....	94	78	102	101	84	91	69	130	124	119	103	100
Average 1950-54.....	97	82	108	103	87	92	63	118	135	133	106	100
1954.....	87	62	92	92	71	79	55	138	125	133	98	100
Bales of cotton produced:												
Average 1933-37.....	118	97	106	118	81	85	86	122	118	303	105	100
Average 1938-42.....	91	87	106	145	74	72	71	159	132	356	102	100
Average 1943-47.....	96	92	126	154	44	64	64	325	154	522	108	100
Average 1948-52.....	82	45	97	142	35	85	61	625	340	883	110	100
Average 1950-54.....	89	40	93	135	29	87	53	577	366	1,110	110	100
1954.....	82	31	85	138	26	82	47	635	373	1,007	104	100

Section 3.—TENURE OF COTTON FARMS

Detailed analysis of the type of tenure, by which operators of cotton farms control the land resources they use, and of the economic implications of such tenure arrangements, is not an important purpose of this report. But the tenure characteristics of cotton farms have some effect on the interpretation of data relating to land use, to production expenses, and to investment on cotton farms, and the tenure of operator has some influence upon the mobility of labor and other resources employed on farms. Therefore, tenure arrangements of the operators of cotton farms will be briefly examined.

PROPORTION OF COTTON FARMS OPERATED BY CROPPERS

The legal status of croppers varies from State to State. Typically, the cropper is one who supplies only the labor input for the farming operation. The landlord typically provides the land and the power and equipment used, and makes most of the managerial decisions. Crops produced on cropper operations are usually divided equally between the cropper and the landlord. The cropper usually pays for half the fertilizer used.

Because of these facts the cropper is often treated, in economic analysis, as a farm laborer rather than as a farm operator; but a farm laborer who shares directly some of the short-term risks associated with the farm business.

In Census statistics, however, croppers are considered as farm operators. The principal objective here, in examining the proportions of cotton farms operated by croppers, is to bring out the facts concerning the influence of cropper operations on (1) land use, expenses, and investment for various economic classes of

cotton farms, and (2) the probable mobility of labor and land resources on various size-of-business groups of cotton farms.

Given the facts concerning the typical cropper operation it would seem evident that: (1) The land associated with cropper operations would tend to be very largely cropland, (2) livestock enterprises would be at a minimum, and (3) to the extent that the landlord does not operate a farm, or if he does, to the extent that his farm falls in a different economic class from that of the cropper, production expenses and investment in machinery and equipment may be understated in those economic classes where croppers are found. Also, statistics for the economic class in which the landlords are found may overstate production expenses, and reflect investment in machinery and equipment that is not fully related to the operation with which it is statistically associated.

Because of investments in land and/or farm machinery and equipment by farm operators other than croppers, it would seem reasonable to infer that, with other considerations being equal, there would be a higher degree of mobility with respect to other employment opportunities among croppers than among other types of operators. The relatively rapid decline in numbers of croppers seems to strengthen such an inference. It follows, also, that the land resources used by croppers may be more readily available than those controlled by operators of other tenure statuses for use in future adjustments which entail increased land resources per farm.

With these facts in mind, it is interesting to examine the data in table 12 concerning the proportions of farms operated by croppers for the various economic classes of cotton farms in the 10 designated production regions.

TABLE 12.—PERCENT DISTRIBUTION OF ALL COMMERCIAL FARM OPERATORS, AND COTTON FARM OPERATORS IN EACH ECONOMIC CLASS OF FARM, BY COLOR AND TENURE OF OPERATOR, BY REGIONS: 1954

Region and item	Percent distribution								Region and item	Percent distribution							
	All commercial farms	Cotton farms by economic class of farm								All commercial farms	Cotton farms by economic class of farm						
		All classes	I	II	III	IV	V	VI			All classes	I	II	III	IV	V	VI
REGION I									REGION III								
All farm operators.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	All farm operators.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
White.....	59.8	38.8	98.3	92.8	58.8	41.0	37.6	27.5	White.....	63.0	54.0	97.9	91.6	77.4	62.2	53.7	45.7
Nonwhite.....	40.2	61.2	1.7	7.2	41.2	59.0	62.4	72.5	Nonwhite.....	37.0	46.0	2.1	8.4	22.6	37.8	46.3	54.3
Owners, part owners, and managers.....	51.7	38.3	88.9	76.3	44.7	30.3	34.6	45.0	Owners, part owners, and managers.....	52.6	42.2	81.7	66.5	46.0	38.9	38.0	47.4
White.....	77.6	57.6	98.0	97.5	81.9	70.7	58.9	34.5	White.....	80.4	71.5	97.4	91.5	89.4	81.2	75.4	60.3
Nonwhite.....	22.4	42.4	2.0	2.5	18.1	29.3	41.1	65.5	Nonwhite.....	19.6	28.5	2.6	8.5	10.6	18.8	24.6	39.7
All tenants except croppers.....	26.2	32.3	9.8	17.5	30.4	34.0	31.6	33.7	All tenants except croppers.....	26.0	30.9	16.8	25.8	32.7	29.5	30.7	31.9
White.....	46.5	31.2	100.0	79.2	49.5	34.6	30.3	22.2	White.....	49.8	46.5	100.0	95.4	81.7	60.5	47.4	32.9
Nonwhite.....	53.5	68.8	-----	20.8	50.5	65.4	69.7	77.8	Nonwhite.....	50.2	53.5	-----	4.6	18.3	39.5	52.6	67.1
Croppers.....	22.0	29.4	1.4	6.2	24.9	35.7	33.8	21.3	Croppers.....	21.4	26.9	1.5	7.7	21.3	31.5	31.2	20.7
White.....	33.8	22.7	100.0	73.7	28.8	21.9	22.6	21.2	White.....	36.1	35.2	100.0	80.5	45.0	40.4	33.5	32.1
Nonwhite.....	66.2	77.3	-----	26.3	71.2	78.1	77.4	78.8	Nonwhite.....	63.9	64.8	-----	19.5	55.0	59.6	66.5	67.9
REGION II									REGION IV								
All farm operators.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	All farm operators.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
White.....	71.3	48.1	100.0	93.9	81.7	50.9	48.1	45.6	White.....	50.3	44.0	98.6	93.0	72.9	46.3	30.5	27.7
Nonwhite.....	28.7	51.9	-----	6.1	18.3	49.1	51.9	54.4	Nonwhite.....	49.7	56.0	1.4	7.0	27.1	53.7	69.5	72.3
Owners, part owners, and managers.....	62.2	38.1	95.7	93.9	71.6	38.2	31.0	42.2	Owners, part owners, and managers.....	31.4	25.3	68.1	45.7	29.3	23.8	18.9	29.4
White.....	89.5	72.5	100.0	93.5	92.5	81.2	77.9	65.0	White.....	80.0	72.9	98.8	93.3	86.0	73.5	65.1	54.0
Nonwhite.....	10.5	27.5	-----	6.5	7.5	18.8	22.1	35.0	Nonwhite.....	20.0	27.1	1.2	6.7	14.0	26.5	34.9	46.0
All tenants except croppers.....	17.1	25.7	4.3	6.1	9.6	23.3	26.3	26.7	All tenants except croppers.....	25.7	26.4	29.3	47.6	43.6	27.4	20.9	17.4
White.....	54.6	44.4	100.0	100.0	76.4	50.3	49.9	37.8	White.....	61.1	58.0	98.5	94.3	81.1	55.4	39.7	34.4
Nonwhite.....	45.4	55.6	-----	-----	23.6	49.7	50.1	62.2	Nonwhite.....	38.9	42.0	1.5	5.7	18.9	44.6	60.3	65.6
Croppers.....	20.6	36.2	-----	-----	18.7	38.5	42.7	31.1	Croppers.....	42.9	48.3	2.6	6.7	27.1	48.7	60.1	53.2
White.....	30.0	25.2	-----	-----	42.9	21.1	25.2	26.0	White.....	22.1	21.3	93.5	81.3	45.5	27.8	16.5	11.0
Nonwhite.....	70.0	74.8	-----	-----	57.1	78.9	74.8	74.0	Nonwhite.....	77.9	78.7	6.5	18.7	54.5	72.2	83.5	89.0

FARMERS AND FARM PRODUCTION

TABLE 12.—PERCENT DISTRIBUTION OF ALL COMMERCIAL FARM OPERATORS, AND COTTON FARM OPERATORS IN EACH ECONOMIC CLASS OF FARM, BY COLOR AND TENURE OF OPERATOR, BY REGIONS: 1954—Continued

Region and item	Percent distribution								Region and item	Percent distribution							
	All commercial farms	Cotton farms by economic class of farm								All commercial farms	Cotton farms by economic class of farm						
		All classes	I	II	III	IV	V	VI			All classes	I	II	III	IV	V	VI
REGION V									REGION VIII								
All farm operators.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	All farm operators.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
White.....	80.0	57.0	100.0	96.2	84.7	70.8	57.7	42.9	White.....	99.6	99.7	98.9	99.6	100.0	100.0	100.0	100.0
Nonwhite.....	20.0	43.0	-----	3.8	15.3	29.2	42.3	57.1	Nonwhite.....	0.4	0.3	1.1	0.4	-----	-----	-----	-----
Owners, part owners, and managers.....	76.6	56.1	75.8	70.3	57.6	53.1	49.5	61.0	Owners, part owners, and managers.....	81.9	80.8	85.1	80.9	83.3	78.0	75.5	79.6
White.....	87.0	66.3	100.0	95.9	90.0	83.4	73.4	49.0	White.....	99.8	99.9	99.4	100.0	100.0	100.0	100.0	100.0
Nonwhite.....	13.0	33.7	-----	4.1	10.0	16.6	26.6	51.0	Nonwhite.....	0.2	0.1	0.6	-----	-----	-----	-----	-----
All tenants except croppers.....	16.7	28.4	18.6	27.9	29.3	28.3	29.8	27.5	All tenants except croppers.....	17.5	18.4	14.9	18.7	16.3	20.9	21.8	20.4
White.....	66.6	53.3	100.0	96.8	84.3	68.7	52.3	38.8	White.....	98.6	99.0	96.3	98.0	100.0	100.0	100.0	100.0
Nonwhite.....	33.4	46.7	-----	3.2	15.7	31.3	47.7	61.2	Nonwhite.....	1.4	1.0	3.7	2.0	-----	-----	-----	-----
Croppers.....	6.6	15.5	5.6	1.8	13.1	18.7	20.6	11.5	Croppers.....	0.6	0.8	-----	0.4	0.4	1.1	2.6	-----
White.....	34.0	30.1	100.0	100.0	62.5	38.0	27.9	20.5	White.....	100.0	100.0	-----	100.0	100.0	100.0	100.0	-----
Nonwhite.....	66.0	69.9	-----	-----	37.5	62.0	72.1	79.5	Nonwhite.....	-----	-----	-----	-----	-----	-----	-----	-----
REGION VI									REGION IX								
All farm operators.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	All farm operators.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
White.....	89.7	79.3	97.0	97.4	91.8	81.4	72.7	48.8	White.....	99.7	99.8	100.0	99.9	100.0	99.7	98.1	95.2
Nonwhite.....	10.3	20.7	3.0	2.6	8.2	18.6	27.3	51.2	Nonwhite.....	0.3	0.2	(Z)	0.1	-----	0.3	1.9	4.8
Owners, part owners, and managers.....	63.5	41.7	63.1	43.6	35.5	32.8	41.9	67.1	Owners, part owners, and managers.....	67.3	52.9	56.2	48.6	54.1	55.4	57.5	66.7
White.....	91.8	76.6	100.0	98.5	92.9	82.2	74.9	44.1	White.....	99.8	99.9	100.0	100.0	100.0	100.0	98.9	92.9
Nonwhite.....	8.2	23.4	-----	1.5	7.1	17.8	25.1	53.9	Nonwhite.....	0.2	0.1	-----	-----	-----	-----	1.1	7.1
All tenants except croppers.....	32.5	50.2	33.9	52.5	56.0	57.8	50.1	24.4	All tenants except croppers.....	32.1	45.3	42.6	50.0	44.5	42.8	35.4	23.8
White.....	88.9	84.4	100.0	97.5	93.0	86.3	74.2	53.8	White.....	99.7	99.8	99.9	100.0	100.0	99.2	98.2	100.0
Nonwhite.....	11.1	15.6	-----	2.5	7.0	13.7	25.8	46.2	Nonwhite.....	0.3	0.2	0.1	-----	-----	0.8	1.8	-----
Croppers.....	4.0	8.1	3.0	3.9	8.4	9.4	8.0	8.5	Croppers.....	0.6	1.8	1.3	1.4	1.5	1.8	7.1	9.5
White.....	63.9	61.3	-----	83.3	80.0	49.1	51.7	72.2	White.....	97.6	96.1	100.0	93.8	100.0	100.0	90.9	100.0
Nonwhite.....	36.1	38.7	100.0	16.7	20.0	50.9	48.3	27.8	Nonwhite.....	2.4	3.9	-----	6.2	-----	-----	9.1	-----
REGION VII									REGION X								
All farm operators.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	All farm operators.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
White.....	96.9	94.4	99.8	99.7	99.2	96.7	92.2	76.6	White.....	96.4	98.0	99.4	98.2	97.8	96.0	92.6	94.7
Nonwhite.....	3.1	5.6	0.2	0.3	0.8	3.3	7.8	23.4	Nonwhite.....	3.6	2.0	0.6	1.8	2.2	4.0	7.4	5.3
Owners, part owners, and managers.....	65.4	50.9	70.5	61.7	50.7	46.9	48.8	52.8	Owners, part owners, and managers.....	85.5	79.6	77.6	75.9	81.2	88.0	85.2	86.8
White.....	98.3	97.0	99.8	99.8	99.7	98.8	96.1	84.6	White.....	96.7	98.1	99.3	97.9	98.8	95.9	94.8	93.9
Nonwhite.....	1.7	3.0	0.2	0.2	0.3	1.2	3.9	15.4	Nonwhite.....	3.3	1.9	0.7	2.1	1.2	4.1	5.2	6.1
All tenants except croppers.....	29.6	40.0	28.5	35.9	44.8	44.1	38.2	29.6	All tenants except croppers.....	14.3	19.5	21.4	23.5	18.1	10.9	13.3	10.5
White.....	97.3	96.1	100.0	99.4	99.2	98.0	95.3	76.1	White.....	94.9	97.4	99.5	99.3	93.2	96.7	77.8	100.0
Nonwhite.....	2.7	3.9	-----	0.6	0.8	2.0	4.7	23.9	Nonwhite.....	5.1	2.6	0.5	0.7	6.8	3.3	22.2	-----
Croppers.....	5.0	9.1	1.0	2.4	4.5	9.0	13.0	17.6	Croppers.....	0.2	0.9	1.0	0.7	0.7	1.1	1.5	2.6
White.....	74.9	72.3	100.0	100.0	94.1	79.5	68.2	53.7	White.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Nonwhite.....	25.1	27.7	-----	-----	5.9	20.5	31.8	46.3	Nonwhite.....	-----	-----	-----	-----	-----	-----	-----	-----

Z 0.05 percent or less.

It will be observed that, from an overall standpoint, croppers are an important tenure type only in Regions I through V of the humid climatic belt. In the most westerly of these, Region V, croppers account for only 15 percent of all cotton farm operators. In the other four regions of this climatic belt they account for from 27 to 48 percent of all operators. The most significant fact brought out is the large percentages of all operators in the three smallest size-of-business groups that are croppers in Regions I through IV. It will be recalled that these regions contain a preponderance of all small size-of-business cotton farms.

Croppers are a relatively unimportant group in the five remaining regions. They do account for about 13 and 18 percent, respectively, of Class V and Class VI farms in Region VII; while in Region VI they account for from 8 to 9 percent of the two smallest size-of-business groups of farms.

TENANTS OTHER THAN CROPPERS

The proportions, among various regions, of the large farms that are operated by tenants other than croppers provide some indication of the extent to which land for moderate to large size farm

businesses is available, and attractive to persons with limited capital.

Both relatively and absolutely small proportions of the operators of Class I and Class II farms in Regions I and II are found in this tenure category. In Region II a very small proportion of Class III farms are in this tenure group.

At the other extreme, a relatively high proportion of larger farm business groups are found in this tenure group in Regions IV and IX (the Mississippi Delta and the High Plains of Texas, respectively). In Region X (the irrigated West) the proportion of tenants other than croppers is low, but the proportions of Class I and II farms found in this tenure group are substantially above the percentage for all farms. In Region VI, a substantial 34 percent of Class I farms are found in this group, while the percentages of Classes II and III farms there are larger than those for all farms.

In Regions III, V, and VII the percentages of Classes I and II farms operated by tenants other than croppers are smaller than the proportion of all farms found in the tenure group. For Region VIII, there are less than proportional percentages of both Classes I and III farms in this tenure group.

Section 4.—THE LAND RESOURCE AND ITS UTILIZATION

Land accounts for the major part of total investment on all sizes of cotton farms and, for a given region, the quantity of land controlled by an operator of a cotton farm is, generally, positively associated with the level of return to him for his labor and management.

The present distribution of the land resource among the economic classes of cotton farms for the ten regions is therefore a useful statistic. Some summary information of this type is given in table 13.

TABLE 13.—ALL LAND IN FARMS, TOTAL CROPLAND, AND IRRIGATED LAND, BY ECONOMIC CLASS OF COTTON FARM, TOTAL OF TEN REGIONS: 1954

Item	Economic class of farm						
	All classes	I	II	III	IV	V	VI
All land in farms.....million acres..	62.5	15.4	9.4	8.9	10.9	11.2	6.7
Percent distribution.....percent..	100.0	24.7	15.0	14.2	17.4	18.0	10.7
Total cropland.....million acres..	38.9	10.0	6.4	5.9	7.0	6.5	3.1
Percent distribution.....percent..	100.0	25.7	16.5	15.1	18.0	16.6	8.1
Irrigated land.....million acres..	5.5	4.2	1.0	0.2	0.1	(Z)	(Z)
Percent distribution.....percent..	100.0	75.5	18.3	4.1	1.5	0.5	0.1

Z 0.05 million or less.

DISTRIBUTION OF LAND, BY MAJOR USES

In 1954, there were approximately 62.5 million acres of land in cotton farms in the 10 regions with which this report is concerned. In these 10 regions as a whole, a little more than half of this land (54 percent) was on farms in the three largest size-of-business groups (Classes I to III). Twenty-nine percent was in farms with gross sales of less than \$2,500 and the remaining 17 percent was in farms having sales of \$2,500 to \$4,999.

Cropland is generally of considerable significance to cotton farms. The distribution of cropland by economic class of farm, for our 10 regions in the aggregate, is given in table 13. The percentage of cropland found on cotton farms in the first 3 economic classes is slightly larger than the proportion of all land; conversely, the 2 smallest size-of-business groups account for one-fourth of the cropland and 29 percent of all land.

Table 13 shows also the distribution of irrigated land among economic classes of farms. In our 10 regions there were 5.5 million acres of irrigated land. This is equivalent to about 14 percent of all cropland on cotton farms. About 98 percent of this irrigated land was on the three largest size-of-business groups of farms, and more than three-fourths of it was on farms in Economic Class I. Many farms have attained a volume of sales that placed them in the larger size-of-business groups because of the use of irrigation.

The distribution of land resources among economic classes for the total of our 10 regions, should be considered along with the distribution of farm numbers for the same aggregates. Table 8 shows that 61 percent of all cotton farms fall in Classes V and VI; 17 percent in Classes I, II, and III; and 22 percent in Class IV.

Data on land distribution for all 10 regions as a whole are useful but, averages for large nonhomogeneous areas may be

somewhat misleading. There are some striking differences among the regions with respect to distribution of the land resources among economic classes of cotton farms. Table 14 gives data for individual regions on the distribution of land by major-use classes for each economic class of farm. First, let us examine the individual regions with respect to the distribution of cropland among economic classes.

The 4 regions where the highest proportions of cropland are on farms in Classes V and VI are Regions I, II, III, and V. In Region I, 39 percent of all the cropland is on Classes V and VI farms. Comparable percentages for other regions in this group are: Region II, 69 percent; Region III, 52 percent; and Region V, 44 percent.

In Region IV ("the Mississippi Delta"), Region VI (the Texas-Louisiana Gulf Coast Prairie), and Region VII (the Black Prairie and Rio Grande Plains of Texas and the Rolling Plains of Texas and Oklahoma) the proportions of total cropland on Classes V and VI farms are, respectively, 18, 14, and 15 percent.

The 3 remaining regions in which very small proportions of total cropland are found on the two smallest size-of-business groups of farms are Region VIII (the lower Rio Grande Valley), Region IX (the High Plains of Texas), and Region X (the arid irrigated areas of far western Texas, New Mexico, Arizona, and the San Joaquin Valley of California).

Regions with low percentages of cropland in Classes V and VI farms have relatively high proportions in Classes I, II, and III. Similarly those with high percentages on Classes V and VI farms have low percentages on the larger farms. In Regions I, II, III, and VI the percentage of total cropland on Classes I through III farms ranges from 12 to 37 percent, well below the 10-region average of 57 percent. Regions IV, VI, and VII have, respectively, 63, 65, and 61 percent of their cropland on farms in Classes I through III. In Regions VIII, IX, and X the proportions of cropland on the three larger groups of farms range from 92 to 98 percent.

An interesting aspect of the distribution of land by major-use categories among economic classes for the several regions is the variation by regions of the proportion that cropland is of total land in farms. In Regions II, III, and V cropland accounts for only about 50 percent of all land in farms for most economic classes. Generally, the proportion rises slightly from Class I to Class IV; tends to drop for Class V and shows a marked drop for Class VI. Region I exhibits a similar pattern, but the ratio of cropland to all land is somewhat higher. In all of these regions most of the noncropland is accounted for by woodland.

As would be expected, farms in "the Mississippi Delta," Region IV, have a higher ratio of cropland to total land in farms than farms in the 4 regions mentioned above. In Region IV, generally, cropland accounts for from 70 to 75 percent of all land in farms, but on Class VI farms the average is about 60 percent. Again, most noncropland here is woodland.

The general ratio of cropland to all land in Regions VI and VII is about 62 and 71 percent, respectively. In Region VI, however, cropland accounts for only a little more than 50 percent of total land in the 2 smallest size-of-business groups, and in Region VII cropland is less than 60 percent of all land for Class VI farms. In these areas noncropland is likely to be open pasture.

FARMERS AND FARM PRODUCTION

TABLE 14.—LAND USE FOR COTTON FARMS, BY ECONOMIC CLASS OF FARM, BY REGIONS: 1954

Region and item	Economic class of farm						
	All classes	I	II	III	IV	V	VI
REGION I							
Land in farms, acres.....	6,044,037	525,465	765,313	891,348	1,490,797	1,548,752	814,262
Percent distribution.....	100.0	8.7	12.7	14.7	24.8	25.6	13.5
Total cropland, acres.....	3,521,137	271,633	387,667	522,912	950,466	941,817	446,642
Percent of land in farms.....	58.2	51.7	50.7	58.7	63.4	60.8	54.8
Percent distribution.....	100.0	7.7	11.0	14.8	27.0	26.7	12.7
Cropland harvested, acres.....	2,949,769	216,050	310,801	446,148	828,672	797,071	351,027
Percent of total cropland.....	83.8	79.6	80.2	85.3	87.2	84.6	78.6
Percent distribution.....	100.0	7.3	10.5	15.1	28.1	27.0	11.9
Cropland for pasture, acres.....	259,618	32,315	47,776	33,140	62,418	58,442	25,527
Percent of all cropland.....	7.4	12.6	12.8	12.8	24.0	22.5	9.8
Percent distribution.....	100.0	11.9	12.3	6.3	6.6	6.2	5.7
Cropland not harvested and not pastured, acres.....	311,750	23,268	29,090	43,624	59,370	86,304	70,088
Percent of all cropland.....	8.9	8.6	7.5	8.3	6.2	9.2	15.7
Open permanent pasture, acres.....	190,469	31,967	43,642	27,351	41,840	39,009	15,060
Percent distribution.....	100.0	16.0	21.9	13.7	21.0	19.6	7.8
Woodland pastured, acres.....	689,303	50,551	88,634	90,974	180,915	168,012	100,317
Percent distribution.....	100.0	7.3	12.9	14.5	26.2	24.5	14.6
Woodland not pastured, acres.....	1,506,784	163,596	230,792	226,399	295,172	364,400	226,335
Percent distribution.....	100.0	10.9	15.3	15.0	19.6	24.2	15.0
Other land, acres.....	128,244	7,718	14,578	14,712	31,404	34,524	25,308
Percent of farms reporting.....	71.5	92.7	87.0	78.3	60.3	60.7	72.6
Percent of all land in farms.....	2.1	1.5	1.9	1.6	2.1	2.2	3.1
Irrigated land in farms, acres.....	1,937	660	232	870	125	35	15
Percent distribution.....	100.0	34.1	12.0	44.9	6.4	1.8	0.8
Percent of farms reporting.....	0.3	9.8	1.5	1.3	0.3	0.1	(Z)
Percent of total cropland.....	0.1	0.2	0.1	0.2	(Z)	(Z)	(Z)
REGION II							
Land in farms, acres.....	3,217,057	40,690	130,103	222,242	542,177	1,200,662	1,072,183
Percent distribution.....	100.0	1.5	4.0	6.9	16.9	37.4	33.3
Total cropland, acres.....	1,609,357	22,078	58,903	112,628	306,166	625,368	484,214
Percent of land in farms.....	50.0	44.5	45.3	50.7	56.5	52.1	45.2
Percent distribution.....	100.0	1.4	3.7	7.0	19.0	38.9	30.0
Cropland harvested, acres.....	1,231,478	15,716	39,774	77,873	241,665	497,690	358,760
Percent of total cropland.....	76.5	71.0	67.6	69.2	78.9	79.6	74.1
Percent distribution.....	100.0	1.3	3.2	6.3	19.6	40.5	29.1
Cropland for pasture, acres.....	153,050	4,722	12,103	20,307	30,919	47,049	37,950
Percent of all cropland.....	9.5	3.1	7.9	13.3	20.2	30.7	24.8
Percent distribution.....	100.0	21.4	20.5	18.0	10.1	7.5	7.8
Cropland not harvested and not pastured, acres.....	224,829	1,640	7,026	14,448	33,582	80,629	87,504
Percent of all cropland.....	14.0	0.7	3.1	6.4	15.0	35.9	38.9
Percent distribution.....	100.0	7.4	11.0	12.8	11.0	12.9	18.1
Open permanent pasture, acres.....	233,169	2,320	15,585	24,772	37,082	81,549	70,961
Percent distribution.....	100.0	1.0	6.7	10.6	16.3	35.0	30.4
Woodland pastured, acres.....	452,799	10,837	23,013	28,738	68,165	161,251	160,795
Percent distribution.....	100.0	2.4	5.1	6.3	15.1	35.6	35.5
Woodland not pastured, acres.....	821,654	13,805	30,164	50,690	114,237	295,136	317,622
Percent distribution.....	100.0	1.7	3.7	6.2	13.9	35.9	38.6
Other land, acres.....	100,078	650	2,438	5,414	15,627	37,358	38,591
Percent of farms reporting.....	82.4	95.7	98.9	87.1	84.4	81.9	82.0
Percent of all land in farms.....	3.1	1.3	1.9	2.4	2.9	3.1	3.6
Irrigated land in farms, acres.....	230	-----	-----	-----	70	160	-----
Percent distribution.....	100.0	-----	-----	-----	30.4	69.6	-----
Percent of farms reporting.....	0.1	-----	-----	-----	0.2	0.2	-----
Percent of total cropland.....	(Z)	-----	-----	-----	(Z)	(Z)	-----
REGION III							
Land in farms, acres.....	13,870,811	744,657	930,129	1,358,694	3,114,584	4,561,951	3,160,796
Percent distribution.....	100.0	5.4	6.7	9.8	22.5	32.9	22.8
Total cropland, acres.....	6,922,192	375,092	463,713	720,033	1,747,812	2,285,530	1,330,012
Percent of land in farms.....	49.9	50.4	49.9	53.0	56.1	50.1	42.1
Percent distribution.....	100.0	5.4	6.7	10.4	25.2	33.0	19.2
Cropland harvested, acres.....	5,292,736	270,993	322,727	530,856	1,379,807	1,807,517	980,836
Percent of total cropland.....	76.5	72.2	69.6	73.7	78.9	79.1	73.7
Percent distribution.....	100.0	5.1	6.1	10.0	26.1	34.1	18.5
Cropland for pasture, acres.....	975,355	81,899	100,825	129,458	231,472	268,158	163,543
Percent of all cropland.....	14.1	8.4	10.3	13.3	23.7	27.5	16.8
Percent distribution.....	100.0	21.8	21.7	18.0	13.2	11.7	12.3
Cropland not harvested and not pastured, acres.....	654,101	22,200	40,161	59,719	136,533	200,855	185,633
Percent of all cropland.....	9.4	3.4	6.1	8.3	20.9	32.1	28.4
Percent distribution.....	100.0	5.9	8.7	8.3	7.8	9.2	14.0
Open permanent pasture, acres.....	1,529,066	95,579	134,588	150,589	321,445	494,642	332,223
Percent distribution.....	100.0	6.3	8.8	9.8	21.0	32.4	21.7
Woodland pastured, acres.....	2,437,898	111,666	155,036	211,437	440,446	821,846	607,437
Percent distribution.....	100.0	4.6	6.3	8.7	18.1	33.7	28.6
Woodland not pastured, acres.....	2,395,308	140,296	143,265	224,520	477,861	756,473	652,893
Percent distribution.....	100.0	5.8	6.0	9.4	20.0	31.6	27.2
Other land, acres.....	586,377	22,024	33,527	52,115	127,020	203,460	148,231
Percent of farms reporting.....	77.6	90.3	85.2	82.3	77.6	76.0	78.7
Percent of all land in farms.....	4.2	3.0	3.6	3.8	4.1	4.5	4.7
Irrigated land in farms, acres.....	13,576	9,283	917	1,191	1,035	1,009	150
Percent distribution.....	100.0	68.4	6.7	8.8	7.6	7.4	1.1
Percent of farms reporting.....	0.2	12.0	1.6	1.1	0.3	0.2	0.1
Percent of total cropland.....	0.2	2.5	0.2	0.2	0.1	(Z)	(Z)

Z 0.05 percent or less.

COTTON PRODUCERS AND COTTON PRODUCTION

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TABLE 14.—LAND USE FOR COTTON FARMS, BY ECONOMIC CLASS OF FARM, BY REGIONS: 1954—Continued

Region and item	Economic class of farm						
	All classes	I	II	III	IV	V	VI
REGION IV							
Land in farms, acres.....	9,652,737	2,973,423	1,563,157	1,541,368	1,731,674	1,406,916	436,199
Percent distribution.....	100.0	30.8	16.2	16.0	17.9	14.6	4.5
Total cropland, acres.....	6,984,120	2,088,180	1,155,546	1,163,541	1,291,585	1,028,309	256,950
Percent of land in farms.....	72.4	70.2	73.9	75.5	74.6	73.1	58.9
Percent distribution.....	100.0	29.9	16.5	16.7	18.5	14.7	3.7
Cropland harvested, acres.....	6,078,243	1,807,642	1,012,384	1,035,655	1,139,706	887,726	195,130
Percent of total cropland.....	87.0	86.6	87.6	89.0	88.2	86.3	75.9
Percent distribution.....	100.0	29.7	16.7	17.0	18.8	14.6	3.2
Cropland for pasture, acres.....	595,847	211,739	95,636	81,900	91,089	80,513	34,970
Percent distribution.....	100.0	35.5	16.0	13.8	15.3	13.5	5.9
Percent of all cropland.....	8.5	10.1	8.3	7.0	7.1	7.8	13.6
Cropland not harvested and not pastured, acres.....	310,030	68,808	47,526	45,986	60,790	60,070	26,850
Percent distribution.....	100.0	22.2	15.3	14.8	19.6	19.4	8.7
Percent of all cropland.....	4.4	3.3	4.1	4.0	4.7	6.8	10.4
Open permanent pasture, acres.....	403,008	137,714	54,973	50,465	69,342	60,574	30,030
Percent distribution.....	100.0	34.2	13.6	12.5	17.2	15.0	7.4
Woodland pastured, acres.....	822,450	234,940	117,228	128,780	144,222	129,482	67,798
Percent distribution.....	100.0	28.6	14.3	15.7	17.5	15.7	8.2
Woodland not pastured, acres.....	1,044,478	385,614	169,608	138,643	161,749	128,459	60,405
Percent distribution.....	100.0	36.9	16.2	13.3	15.5	12.3	5.8
Other land, acres.....	398,591	126,966	65,802	59,939	64,776	60,092	21,016
Percent of farms reporting.....	51.6	87.2	85.2	67.1	50.8	42.6	48.3
Percent of all land in farms.....	4.1	4.3	4.2	3.9	3.7	4.3	4.8
Irrigated land in farms, acres.....	189,326	115,347	29,897	20,625	15,777	6,850	830
Percent distribution.....	100.0	60.9	15.8	10.9	8.4	3.6	0.4
Percent of farms reporting.....	2.8	20.1	8.3	4.3	2.9	1.4	0.8
Percent of total cropland.....	2.7	5.5	2.6	1.8	1.2	0.7	0.3
REGION V							
Land in farms, acres.....	3,272,463	400,326	314,996	465,109	600,949	755,309	726,774
Percent distribution.....	100.0	12.2	9.6	14.2	18.6	23.1	22.2
Total cropland, acres.....	1,652,770	210,844	173,652	224,149	319,760	388,051	336,314
Percent of land in farms.....	50.5	52.7	55.1	48.2	52.1	51.4	46.3
Percent distribution.....	100.0	12.8	10.5	13.6	19.3	23.5	20.3
Cropland harvested, acres.....	1,111,184	145,468	120,497	162,443	227,577	200,729	194,470
Percent of total cropland.....	67.2	69.0	69.4	72.5	71.2	67.2	57.8
Percent distribution.....	100.0	13.1	10.8	14.6	20.5	23.5	17.5
Cropland for pasture, acres.....	380,962	53,913	43,228	42,437	64,397	87,328	89,650
Percent distribution.....	100.0	14.2	11.3	11.1	16.9	22.9	23.6
Percent of all cropland.....	23.0	25.6	24.9	18.9	20.1	22.5	26.7
Cropland not harvested and not pastured, acres.....	160,624	11,463	9,927	19,269	27,786	30,994	52,185
Percent distribution.....	100.0	7.1	6.2	12.0	17.3	24.9	32.5
Percent of all cropland.....	9.7	5.4	5.7	8.6	8.7	10.3	15.5
Open permanent pasture, acres.....	525,941	90,035	55,226	87,853	94,220	103,158	95,449
Percent distribution.....	100.0	17.1	10.5	16.7	17.9	19.6	18.2
Woodland pastured, acres.....	692,840	60,281	56,039	103,641	133,527	171,412	167,940
Percent distribution.....	100.0	8.7	8.1	15.0	19.3	24.7	24.2
Woodland not pastured, acres.....	318,463	29,304	22,324	41,320	45,621	72,369	104,525
Percent distribution.....	100.0	9.2	7.0	13.0	15.3	22.7	32.8
Other land, acres.....	82,449	9,862	7,755	8,146	13,821	20,319	22,546
Percent of farms reporting.....	78.6	93.5	87.5	73.8	74.6	73.2	84.2
Percent of all land in farms.....	2.5	2.5	2.5	1.8	2.3	2.7	3.1
Irrigated land in farms, acres.....	17,568	12,395	3,245	998	865	30	35
Percent distribution.....	100.0	70.5	18.5	5.7	4.9	0.2	0.2
Percent of farms reporting.....	1.1	30.2	8.3	2.3	1.8	0.2	0.1
Percent of total cropland.....	1.1	5.9	1.9	0.4	0.3	(Z)	(Z)
REGION VI							
Land in farms, acres.....	939,664	135,770	232,260	240,712	177,540	109,742	43,640
Percent distribution.....	100.0	14.5	24.7	25.6	18.9	11.7	4.6
Total cropland, acres.....	585,819	83,068	140,657	161,771	116,823	60,760	22,740
Percent of land in farms.....	62.3	61.2	60.6	67.2	65.8	55.4	52.1
Percent distribution.....	100.0	14.2	24.0	27.6	19.9	10.4	3.9
Cropland harvested, acres.....	495,546	65,059	115,830	141,197	102,185	52,830	18,445
Percent of total cropland.....	84.6	78.3	82.3	87.3	87.5	86.8	81.1
Percent distribution.....	100.0	13.1	23.4	28.5	20.6	10.7	3.7
Cropland for pasture, acres.....	43,213	8,508	10,363	7,149	8,433	5,895	2,865
Percent distribution.....	100.0	19.7	24.1	16.4	19.4	13.7	6.7
Percent of all cropland.....	21.5	31.5	31.7	20.4	21.5	21.5	14.6
Cropland not harvested and not pastured, acres.....	47,060	9,501	14,464	13,425	6,205	2,035	1,430
Percent distribution.....	100.0	20.2	30.7	28.5	13.2	4.3	3.1
Percent of all cropland.....	8.0	11.4	10.3	8.3	5.3	3.3	6.3
Open permanent pasture, acres.....	233,397	32,966	59,559	59,668	40,044	29,610	11,550
Percent distribution.....	100.0	14.1	25.5	25.6	17.2	12.7	4.9
Woodland pastured, acres.....	81,919	17,304	19,234	12,133	13,468	13,195	6,585
Percent distribution.....	100.0	21.1	23.4	14.8	16.5	16.1	8.1
Woodland not pastured, acres.....	17,809	337	10,265	2,797	1,600	2,050	860
Percent distribution.....	100.0	1.9	57.7	15.7	8.4	11.5	4.8
Other land, acres.....	20,720	2,095	2,545	4,343	5,705	4,127	1,905
Percent of farms reporting.....	2.2	1.5	1.1	1.8	3.2	3.8	4.4
Percent of all land in farms.....	81.6	82.1	85.5	83.1	81.2	81.8	76.5
Irrigated land in farms, acres.....	6,306	3,636	400	1,360	605	305	-----
Percent distribution.....	100.0	57.7	6.3	21.6	9.6	4.8	-----
Percent of farms reporting.....	1.5	9.5	0.6	2.0	1.7	1.1	-----
Percent of total cropland.....	1.1	4.4	0.3	0.8	0.5	0.5	-----

Z 0.05 percent or less.

FARMERS AND FARM PRODUCTION

TABLE 14.—LAND USE FOR COTTON FARMS, BY ECONOMIC CLASS OF FARM, BY REGIONS: 1954—Continued

Region and item	Economic class of farm						
	All classes	I	II	III	IV	V	VI
REGION VII							
Land in farms, acres.....	11, 276, 308	1, 314, 335	2, 378, 047	3, 036, 156	2, 084, 485	1, 441, 605	421, 710
Percent distribution.....	100.0	11.7	21.1	26.9	23.8	12.8	3.7
Total cropland, acres.....	7, 957, 946	916, 060	1, 693, 256	2, 192, 596	1, 925, 637	986, 270	243, 227
Percent of land in farms.....	70.6	69.8	71.2	72.2	71.7	68.4	57.7
Percent distribution.....	100.0	11.5	21.3	27.6	24.2	12.4	3.1
Cropland harvested, acres.....	6, 501, 564	799, 793	1, 396, 242	1, 793, 010	1, 549, 891	781, 639	180, 989
Percent of total cropland.....	81.7	87.2	82.5	81.8	80.5	79.2	74.4
Percent distribution.....	100.0	12.3	21.5	27.6	23.8	12.0	2.8
Cropland for pasture, acres.....	704, 177	64, 184	146, 846	197, 555	171, 288	96, 235	28, 069
Percent distribution.....	100.0	9.1	20.8	28.1	24.3	13.7	4.0
Percent of all cropland.....	8.8	7.0	8.7	9.0	8.9	9.8	11.5
Cropland not harvested and not pastured, acres.....	752, 205	52, 983	150, 168	202, 031	204, 468	108, 396	34, 109
Percent distribution.....	100.0	7.0	26.9	26.9	27.2	14.4	4.5
Percent of all cropland.....	9.5	5.8	8.9	9.2	10.6	11.0	14.0
Open permanent pasture, acres.....	2, 152, 798	255, 419	485, 139	566, 773	481, 361	267, 860	96, 246
Percent distribution.....	100.0	11.9	22.5	26.3	22.4	12.4	4.5
Woodland pastured, acres.....	862, 883	109, 527	146, 109	207, 128	199, 608	138, 579	61, 032
Percent distribution.....	100.0	12.7	16.9	24.0	23.1	16.1	7.2
Woodland not pastured, acres.....	77, 511	7, 681	15, 320	11, 890	20, 996	12, 510	9, 106
Percent distribution.....	100.0	9.9	16.8	15.4	27.1	16.1	11.7
Other land, acres.....	225, 260	24, 748	38, 214	57, 769	56, 883	36, 448	11, 200
Percent of farms reporting.....	81.7	86.6	85.5	85.6	82.7	78.2	74.1
Percent of all land in farms.....	2.0	1.9	1.6	1.9	2.1	2.5	2.7
Irrigated land in farms, acres.....	153, 413	83, 593	47, 673	15, 384	3, 963	1, 960	840
Percent distribution.....	100.0	54.5	31.1	10.0	2.6	1.3	0.5
Percent of farms reporting.....	3.4	25.8	13.5	3.7	1.0	0.7	1.0
Percent of total cropland.....	1.9	9.1	2.8	0.7	0.2	0.2	0.3
REGION VIII							
Land in farms, acres.....	1, 128, 563	647, 862	268, 359	119, 640	54, 915	29, 637	8, 150
Percent distribution.....	100.0	57.4	23.8	10.6	4.9	2.6	0.7
Total cropland, acres.....	919, 109	512, 408	228, 245	103, 495	44, 430	23, 381	7, 150
Percent of land in farms.....	81.4	79.1	85.1	86.5	80.9	79.1	87.7
Percent distribution.....	100.0	55.8	24.8	11.3	4.8	2.5	0.8
Cropland harvested, acres.....	737, 051	421, 789	183, 208	79, 033	34, 600	15, 306	3, 115
Percent of total cropland.....	80.2	82.3	80.3	76.3	77.9	65.4	43.6
Percent distribution.....	100.0	57.2	24.9	10.7	4.7	2.1	0.4
Cropland for pasture, acres.....	52, 588	36, 689	10, 439	4, 145	565	455	295
Percent distribution.....	100.0	69.8	19.8	7.8	1.1	0.9	0.6
Percent of all cropland.....	5.7	7.2	4.6	4.0	1.3	6.9	4.1
Cropland not harvested and not pastured, acres.....	129, 470	53, 939	34, 598	20, 317	9, 265	7, 620	3, 740
Percent distribution.....	100.0	41.6	26.7	15.7	7.2	5.0	2.9
Percent of all cropland.....	47.6	46.4	50.4	51.3	47.9	41.0	38.9
Open permanent pasture, acres.....	56, 716	39, 465	11, 146	5, 375	705	25	-----
Percent distribution.....	100.0	69.7	19.6	9.5	1.2	(Z)	-----
Woodland pastured, acres.....	73, 534	50, 839	13, 209	2, 240	5, 190	1, 051	105
Percent distribution.....	100.0	69.1	18.0	3.0	7.1	2.7	0.1
Woodland not pastured, acres.....	15, 566	10, 336	1, 650	800	405	2, 370	5
Percent distribution.....	100.0	66.4	10.6	5.2	2.6	15.2	(Z)
Other land, acres.....	63, 638	34, 814	14, 109	7, 730	4, 185	1, 910	890
Percent of farms reporting.....	85.8	90.5	85.2	90.3	84.1	79.5	77.8
Percent of all land in farms.....	5.6	5.4	5.3	6.5	7.6	6.4	10.9
Irrigated land in farms, acres.....	484, 807	288, 300	110, 574	53, 270	21, 070	8, 683	2, 010
Percent distribution.....	100.0	59.5	22.8	11.0	4.5	1.8	0.4
Percent of farms reporting.....	52.7	56.3	48.4	51.5	49.4	37.1	28.1
Percent of total cropland.....	83.1	85.1	80.2	84.1	85.6	83.5	75.9
REGION IX							
Land in farms, acres.....	6, 657, 656	3, 201, 171	2, 140, 343	762, 566	362, 010	171, 231	20, 336
Percent distribution.....	100.0	48.1	32.1	11.5	5.4	2.6	0.3
Total cropland, acres.....	5, 232, 355	2, 530, 229	1, 780, 409	569, 629	230, 690	105, 588	6, 810
Percent of land in farms.....	78.6	79.0	83.2	74.7	66.2	61.7	33.5
Percent distribution.....	100.0	48.4	34.0	10.9	4.6	2.0	0.1
Cropland harvested, acres.....	4, 742, 138	2, 320, 364	1, 627, 198	497, 770	205, 406	77, 950	4, 450
Percent of total cropland.....	90.6	92.1	91.4	87.4	85.7	73.8	65.3
Percent distribution.....	100.0	49.1	34.3	10.5	4.3	1.6	0.1
Cropland for pasture, acres.....	149, 073	61, 893	46, 611	21, 765	12, 484	5, 965	355
Percent distribution.....	100.0	41.5	31.3	14.6	8.4	4.0	0.2
Percent of all cropland.....	2.8	2.4	2.6	3.8	5.2	5.6	5.2
Cropland not harvested and not pastured, acres.....	341, 144	138, 972	106, 600	50, 094	21, 800	21, 673	2, 005
Percent distribution.....	100.0	40.7	31.2	14.7	6.4	6.4	0.6
Percent of all cropland.....	6.5	5.5	6.0	8.8	9.1	20.5	20.4
Open permanent pasture, acres.....	1, 269, 285	612, 604	307, 231	165, 048	108, 687	62, 555	12, 200
Percent distribution.....	100.0	48.3	24.2	13.1	8.6	4.9	0.9
Woodland pastured, acres.....	31, 368	7, 294	8, 245	11, 374	3, 425	825	205
Percent distribution.....	100.0	23.3	20.3	36.3	10.8	2.6	0.7
Woodland not pastured, acres.....	7, 346	3, 556	2, 025	565	825	225	150
Percent distribution.....	100.0	48.4	27.6	7.7	11.2	3.1	2.0
Other land, acres.....	117, 302	47, 428	42, 433	15, 050	9, 383	2, 038	970
Percent of farms reporting.....	91.2	91.4	92.3	91.2	87.4	88.2	90.5
Percent of all land in farms.....	1.8	1.5	2.0	2.0	2.6	1.2	4.8
Irrigated land in farms, acres.....	1, 930, 642	1, 313, 214	553, 303	53, 270	9, 080	1, 700	75
Percent distribution.....	100.0	68.0	28.7	2.8	0.4	0.1	(Z)
Percent of farms reporting.....	60.6	69.5	69.6	31.3	15.2	12.3	4.8
Percent of total cropland.....	36.9	61.9	31.1	9.4	3.8	6.1	1.1

Z 0.05 percent or less.

TABLE 14.—LAND USE FOR COTTON FARMS, BY ECONOMIC CLASS OF FARM, BY REGIONS: 1954—Continued

Region and item	Economic class of farm						
	All classes	I	II	III	IV	V	VI
REGION X							
Land in farms, acres.....	6,433,116	5,434,874	606,100	216,811	97,146	16,370	1,815
Percent distribution.....	100.0	84.5	10.4	3.4	1.5	0.3	(Z)
Total cropland, acres.....	3,508,076	3,000,211	345,310	108,799	38,968	11,333	1,455
Percent of land in farms.....	54.5	55.2	51.8	50.2	40.2	68.9	80.2
Percent distribution.....	100.0	85.6	9.8	3.1	1.1	0.3	(Z)
Cropland harvested, acres.....	2,686,385	2,310,230	256,739	81,886	28,022	8,418	1,090
Percent of total cropland.....	76.6	77.0	74.3	75.3	71.8	74.3	74.9
Percent distribution.....	100.0	86.0	9.6	3.0	1.0	0.3	(Z)
Cropland for pasture, acres.....	174,052	134,635	30,694	5,377	2,226	1,075	45
Percent distribution.....	100.0	77.4	17.6	3.1	1.3	0.6	(Z)
Percent of all cropland.....	5.0	4.5	8.9	4.9	5.7	9.5	3.1
Cropland not harvested and not pastured, acres.....	645,639	555,346	57,877	21,536	8,720	1,840	320
Percent distribution.....	100.0	86.0	9.0	3.3	1.3	0.3	0.1
Percent of all cropland.....	18.4	18.5	16.8	19.8	22.4	16.2	22.0
Open permanent pasture, acres.....	2,516,417	2,153,607	264,556	76,103	20,144	1,932	25
Percent distribution.....	100.0	85.6	10.5	3.0	0.8	0.1	(Z)
Woodland pastured, acres.....	110,307	56,895	7,145	16,096	30,171		
Percent distribution.....	100.0	51.6	6.4	14.6	27.4		
Woodland not pastured, acres.....	17,787	10,189	3,518	1,995	2,050	25	10
Percent distribution.....	100.0	57.3	10.7	11.2	11.5	0.2	0.1
Other land, acres.....	282,529	213,972	45,571	13,818	5,813	3,030	325
Percent of farms reporting.....	91.3	92.0	94.1	94.2	87.3	86.5	47.4
Percent of all land in farms.....	4.4	3.9	6.8	6.4	6.0	18.5	17.9
Irrigated land in farms, acres.....	2,737,100	2,351,018	266,878	80,159	28,692	9,228	1,125
Percent distribution.....	100.0	85.9	9.8	2.9	1.1	0.3	(Z)
Percent of farms reporting.....	99.4	99.5	99.8	99.0	98.9	98.5	100.0
Percent of total cropland.....	78.1	78.4	74.3	73.7	73.6	81.4	77.3

Z 0.05 percent or less.

Cotton farms in Region VIII have, for all economic classes, a higher ratio of cropland to all land than is found in any other region. The range by economic class is from almost 80 to about 90 percent. The highest percentage of cropland is found on Class VI farms. This differs from the pattern observed in the other seven regions, but appears to be what might logically be expected of small farms in an irrigated region.

In the High Plains of Texas (Region IX) cropland accounts for around 80 percent of all land for farms in Classes I, II, and III. These three classes comprise about 85 percent of all cotton farms in this region. The ratio of cropland to all land drops to 66 percent for Class IV farms, 62 percent for Class V, and 34 percent for Class VI. Virtually all noncropland is classed as open pasture.

The irrigated cotton farms of the West (Region X) exhibit, from Classes I through IV (about 95 percent of all cotton farms are encompassed by these economic classes), a ratio of cropland to total land which is about the same as that found in the rougher wooded regions of the East. The probable explanation here is that available water for irrigation is the limiting factor in determining the amount of cropland. In the absence of water for irrigation most of this land is suitable only for rather extensive types of utilization. Many of the larger operators probably controlled large acreages of this land before the advent of irrigation. Class VI farms in Region X have an average of more than 80 percent of all land in cropland, and on Class V farms the percentage is about 70.

The data on land use for individual regions show some interesting facts about the distribution of irrigated land. Irrigation is an influential element on cotton farms only in Regions VIII, IX, and X. These regions have about 95 percent of the 10-region total acreage of irrigated land on cotton farms. In Region X, of course, practically no cotton is or can be grown except under irrigation. In Regions VIII and IX, on the other hand, this crop is also grown without irrigation. Since available moisture is the limiting factor for growing cotton in each of these regions, the yields on non-

irrigated land are only one-fourth to one-half as high as those on irrigated land.

In Region IX only Class I farms appear, on the average, to have enough irrigated land to permit all cotton acreage to be grown under irrigation. For Class II farms in this region it would appear that irrigated land is available for about 70 percent of the cotton acreage, while on Class III farms the average acreage of irrigated land is only about 25 percent of the average acres of cotton harvested. In this region farms in Economic Classes IV through VI have very little irrigated land.

Apparently, in Region VIII, the extent of irrigated land available is about equal to cotton acreage harvested on farms in Classes I through IV, but is somewhat less than cotton acreage for farms in Classes V and VI. In these two classes a very large proportion of the available cropland seemed to be idle.

LAND USE AND ENTERPRISE ORGANIZATION PER FARM

The data available in table 15 permit examination of the use of the land resource as it is found on typical farms for each economic class.

Total Acres Per Farm

In all regions farms in Economic Class I have relatively large acreages of land. In The Lower Rio Grande Valley (Region VIII) the average land size for Class I farms is smaller than for any other region. Their average size here is 710 acres. The highest average land area for this largest size-of-business group is found in Region II, the Southern Piedmont, where Class I farms average more than 2,000 acres. After Region II, the largest average total acreages per Class I farm are found in Regions I, III, V, VII, and X. In each of these 5 regions the average Class I farm has well over 1,000 acres of land.

Class I farms in the 3 remaining regions (IV, VI, and IX) have average total acre-size ranging from about 760 acres in The High Plains of Texas (Region IX) to around 990 acres in the "Mississippi Delta" (Region IV).

The average acre-size of Class II farms is very substantially smaller in all regions than those of farms in Economic Class I. The range for the 10 areas is from a little over 700 acres in Region II to just over 200 acres in Region VIII. It will be recognized that these are the same regions in which the largest and smallest average acre-size for Class I farms are found.

In general the average acreage for Class III farms is about one-third to one-half that for farms in Class II. The range among our regions for Class III farms is from highs of around 320 acres in Regions IX and VII to lows of just over 100 acres in Regions IV, VIII, and X.

With respect to average total acreage per farm in Economic Classes IV through VI, three distinct groups of regions are discernible. In reference to the range among the ten regions in average acreage size for each of these three economic classes, the three regional groups may be termed the high group, the low group, and the medium group.

The high group is composed of Regions V, VII, and IX. Within this regional group region average acreages for Class IV farms range from about 165 to about 250. The range for Class V farms

is from just over 100 to about 220 acres, while for Class VI farms the range of region average acreages per farm is from 80 to about 190 acres. Various combinations of low yields and relatively large amounts of noncropland result in these relatively large average acreages for farms in these economic classes in this regional group.

The regional group having relatively low average acres per farm for Economic Classes IV through VI is comprised of Regions IV, VIII, and X. The ranges within this group for regional average acreage per farm are: From about 50 to 80 acres for farms in Class IV, from about 25 to 40 acres for Class V farms, and from 10 to 30 acres for farms in Class VI. These relatively low average acreages per farm are probably the result of both high yields per acre, and relatively small acreages of noncropland per farm.

The medium group with respect to region-average acre-sizes of farms in Classes IV through VI is comprised of the remaining four regions. These are Regions I, II, III, and VI. The ranges in region-average acres per farm for this regional group are: For Class IV farms, from about 75 to around 110 acres; for Class V farms, from 60 to 75 acres; and for Class VI farms, from about 40 to 60 acres.

TABLE 15.—LAND USE ON COTTON FARMS PER FARM, BY ECONOMIC CLASS OF FARM, BY REGIONS: 1954

Region and item	Economic class of farm							Region and item	Economic class of farm						
	All classes	I	II	III	IV	V	VI		All classes	I	II	III	IV	V	VI
REGION I								REGION II							
All farms.....number..	57,374	287	1,234	4,399	14,858	20,841	15,755	All farms.....number..	40,263	23	180	747	4,803	16,027	18,483
All land in farms.....acres per farm..	105	1,831	620	203	101	74	52	All land in farms.....acres per farm..	80	2,160	723	298	113	75	58
Total cropland.....do.....	61	946	314	119	64	45	28	Total cropland.....do.....	40	960	327	151	64	39	26
Cropland harvested.....do.....	51	753	252	101	56	38	22	Cropland harvested.....do.....	31	683	221	104	50	31	19
Cropland used only for pasture:								Cropland used only for pasture:							
Acres per farm reporting.....	22	172	79	25	20	15	10	Acres per farm reporting.....	19	295	146	58	25	16	12
Percent of farms reporting.....	20.3	65.5	49.3	30.3	21.4	18.3	16.1	Percent of farms reporting.....	19.6	69.6	46.1	46.6	25.3	18.9	17.4
Cropland not harvested and not								Cropland not harvested and not							
pastured:								pastured:							
Acres per farm reporting.....	22	185	67	37	20	17	15	Acres per farm reporting.....	17	182	70	43	24	17	13
Percent of farms reporting.....	25.3	43.9	35.4	27.0	20.1	24.1	30.0	Percent of farms reporting.....	33.6	39.1	55.6	44.7	28.9	29.8	37.5
Open permanent pasture, acres:								Open permanent pasture, acres:							
Acres per farm reporting.....	29	266	100	33	24	16	11	Acres per farm reporting.....	17	211	128	72	23	15	11
Percent of farms reporting.....	12.1	41.8	35.4	18.8	11.9	11.6	8.9	Percent of farms reporting.....	33.9	47.8	67.8	45.9	34.5	33.2	33.5
Percent of land in farms.....	3.3	6.1	5.7	3.1	2.8	2.5	1.9	Percent of land in farms.....	7.2	4.7	12.0	11.1	7.0	6.8	6.6
Woodland pastured, acres:								Woodland pastured, acres:							
Acres per farm reporting.....	47	320	138	64	50	34	27	Acres per farm reporting.....	28	542	147	64	34	26	22
Percent of farms reporting.....	25.6	55.1	51.9	35.2	24.3	24.0	23.3	Percent of farms reporting.....	40.1	87.0	87.2	59.8	41.3	38.6	39.9
Percent of land in farms.....	11.4	9.6	11.6	11.2	12.1	10.8	12.3	Percent of land in farms.....	14.1	21.8	17.7	12.9	12.6	13.4	15.0
Woodland not pastured, acres:								Woodland not pastured, acres:							
Acres per farm reporting.....	71	670	272	120	61	49	37	Acres per farm reporting.....	46	767	225	107	51	46	38
Percent of farms reporting.....	37.1	85.0	68.9	43.0	32.5	35.4	38.5	Percent of farms reporting.....	43.9	78.3	74.4	63.3	46.2	40.3	45.3
Percent of land in farms.....	24.0	31.1	30.2	25.4	10.7	23.5	27.8	Percent of land in farms.....	25.5	27.8	23.2	22.8	21.1	24.6	29.6
Average specified crops:								Average specified crops:							
Cotton:								Cotton:							
Acres per farm.....	16	225	74	33	19	12	7	Acres per farm.....	12	219	83	39	22	13	7
Percent of cropland harvested.....	32.1	29.8	29.4	32.5	34.6	31.7	30.4	Percent of cropland harvested.....	40.6	32.0	37.5	37.8	44.3	42.6	36.6
Corn for all purposes:								Corn for all purposes:							
Acres per farm reporting.....	23	183	91	41	26	20	12	Acres per farm reporting.....	11	118	45	24	14	11	8
Percent of farms reporting.....	92.7	90.9	93.6	95.0	93.8	92.7	91.0	Percent of farms reporting.....	90.3	95.7	89.4	89.0	91.6	90.5	89.7
Percent of cropland harvested.....	42.0	22.2	33.9	38.0	43.4	47.3	50.5	Percent of cropland harvested.....	31.2	16.5	18.3	20.2	26.8	31.5	38.7
Tobacco:								Tobacco:							
Acres per farm reporting.....	2	9	5	4	3	2	1	Acres per farm reporting.....	6	155	29	17	9	6	4
Percent of farms reporting.....	15.4	19.5	16.9	22.1	20.7	14.9	9.1	Percent of farms reporting.....	30.9	39.1	53.9	55.2	42.0	34.4	23.7
Percent of cropland harvested.....	0.7	0.2	0.3	0.8	1.0	0.7	0.5	Percent of cropland harvested.....	6.5	8.9	7.0	9.0	7.1	6.5	5.2
Peanuts for all purposes:								Peanuts for all purposes:							
Acres per farm reporting.....	11	79	38	21	13	9	5	Acres per farm reporting.....	10	124	62	29	14	8	5
Percent of farms reporting.....	39.8	33.1	50.3	48.5	44.3	41.6	29.9	Percent of farms reporting.....	27.3	78.3	69.4	65.7	40.4	28.1	21.2
Percent of cropland harvested.....	8.8	3.4	7.6	9.9	10.3	9.3	7.1	Percent of cropland harvested.....	8.8	14.2	19.4	18.0	10.9	7.3	6.0
All hay:								All hay:							
Acres—percent of cropland har-								Acres—percent of cropland har-							
vested.....	2.6	5.6	3.2	2.4	2.1	2.1	3.1	vested.....	10.7	15.9	15.6	12.7	10.7	10.0	10.4
Acres of specified crops as percent of								Acres of specified crops as percent of							
cropland harvested.....	86.1	61.2	74.4	83.6	91.3	91.1	91.6	cropland harvested.....	97.8	87.5	97.8	97.7	98.8	97.9	96.9

COTTON PRODUCERS AND COTTON PRODUCTION

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TABLE 15.—LAND USE ON COTTON FARMS PER FARM, BY ECONOMIC CLASS OF FARM, BY REGIONS: 1954—Continued

Region and item	Economic class of farm							Region and item	Economic class of farm						
	All classes	I	II	III	IV	V	VI		All classes	I	II	III	IV	V	VI
REGION III								REGION V							
All farms.....number.....	171,185	475	1,672	6,888	32,740	69,768	59,642	All farms.....number.....	22,257	215	552	1,521	3,672	7,194	9,103
All land in farms.....acres per farm.....	81	1,568	566	197	95	66	53	All land in farms.....acres per farm.....	147	1,862	571	306	166	105	80
Total cropland.....do.....	40	790	277	105	53	33	22	Total cropland.....do.....	74	981	315	147	87	54	37
Cropland harvested.....do.....	31	571	193	77	42	26	16	Cropland harvested.....do.....	60	677	218	107	62	36	21
Cropland used only for pasture:								Cropland used only for pasture:							
Acres per farm reporting.....	25	270	123	48	25	18	14	Acres per farm reporting.....	51	499	158	80	51	41	28
Percent of farms reporting.....	22.9	63.8	49.2	39.4	27.9	21.0	19.5	Percent of farms reporting.....	33.7	50.2	49.5	34.8	34.2	30.0	34.9
Cropland not harvested and not								Cropland not harvested and not							
pastured:								pastured:							
Acres per farm reporting.....	16	163	73	30	18	14	11	Acres per farm reporting.....	28	176	66	47	35	25	19
Percent of farms reporting.....	24.4	28.6	33.0	29.3	22.9	22.2	27.1	Percent of farms reporting.....	25.9	30.2	27.4	26.7	21.6	21.9	30.4
Open permanent pasture, acres:								Open permanent pasture, acres:							
Acres per farm reporting.....	20	451	192	62	20	21	16	Acres per farm reporting.....	65	826	225	130	74	41	29
Percent of farms reporting.....	34.3	44.6	41.9	35.2	34.3	33.8	34.6	Percent of farms reporting.....	36.2	50.7	44.4	44.6	34.5	34.8	36.1
Percent of land in farms.....	11.0	12.8	14.5	11.1	10.3	10.8	10.6	Percent of land in farms.....	16.1	22.5	17.5	18.9	15.4	13.7	13.1
Woodland pastured, acres:								Woodland pastured, acres:							
Acres per farm reporting.....	39	524	188	80	40	35	29	Acres per farm reporting.....	70	494	230	163	89	60	37
Percent of farms reporting.....	36.7	44.8	49.2	38.4	33.6	33.9	41.0	Percent of farms reporting.....	44.8	55.7	44.2	41.7	41.0	39.9	50.4
Percent of land in farms.....	17.6	15.0	16.7	15.6	14.1	18.0	22.1	Percent of land in farms.....	21.2	15.1	17.8	22.3	21.9	22.7	23.1
Woodland not pastured, acres:								Woodland not pastured, acres:							
Acres per farm reporting.....	48	518	206	94	49	39	36	Acres per farm reporting.....	66	651	186	140	70	55	44
Percent of farms reporting.....	20.4	57.1	41.6	34.8	30.0	27.5	30.1	Percent of farms reporting.....	21.7	20.9	21.7	19.5	18.8	18.3	25.9
Percent of land in farms.....	17.3	18.8	15.4	16.5	15.3	16.6	20.7	Percent of land in farms.....	9.7	7.3	7.1	8.9	8.0	9.6	14.4
Average specified crops:								Average specified crops:							
Cotton:								Cotton:							
Acres per farm.....	13	209	70	32	18	11	6	Acres per farm.....	26	327	105	57	34	20	10
Percent of cropland harvested.....	40.5	36.6	36.2	41.1	42.6	41.8	37.4	Percent of cropland harvested.....	51.8	48.3	48.2	53.2	55.4	55.8	45.8
Corn for all purposes:								Corn for all purposes:							
Acres per farm reporting.....	16	14	119	30	19	13	9	Acres per farm reporting.....	14	89	36	23	17	12	9
Percent of farms reporting.....	90.7	88.6	90.3	91.7	91.7	90.9	89.7	Percent of farms reporting.....	81.6	73.5	76.6	79.2	79.0	78.2	86.2
Percent of cropland harvested.....	42.4	18.5	27.4	36.0	42.4	45.8	51.1	Percent of cropland harvested.....	22.1	9.6	12.5	17.1	22.0	26.2	36.1
Soybeans:								Soybeans:							
Acres per farm reporting.....	15	258	83	25	13	6	3	Acres per farm reporting.....	25	130	35	24	13	9	8
Percent of farms reporting.....	10.0	49.9	38.2	22.0	14.5	9.0	6.2	Percent of farms reporting.....	4.2	29.8	26.4	10.3	6.3	2.8	1.5
Percent of cropland harvested.....	4.9	22.5	16.5	7.0	4.4	2.0	1.3	Percent of cropland harvested.....	2.1	5.7	4.2	2.3	1.4	0.7	0.6
All hay:								All hay:							
Acres—percent of cropland har-	7.2	9.0	10.9	9.6	6.7	6.5	6.1	Acres—percent of cropland har-	9.8	17.1	11.2	11.3	8.2	7.6	7.1
vested.....								vested.....							
Acres of specified crops as percent								Acres of specified crops as percent							
of cropland harvested.....	95.0	86.7	91.0	93.7	96.1	96.1	96.0	of cropland harvested.....	91.7	88.8	92.6	93.9	92.0	92.3	90.2
REGION IV								REGION VI							
All farms.....number.....	128,046	2,991	5,956	15,075	35,824	50,913	17,287	All farms.....number.....	7,995	168	773	1,776	2,397	1,816	1,065
All land in farms.....acres per farm.....	75	994	262	102	48	28	25	All land in farms.....acres per farm.....	118	808	300	136	74	60	41
Total cropland.....do.....	55	698	194	77	36	20	15	Total cropland.....do.....	73	494	182	91	49	33	21
Cropland harvested.....do.....	47	604	170	69	32	17	11	Cropland harvested.....do.....	62	387	150	80	43	29	17
Cropland used only for pasture:								Cropland used only for pasture:							
Acres per farm reporting.....	25	140	40	18	14	13	14	Acres per farm reporting.....	25	161	42	20	16	15	18
Percent of farms reporting.....	18.5	50.6	39.9	29.5	18.1	12.4	14.9	Percent of farms reporting.....	21.5	31.5	31.7	20.4	21.5	21.5	14.6
Cropland not harvested and not								Cropland not harvested and not							
pastured:								pastured:							
Acres per farm reporting.....	20	92	42	22	14	12	10	Acres per farm reporting.....	24	120	46	21	12	8	9
Percent of farms reporting.....	12.4	25.1	18.8	14.0	12.2	9.7	14.9	Percent of farms reporting.....	24.5	47.0	40.5	35.5	21.7	14.0	15.0
Open permanent pasture, acres:								Open permanent pasture, acres:							
Acres per farm reporting.....	27	211	52	24	15	13	16	Acres per farm reporting.....	55	320	123	53	32	35	27
Percent of farms reporting.....	11.5	21.9	17.6	13.9	12.7	8.9	10.8	Percent of farms reporting.....	53.2	61.3	62.9	63.6	52.4	46.8	40.4
Percent of land in farms.....	4.2	4.6	3.5	3.3	4.0	4.3	6.9	Percent of land in farms.....	24.8	24.3	25.7	24.8	22.6	27.0	26.5
Woodland pastured, acres:								Woodland pastured, acres:							
Acres per farm reporting.....	51	271	105	57	33	26	26	Acres per farm reporting.....	76	385	150	91	55	46	28
Percent of farms reporting.....	12.6	29.0	18.8	14.9	12.1	9.7	15.2	Percent of farms reporting.....	13.4	26.8	16.6	7.5	10.3	15.7	22.1
Percent of land in farms.....	8.5	7.9	7.5	8.4	8.3	9.2	15.5	Percent of land in farms.....	8.7	12.7	8.3	6.0	7.6	12.0	15.1
Woodland not pastured, acres:								Woodland not pastured, acres:							
Acres per farm reporting.....	63	305	114	51	36	29	28	Acres per farm reporting.....	70	56	684	42	21	40	19
Percent of farms reporting.....	12.9	42.2	24.9	17.9	12.5	8.7	12.3	Percent of farms reporting.....	3.2	3.6	1.9	3.7	2.9	2.8	4.2
Percent of land in farms.....	10.8	13.0	10.9	9.0	9.3	9.1	13.8	Percent of land in farms.....	1.9	0.2	4.4	1.2	0.8	1.9	2.0
Average specified crops:								Average specified crops:							
Cotton:								Cotton:							
Acres per farm.....	23	236	69	34	19	11	7	Acres per farm reporting.....	32	205	84	41	22	13	7
Percent of cropland harvested.....	49.3	39.0	40.8	49.1	59.1	65.0	61.9	Percent of cropland harvested.....	52.0	53.0	56.4	52.2	51.8	45.0	42.1
Corn for all purposes:								Corn for all purposes:							
Acres per farm reporting.....	12	70	28	15	10	7	6	Acres per farm reporting.....	16	46	29	20	13	11	9
Percent of farms reporting.....	55.5	72.0	74.8	67.5	60.6	51.1	45.1	Percent of farms reporting.....	87.8	75.0	89.0	91.3	91.7	84.0	80.8
Percent of cropland harvested.....	14.3	8.4	12.3	15.0	18.6	20.1	24.0	Percent of cropland harvested.....	22.0	8.9	17.1	23.3	28.3	31.8	42.0
Oats:								Oats:							
Acres per farm reporting.....	32	121	37	18	9	7	5	Acres per farm reporting.....	16	46	29	20	13	11	9
Percent of farms reporting.....	6.9	45.2	22.8	11.1	6.4	3.3	3.1	Percent of farms reporting.....	87.8	75.0	89.0	91.3	91.7	84.0	80.8
Percent of cropland harvested.....	4.6	9.1	5.0	2.0	1.9	1.4	1.5	Percent of cropland harvested.....	22.0	8.9	17.1	23.3	28.3	31.8	42.0
Soybeans:								Soybeans:							
Acres per farm reporting.....	44	229	78	39	19	12	9	Acres per farm reporting.....	21	126	45	16	9	7	3
Percent of farms reporting.....	28.0	84.7	81.1	54.0	29.0	16.1	10.3	Percent of farms reporting.....	32.8	67.3	52.4	48.1	29.2	20.1	17.4
Percent of cropland harvested.....	26.0	32.1	37.2	30.3	17.5	10.8	7.9	Percent of cropland harvested.....	11.3	21.8	15.8	9.8	6.4	5.2	3.0
Rice:								Rice:							
Acres per farm reporting.....	83	221	44	42	16	7	2	Acres per farm reporting.....	5	1	-----	7	6	4	1
Percent of farms reporting.....	0.5	6.0	1.0	0.7	0.6	0.1	(Z)	Percent of farms reporting.....	22.1	15.5	10.5	21.7	24.9	23.7	23.5
Percent of cropland harvested.....	0.8	2.2	0.3	0.4	0.3	(Z)	(Z)	Percent of cropland harvested.....	1.6	(Z)	-----	0.8	4.2	4.5	1.0
All hay:								All hay:							
Acres—percent of cropland har-	3.7	5.2	4.0	2.8	3.2	2.2	4.0	Acres—percent of cropland har-	5.0	4.2	4.1	5.0	4.2	8.0	10.6
vested.....								vested.....							
Acres of specified crops as percent								Acres of specified crops as percent							
of cropland harvested.....	98.7	96.0	99.6	100.5	100.6	99.5	99.3	of cropland harvested.....	92.5	87.9	93.4	91.1	94.9	94.5	98.7

Z 0.05 percent or less.

FARMERS AND FARM PRODUCTION

TABLE 15.—LAND USE ON COTTON FARMS PER FARM, BY ECONOMIC CLASS OF FARM, BY REGIONS: 1954—Continued

Region and item	Economic class of farm							Region and item	Economic class of farm						
	All classes	I	II	III	IV	V	VI		All classes	I	II	III	IV	V	VI
REGION VII								REGION IX							
All farms.....number.....	44,947	1,194	4,441	9,467	13,812	11,373	4,660	All farms.....number.....	14,650	4,196	5,707	2,344	1,438	771	105
All land in farms.....acres per farm.....	251	1,101	535	321	194	127	90	All land in farms.....acres per farm.....	454	763	369	325	262	222	194
Total cropland.....do.....	177	768	381	232	139	87	52	Total cropland.....do.....	357	603	307	243	167	137	65
Cropland harvested.....do.....	146	670	314	189	112	69	39	Cropland harvested.....do.....	324	555	281	212	143	101	42
Cropland used only for pasture:								Cropland used only for pasture:							
Acres per farm reporting.....	39	126	70	44	30	25	23	Acres per farm reporting.....	26	40	20	22	23	26	18
Percent of farms reporting.....	39.7	42.7	47.4	47.9	41.2	33.4	25.8	Percent of farms reporting.....	39.2	37.2	41.0	43.1	37.7	29.8	19.0
Cropland not harvested and not pastured:								Cropland not harvested and not pastured:							
Acres per farm reporting.....	45	133	79	51	39	28	25	Acres per farm reporting.....	68	89	58	63	48	74	50
Percent of farms reporting.....	37.4	33.3	42.8	41.6	38.3	34.5	29.2	Percent of farms reporting.....	34.0	37.2	31.8	33.8	31.8	37.9	38.1
Open permanent pasture, acres:								Open permanent pasture, acres:							
Acres per farm reporting.....	91	535	213	104	66	45	44	Acres per farm reporting.....	183	306	125	142	135	150	152
Percent of farms reporting.....	52.4	39.9	51.2	57.4	52.9	51.8	46.5	Percent of farms reporting.....	47.3	47.7	42.4	49.7	55.1	54.0	76.2
Percent of land in farms.....	19.1	19.4	20.4	18.7	17.9	18.6	22.8	Percent of land in farms.....	19.1	19.1	14.4	21.8	30.0	36.5	60.0
Woodland pastured, acres:								Woodland pastured, acres:							
Acres per farm reporting.....	100	615	214	129	77	57	52	Acres per farm reporting.....	130	228	113	140	110	55	20
Percent of farms reporting.....	19.3	14.9	15.4	16.9	18.8	21.2	25.4	Percent of farms reporting.....	1.7	0.8	1.3	3.6	2.2	1.9	9.5
Percent of land in farms.....	7.7	8.3	6.1	6.8	7.4	9.6	14.7	Percent of land in farms.....	0.5	0.2	0.4	1.5	0.9	0.5	1.0
Woodland not pastured, acres:								Woodland not pastured, acres:							
Acres per farm reporting.....	43	154	79	31	37	31	40	Acres per farm reporting.....	74	102	72	94	82	15	30
Percent of farms reporting.....	4.1	4.2	4.4	4.1	4.1	3.5	4.8	Percent of farms reporting.....	0.7	0.8	0.5	0.3	0.7	1.9	4.8
Percent of land in farms.....	0.7	0.6	0.6	0.4	0.8	0.9	2.2	Percent of land in farms.....	0.1	0.1	0.1	0.1	0.2	0.1	0.7
Average specified crops:								Average specified crops:							
Cotton:								Cotton:							
Acres per farm.....	71	299	153	95	57	35	19	Acres per farm reporting.....	144	241	128	97	63	47	17
Percent of cropland harvested.....	49.3	44.6	48.8	49.9	50.7	50.9	49.6	Percent of cropland harvested.....	44.4	43.3	45.5	45.8	44.0	46.4	39.9
Sorghum:								Sorghum for all purposes:							
Acres per farm reporting.....	57	296	112	62	37	24	14	Acres per farm reporting.....	164	270	143	107	75	56	32
Percent of farms reporting.....	64.9	87.7	81.1	76.6	64.7	55.9	44.1	Percent of farms reporting.....	95.3	97.8	97.2	95.9	89.4	81.7	57.1
Percent of cropland harvested.....	25.7	38.8	28.8	24.7	21.6	19.4	16.0	Percent of cropland harvested.....	48.3	47.6	49.6	48.1	46.8	45.7	43.8
Corn for all purposes:								Wheat:							
Acres per farm reporting.....	25	60	44	37	25	18	12	Acres per farm reporting.....	86	132	55	58	50	31	36
Percent of farms reporting.....	53.1	26.6	33.9	44.3	55.5	62.8	65.3	Percent of farms reporting.....	17.6	25.3	14.7	14.8	15.0	11.0	14.3
Percent of cropland harvested.....	9.2	2.4	4.7	8.7	12.2	16.5	20.6	Percent of cropland harvested.....	4.7	6.0	2.9	4.0	5.3	3.4	12.1
Small grains:								All hay:							
Percent of cropland harvested.....	6.1	7.1	7.9	6.4	5.4	3.4	2.7	Acres—percent of cropland harvested.....	0.8	0.9	0.6	0.8	1.3	1.1	3.8
All hay:								Acres of specified crops as percent of cropland harvested.....	98.1	97.8	98.6	98.7	97.3	96.6	99.7
Acres—percent of cropland harvested.....	4.1	3.1	3.6	4.2	4.4	5.2	5.4	REGION X							
Acres of specified crops as percent of cropland harvested.....	94.4	95.9	93.8	93.8	94.2	95.4	94.2	All farms.....number.....	11,868	4,502	3,066	2,035	1,389	676	190
REGION VIII								All land in farms.....acres per farm.....	543	1,207	217	107	70	24	10
All farms.....number.....	5,299	913	1,307	1,142	911	756	270	Total cropland.....do.....	296	666	113	53	28	17	8
All land in farms.....acres per farm.....	213	710	205	105	60	39	30	Cropland harvested.....do.....	227	513	84	40	20	12	6
Total cropland.....do.....	173	561	175	91	49	31	26	Cropland used only for pasture:							
Cropland harvested.....do.....	139	462	140	69	38	20	12	Acres per farm reporting.....	61	114	35	12	9	13	3
Cropland used only for pasture:								Percent of farms reporting.....	24.2	26.3	28.7	22.2	18.5	12.6	7.9
Acres per farm reporting.....	49	141	31	14	8	6	10	Cropland not harvested and not pastured:							
Percent of farms reporting.....	20.2	28.6	26.0	25.9	8.2	9.3	11.1	Acres per farm reporting.....	138	257	50	31	20	11	9
Cropland not harvested and not pastured:								Percent of farms reporting.....	39.4	48.0	37.9	34.3	31.8	25.9	18.4
Acres per farm reporting.....	51	127	53	35	21	25	36	Open permanent pasture, acres:							
Percent of farms reporting.....	47.6	46.4	50.4	51.3	47.9	41.0	38.9	Acres per farm reporting.....	1,292	2,439	496	258	106	64	2
Open permanent pasture, acres:								Percent of farms reporting.....	16.4	10.6	17.4	14.5	13.7	4.6	7.9
Acres per farm reporting.....	140	362	100	41	14	5	-----	Percent of land in farms.....	30.1	39.6	39.7	35.1	20.7	12.1	1.4
Percent of farms reporting.....	7.7	11.9	8.5	11.5	5.5	0.7	-----	Woodland pastured, acres:							
Percent of land in farms.....	5.0	6.1	4.2	4.5	1.3	0.1	-----	Acres per farm reporting.....	829	1,211	149	671	2,155	-----	-----
Woodland pastured, acres:								Percent of farms reporting.....	1.1	1.0	1.6	1.2	1.0	-----	-----
Acres per farm reporting.....	318	1,182	155	37	247	122	21	Percent of land in farms.....	1.7	1.0	1.1	7.4	31.1	-----	-----
Percent of farms reporting.....	4.4	4.7	6.5	5.3	2.3	2.1	1.9	Woodland not pastured, acres:							
Percent of land in farms.....	6.5	7.8	4.9	1.9	9.5	6.6	1.3	Acres per farm reporting.....	95	170	75	50	68	5	2
Woodland not pastured, acres:								Percent of farms reporting.....	1.6	1.3	1.5	2.0	2.2	0.7	2.6
Acres per farm reporting.....	177	369	82	53	40	237	1	Percent of land in farms.....	0.3	0.2	0.5	0.9	2.1	0.2	0.6
Percent of farms reporting.....	1.7	3.1	1.5	1.3	1.1	1.3	1.9	Average specified crops:							
Percent of land in farms.....	1.4	1.6	0.6	0.7	0.7	8.0	0.1	Cotton:							
Average specified crops:								Acres per farm.....	108	238	45	23	14	8	5
Cotton:								Percent of cropland harvested.....	47.7	46.5	53.2	50.6	70.8	64.7	81.7
Acres per farm.....	80	257	80	44	22	13	8	Sorghum for all purposes:							
Percent of cropland harvested.....	57.3	55.6	57.3	64.2	57.7	63.4	73.0	Acres per farm reporting.....	65	100	28	22	11	17	6
Corn for all purposes:								Percent of farms reporting.....	23.9	33.6	26.6	15.9	8.0	8.3	5.3
Acres per farm reporting.....	13	33	13	9	7	7	4	Percent of cropland harvested.....	6.8	6.5	8.9	8.7	4.3	11.3	5.5
Percent of farms reporting.....	30.2	29.1	32.9	36.4	25.9	21.2	33.3	Barley:							
Percent of cropland harvested.....	2.9	2.1	3.1	4.6	4.7	7.4	10.4	Acres per farm reporting.....	222	300	35	25	17	14	-----
Sorghum for all purposes:								Percent of farms reporting.....	24.5	44.4	19.4	11.9	4.0	2.2	-----
Acres per farm reporting.....	72	167	59	28	13	12	4	Percent of cropland harvested.....	24.0	26.7	8.0	7.3	3.5	2.5	-----
Percent of farms reporting.....	46.4	73.6	54.4	50.4	32.5	21.2	16.7	Irish potatoes:							
Percent of cropland harvested.....	23.9	26.6	22.8	20.1	11.0	12.3	5.1	Acres per farm reporting.....	56	67	12	2	-----	-----	-----
All hay:								Percent of farms reporting.....	2.9	6.2	1.6	0.7	-----	-----	-----
Acres—percent of cropland harvested.....	1.6	1.9	0.9	1.3	1.6	2.5	-----	Percent of cropland harvested.....	0.7	0.8	0.2	(Z)	-----	-----	-----
Acres of specified crops as percent of cropland harvested.....	85.7	86.2	84.1	90.2	75.0	85.0	88.5	Alfalfa mixtures:							
								Percent of cropland harvested.....	13.3	12.5	20.4	15.1	11.4	7.4	3.2
								Acres of specified crops as percent of cropland harvested.....	93.6	94.2	91.2	87.6	89.0	85.9	90.4

Z 0.05 percent or less.

Cropland and Cropland Use

As cotton farms are, by definition, those on which sales of cotton and cottonseed account for 50 percent or more of total farm sales, they depend primarily upon the cropland component of their land resources. For this reason the size and utilization of the cropland resources merit examination for the various economic classes of cotton farms. An examination of the enterprise utilization of the cropland resource also gives a useful indication of possible short-term alternative cropland uses.

In general, region average acreages of cropland per farm show about the same patterns of variations among the ten regions for each economic class of farm as the average acreages of all land in farms, which were discussed above.

The approximate range in region-averages of cropland per farm for each economic class is as follows:

Class I—from about 980 acres (Region VI) to about 500 acres (Region V).

Class II—from about 380 acres (Region X) to about 115 acres (Region VII).

Class III—from about 240 acres (Region IX) to about 55 acres (Region X).

Class IV—from about 165 acres (Region IX) to 28 acres (Region X).

Class V—from about 135 acres (Region IX) to about 15 acres (Region X).

Class VI—from 65 acres (Region IX) to about 10 acres (Region X).

In general, as was the case with average total acres per farm, the region-averages of cropland per farm for Classes III through VI tend to fall in three groups. Regions V, VII, and IX have relatively large average acreages of cropland for farms in these economic classes. Regions IV, VIII, and X have relatively small averages of cropland acreage, and Regions I, II, III, and VI have cropland averages per farm that fall between those of the other two regional groups.

TABLE 16.—PERCENT DISTRIBUTION FOR ALL COMMERCIAL FARMS AND FOR COTTON FARMS IN EACH ECONOMIC CLASS, BY ACRES IN FARM, BY REGIONS: 1954

Region and size of farm	All commercial farms	Cotton farms by economic class of farm							Region and size of farm	All commercial farms	Cotton farms by economic class of farm						
		All classes	I	II	III	IV	V	VI			All classes	I	II	III	IV	V	VI
REGION I								REGION VI									
Number of farms, total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	Number of farms, total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
Under 10 acres.....	3.7	2.6	-----	-----	-----	(Z)	0.9	Under 10 acres.....	2.7	2.0	-----	-----	-----	-----	0.6	14.1	
10 to 49 acres.....	37.7	45.0	-----	-----	13.6	37.3	49.6	10 to 49 acres.....	20.7	34.7	-----	0.6	7.0	40.7	59.4	56.4	
50 to 99 acres.....	22.2	25.3	-----	1.6	25.5	31.0	27.2	50 to 99 acres.....	19.8	28.1	-----	5.2	36.3	37.5	23.9	21.1	
100 to 219 acres.....	20.9	18.3	3.4	16.3	33.8	23.0	17.8	100 to 219 acres.....	24.7	25.7	3.0	50.5	47.9	19.4	14.3	7.5	
220 to 499 acres.....	10.0	6.1	5.2	39.7	18.5	7.2	3.9	220 to 499 acres.....	16.6	7.1	47.6	36.9	6.5	2.1	1.4	0.9	
500 to 999 acres.....	3.4	1.8	23.0	28.0	7.2	1.2	0.5	500 to 999 acres.....	8.4	1.7	32.7	4.5	2.0	0.3	0.3	-----	
1,000 acres and over.....	2.1	0.9	68.4	14.4	1.4	0.3	0.1	1,000 acres and over.....	7.1	0.7	16.7	2.3	0.3	(Z)	0.1	-----	
REGION II								REGION VII									
Number of farms, total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	Number of farms, total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
Under 10 acres.....	4.5	3.1	-----	-----	-----	0.1	0.4	Under 10 acres.....	1.2	0.2	-----	-----	-----	-----	0.1	1.2	
10 to 49 acres.....	34.0	48.7	-----	-----	5.4	34.2	51.4	10 to 49 acres.....	5.9	7.4	-----	-----	0.3	2.5	12.3	33.2	
50 to 99 acres.....	23.7	24.3	-----	-----	17.4	27.3	24.4	50 to 99 acres.....	13.4	17.3	-----	0.6	2.3	15.0	33.9	34.5	
100 to 219 acres.....	23.8	18.1	-----	11.1	26.8	27.5	18.7	100 to 219 acres.....	34.0	38.9	1.7	14.2	33.7	55.2	43.1	24.8	
220 to 499 acres.....	9.6	4.6	-----	38.9	35.5	8.8	4.4	220 to 499 acres.....	28.6	27.0	28.9	48.4	52.2	24.3	9.7	5.6	
500 to 999 acres.....	3.0	0.9	-----	31.1	12.2	1.7	0.6	500 to 999 acres.....	10.2	6.9	35.6	28.7	9.6	2.6	0.8	0.6	
1,000 acres and over.....	1.4	0.3	100.0	18.9	2.7	0.4	0.1	1,000 acres and over.....	6.7	2.3	33.8	8.1	1.9	0.4	0.1	0.1	
REGION III								REGION VIII									
Number of farms, total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	Number of farms, total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
Under 10 acres.....	4.1	4.5	-----	-----	-----	0.3	2.9	Under 10 acres.....	4.0	2.5	-----	-----	-----	1.1	7.9	24.0	
10 to 49 acres.....	42.2	50.1	-----	1.2	27.3	39.8	55.0	10 to 49 acres.....	31.9	30.2	-----	1.1	21.5	59.9	79.4	70.3	
50 to 99 acres.....	22.6	23.0	-----	4.8	22.2	28.4	22.9	50 to 99 acres.....	18.2	18.6	-----	16.1	42.9	25.8	6.0	1.9	
100 to 219 acres.....	19.9	16.7	-----	25.8	24.4	23.7	15.3	100 to 219 acres.....	23.1	24.9	13.1	55.8	28.4	10.9	5.3	1.9	
220 to 499 acres.....	7.5	4.4	-----	18.6	31.0	19.1	6.7	220 to 499 acres.....	14.2	15.7	49.3	23.4	6.1	1.1	-----	-----	
500 to 999 acres.....	2.3	0.9	-----	27.2	25.1	5.4	0.9	500 to 999 acres.....	5.4	5.3	23.7	2.3	0.9	1.1	1.3	1.9	
1,000 acres and over.....	1.4	0.4	64.2	12.1	1.6	0.2	0.1	1,000 acres and over.....	3.2	2.8	13.9	1.3	0.2	0.1	0.1	-----	
REGION IV								REGION IX									
Number of farms, total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	Number of farms, total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
Under 10 acres.....	12.0	13.2	-----	-----	-----	0.9	17.1	Under 10 acres.....	1.4	0.1	-----	-----	-----	-----	0.6	4.8	
10 to 49 acres.....	52.2	57.3	0.3	1.5	31.8	70.5	70.3	10 to 49 acres.....	1.8	2.0	-----	-----	1.7	7.6	13.6	33.3	
50 to 99 acres.....	14.4	14.1	0.5	11.5	34.1	18.0	8.6	50 to 99 acres.....	2.1	3.8	-----	-----	1.9	8.1	14.3	4.8	
100 to 219 acres.....	11.8	9.7	3.7	47.8	26.7	8.7	3.5	100 to 219 acres.....	12.7	27.2	2.2	36.7	31.4	47.7	40.2	28.8	
220 to 499 acres.....	5.8	3.5	29.6	29.9	6.2	1.7	0.5	220 to 499 acres.....	31.9	41.5	45.5	41.7	49.0	27.8	24.7	23.8	
500 to 999 acres.....	2.3	1.3	34.5	7.0	1.0	0.2	0.1	500 to 999 acres.....	28.1	19.6	37.8	16.9	7.7	6.3	5.8	9.5	
1,000 acres and over.....	1.5	0.9	31.4	2.3	0.2	(Z)	(Z)	1,000 acres and over.....	22.0	5.8	14.5	2.8	2.1	1.3	0.8	-----	
REGION V								REGION X									
Number of farms, total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	Number of farms, total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
Under 10 acres.....	2.5	2.0	-----	-----	-----	1.3	4.0	Under 10 acres.....	7.1	2.6	-----	-----	-----	1.8	20.7	78.3	
10 to 49 acres.....	19.8	33.4	-----	-----	9.8	25.0	37.2	10 to 49 acres.....	38.2	25.7	0.1	6.4	57.3	82.7	73.3	21.1	
50 to 99 acres.....	10.9	23.5	-----	1.8	12.1	19.9	23.3	50 to 99 acres.....	16.3	17.1	1.4	40.2	30.0	7.6	2.2	2.6	
100 to 219 acres.....	20.9	26.7	2.3	23.7	34.3	33.4	28.3	100 to 219 acres.....	13.9	21.6	22.3	41.9	7.6	5.8	3.7	-----	
220 to 499 acres.....	17.6	10.5	14.0	40.8	30.0	17.5	8.7	220 to 499 acres.....	9.6	17.1	37.6	8.7	2.7	1.1	-----	-----	
500 to 999 acres.....	6.3	2.5	33.0	19.0	9.3	3.2	0.9	500 to 999 acres.....	5.1	8.4	20.6	1.2	1.5	0.4	-----	-----	
1,000 acres and over.....	4.0	1.4	50.7	14.7	4.5	1.0	0.3	1,000 acres and over.....	9.8	7.5	18.0	1.6	0.9	0.6	0.1	-----	

Z 0.05 percent or less.

Cropland utilization.—Data in table 15, concerning the acres of cropland per farm and the percent of cropland used for various major crops indicate that: (1) A higher percentage of harvested cropland was devoted to cotton for the smaller than for the larger size-of-farm business groups; and (2) fewer alternative crops of a cash type are grown on the smaller farms than on the larger farms. These indications suggest that the smaller size-of-business farms in all regions are more dependent on cotton production than the larger farms.

Data from both tables 14 and 15 bring out the significant fact that, in all regions and for all economic classes, a substantial proportion of cropland on cotton farms was idle in 1954. As 1954 was the first year since 1950 in which marketing quotas and

acreage allotments were in effect for cotton, it is probable that a higher-than-usual acreage of cropland remained idle because, in one season, acceptable alternative uses had not been found.

In table 15 the average acreage of cotton harvested per farm is given for each economic class of farm in each region. The data of tables 17 and 18 afford some indication of the variation of the acreage of cotton from these averages for each economic class in each region. For example, Class II farms in Region I had an average of 74 acres of cotton. Data in table 17 reveal that 24 percent of these Class II farms harvested between 25 and 49 acres of cotton; 56 percent, between 50 and 99 acres; and 19 percent, between 100 and 199 acres.

TABLE 17.—PERCENT DISTRIBUTION OF FARMS REPORTING COTTON HARVESTED, BY ACRES HARVESTED, FOR ALL COMMERCIAL FARMS AND FOR COTTON FARMS, BY ECONOMIC CLASS, BY REGIONS: 1954

Region and economic class of farm	Percent distribution of farms reporting by acres of cotton harvested								Region and economic class of farm	Percent distribution of farms reporting by acres of cotton harvested							
	Total	Under 5 acres	5 to 9 acres	10 to 24 acres	25 to 49 acres	50 to 99 acres	100 to 199 acres	200 acres and over		Total	Under 5 acres	5 to 9 acres	10 to 24 acres	25 to 49 acres	50 to 99 acres	100 to 199 acres	200 acres and over
TOTAL, 10 REGIONS									REGION VI								
All commercial farms.....	100.0	9.5	28.7	38.8	11.8	6.3	3.3	1.5	All commercial farms.....	100.0	6.0	20.4	33.9	24.2	11.5	3.4	0.6
Cotton farms.....	100.0	6.0	27.0	42.2	12.5	6.8	3.7	1.8	Cotton farms.....	100.0	3.6	16.6	35.0	27.3	12.9	3.8	0.8
Class I.....	100.0	—	—	0.2	1.3	13.1	42.5	42.9	Class I.....	100.0	—	—	—	3.0	—	64.3	32.7
II.....	100.0	—	—	1.5	19.5	45.3	24.9	8.8	II.....	100.0	—	—	—	6.0	68.6	23.9	1.5
III.....	100.0	(Z)	0.3	19.7	46.9	22.2	10.0	0.9	III.....	100.0	—	—	9.6	63.6	26.6	0.2	—
IV.....	100.0	0.1	4.6	64.3	22.6	7.2	1.2	(Z)	IV.....	100.0	0.3	7.9	54.7	36.1	1.0	—	—
V.....	100.0	1.1	32.4	59.3	5.8	1.3	0.1	—	V.....	100.0	0.8	33.1	58.9	6.9	0.3	—	—
VI.....	100.0	22.5	57.1	19.2	1.0	0.2	(Z)	—	VI.....	100.0	24.9	50.7	23.5	0.9	—	—	—
REGION I									REGION VII								
All commercial farms.....	100.0	16.5	37.0	37.1	7.3	1.6	0.4	0.1	All commercial farms.....	100.0	1.2	4.9	22.3	28.8	26.7	12.5	3.6
Cotton farms.....	100.0	6.8	28.5	50.0	11.4	2.4	0.7	0.2	Cotton farms.....	100.0	0.3	2.2	16.6	28.9	31.5	15.8	4.7
Class I.....	100.0	—	—	—	—	3.8	50.6	45.6	Class I.....	100.0	—	—	—	0.1	5.6	35.8	58.5
II.....	100.0	—	—	—	24.2	56.2	19.0	0.6	II.....	100.0	—	—	(Z)	4.3	24.5	46.6	24.6
III.....	100.0	0.1	0.3	31.8	54.3	13.0	0.5	—	III.....	100.0	—	—	1.0	10.8	49.5	35.8	2.9
IV.....	100.0	(Z)	5.1	71.7	22.5	0.7	(Z)	—	IV.....	100.0	—	0.1	7.1	40.2	44.7	7.7	0.3
V.....	100.0	1.2	30.4	65.9	2.5	(Z)	—	—	V.....	100.0	(Z)	1.5	32.9	47.0	17.3	1.2	—
VI.....	100.0	23.1	58.7	18.1	0.1	—	—	—	VI.....	100.0	2.8	17.5	56.3	19.1	4.1	0.2	—
REGION II									REGION VIII								
All commercial farms.....	100.0	15.2	35.4	42.4	5.8	0.9	0.2	(Z)	All commercial farms.....	100.0	2.7	11.4	23.3	19.6	21.7	13.2	8.1
Cotton farms.....	100.0	9.9	35.0	47.7	6.3	0.9	0.2	(Z)	Cotton farms.....	100.0	1.9	11.9	22.6	19.4	22.2	13.9	8.2
Class I.....	100.0	—	—	—	—	—	52.2	47.8	Class I.....	100.0	—	—	—	—	13.1	45.2	41.6
II.....	100.0	—	—	—	12.2	60.0	27.2	0.6	II.....	100.0	—	—	1.1	20.7	54.3	21.6	2.3
III.....	100.0	—	—	12.2	65.3	22.2	0.3	—	III.....	100.0	—	—	26.7	45.2	22.8	3.2	2.2
IV.....	100.0	0.4	2.1	65.1	30.6	1.8	—	—	IV.....	100.0	—	12.6	57.1	23.6	6.1	0.5	—
V.....	100.0	0.8	21.7	74.2	3.3	(Z)	—	—	V.....	100.0	4.0	50.9	39.0	2.1	4.0	—	—
VI.....	100.0	20.7	56.9	22.2	0.1	—	—	—	VI.....	100.0	25.9	48.1	22.2	3.7	—	—	—
REGION III									REGION IX								
All commercial farms.....	100.0	12.8	38.8	41.4	5.6	1.0	0.3	0.1	All commercial farms.....	100.0	0.4	1.8	7.5	13.1	28.7	30.4	18.1
Cotton farms.....	100.0	10.0	38.7	43.9	5.9	1.0	0.3	0.1	Cotton farms.....	100.0	0.1	0.6	3.0	10.1	29.8	35.0	21.3
Class I.....	100.0	—	—	—	—	7.8	51.6	40.6	Class I.....	100.0	—	—	—	0.3	5.8	45.6	48.4
II.....	100.0	—	—	1.7	30.1	49.7	18.3	0.2	II.....	100.0	—	—	0.1	7.1	40.5	35.3	17.1
III.....	100.0	0.1	0.4	32.0	56.9	10.5	0.1	—	III.....	100.0	—	—	3.0	14.7	39.6	38.3	4.4
IV.....	100.0	0.1	5.3	79.3	15.1	0.3	—	—	IV.....	100.0	—	1.4	10.8	26.6	47.9	13.2	0.1
V.....	100.0	1.3	40.5	57.1	1.1	(Z)	—	—	V.....	100.0	1.3	6.5	19.6	41.8	21.1	9.7	—
VI.....	100.0	27.0	60.9	12.0	0.1	(Z)	—	—	VI.....	100.0	9.5	23.8	57.1	4.8	4.8	—	—
REGION IV									REGION X								
All commercial farms.....	100.0	3.5	24.5	49.7	15.0	4.6	1.8	1.0	All commercial farms.....	100.0	3.0	9.3	26.0	20.7	17.1	12.7	11.2
Cotton farms.....	100.0	2.9	24.0	50.7	15.1	4.5	1.7	1.0	Cotton farms.....	100.0	1.9	7.5	23.4	21.8	18.8	14.1	12.6
Class I.....	100.0	—	—	—	0.3	9.5	46.8	43.3	Class I.....	100.0	—	—	0.6	3.8	26.3	36.3	33.0
II.....	100.0	—	—	0.7	22.7	63.1	13.2	0.3	II.....	100.0	—	—	9.3	59.3	32.7	1.2	0.1
III.....	100.0	—	0.1	21.1	67.9	10.5	0.3	—	III.....	100.0	—	2.9	66.2	26.8	1.3	0.3	—
IV.....	100.0	0.1	5.3	75.3	18.9	0.5	—	—	IV.....	100.0	1.9	24.6	68.6	4.2	0.7	—	—
V.....	100.0	1.0	35.7	61.5	1.8	(Z)	—	—	V.....	100.0	14.2	60.7	22.9	2.2	—	—	—
VI.....	100.0	18.3	61.5	19.9	0.3	—	—	—	VI.....	100.0	52.6	42.1	5.3	—	—	—	—
REGION V																	
All commercial farms.....	100.0	8.9	25.0	40.9	16.4	6.4	1.6	0.7									
Cotton farms.....	100.0	5.2	20.5	44.2	19.1	8.2	2.0	0.9									
Class I.....	100.0	—	—	—	—	5.6	27.0	67.4									
II.....	100.0	—	—	0.2	8.9	45.6	37.3	8.0									
III.....	100.0	—	0.3	5.9	40.7	43.7	9.0	0.3									
IV.....	100.0	0.1	0.7	34.4	45.2	18.6	1.0	—									
V.....	100.0	0.3	7.5	65.5	23.8	2.8	—	—									
VI.....	100.0	12.4	43.8	41.4	2.4	0.1	—	—									

Z 0.05 percent or less.

COTTON PRODUCERS AND COTTON PRODUCTION

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TABLE 18.—PERCENT DISTRIBUTION OF COTTON FARMS BY ACRES OF COTTON HARVESTED, BY ECONOMIC CLASS OF FARM, BY REGIONS: 1954

Region and economic class of farm	Percent distribution of farms reporting by acres of cotton harvested								Region and economic class of farm	Percent distribution of farms reporting by acres of cotton harvested							
	Total	Under 5 acres	5 to 9 acres	10 to 24 acres	25 to 49 acres	50 to 99 acres	100 to 199 acres	200 acres and over		Total	Under 5 acres	5 to 9 acres	10 to 24 acres	25 to 49 acres	50 to 99 acres	100 to 199 acres	200 acres and over
TOTAL, 10 REGIONS									REGION VI								
Cotton farms.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	Cotton farms.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Class I.....	3.0	(Z)	(Z)	(Z)	0.3	5.8	34.1	70.8	Class I.....	2.1	(Z)	(Z)	(Z)	0.2	(Z)	36.2	82.1
II.....	5.0	(Z)	(Z)	0.2	7.7	33.2	33.3	24.3	II.....	9.7	(Z)	(Z)	6.1	2.1	51.4	62.1	17.9
III.....	9.0	(Z)	0.1	4.2	33.7	29.6	24.4	4.5	III.....	22.2	(Z)	(Z)	51.8	39.7	45.7	1.7	(Z)
IV.....	22.2	0.3	3.8	33.8	40.0	23.8	6.9	0.4	IV.....	30.0	1.7	14.3	46.8	39.7	2.4	(Z)	(Z)
V.....	35.7	6.6	42.9	50.3	16.3	7.0	1.2	(Z)	V.....	22.7	5.3	45.1	38.2	5.7	0.5	(Z)	(Z)
VI.....	25.1	93.1	53.2	11.5	2.0	0.6	0.1	(Z)	VI.....	13.3	93.0	40.6	8.9	0.5	(Z)	(Z)	(Z)
REGION I									REGION VII								
Cotton farms.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	Cotton farms.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Class I.....	0.5	(Z)	(Z)	(Z)	0.8	36.1	94.2	(Z)	Class I.....	2.7	(Z)	(Z)	(Z)	0.5	6.0	33.1	(Z)
II.....	2.2	(Z)	(Z)	(Z)	4.6	50.0	58.5	5.8	II.....	9.9	(Z)	(Z)	1.5	7.7	29.2	51.9	(Z)
III.....	7.7	0.1	0.1	4.9	36.4	41.4	5.2	(Z)	III.....	21.1	(Z)	(Z)	1.2	7.9	33.0	47.8	13.3
IV.....	25.9	0.1	4.6	37.2	50.9	7.4	0.2	(Z)	IV.....	30.7	(Z)	1.1	13.2	42.7	43.6	14.9	1.7
V.....	36.3	6.7	38.8	47.9	7.9	0.4	(Z)	(Z)	V.....	25.3	3.7	17.1	50.3	41.1	13.9	2.0	(Z)
VI.....	27.5	93.1	56.5	10.0	0.2	(Z)	(Z)	(Z)	VI.....	10.4	96.3	81.8	35.3	6.8	1.3	0.1	(Z)
REGION II									REGION VIII								
Cotton farms.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	Cotton farms.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Class I.....	0.1	(Z)	(Z)	(Z)	0.9	29.6	77.8	8.3	Class I.....	17.2	(Z)	(Z)	1.3	26.2	10.2	56.1	87.4
II.....	0.4	(Z)	(Z)	(Z)	19.3	45.5	3.2	(Z)	II.....	24.7	(Z)	(Z)	25.5	50.3	60.4	38.3	6.9
III.....	1.9	(Z)	(Z)	0.5	19.3	45.5	3.2	(Z)	III.....	21.6	(Z)	(Z)	25.5	50.3	22.1	4.9	5.7
IV.....	11.9	0.5	0.7	16.3	58.2	23.6	(Z)	(Z)	IV.....	17.2	(Z)	18.3	43.5	20.9	4.8	0.7	(Z)
V.....	39.8	3.3	24.7	61.9	20.8	1.4	(Z)	(Z)	V.....	14.3	30.0	61.1	24.7	1.6	2.5	(Z)	(Z)
VI.....	45.9	96.2	74.6	21.3	0.8	(Z)	(Z)	(Z)	VI.....	5.1	70.0	20.6	5.0	1.0	(Z)	(Z)	(Z)
REGION III									REGION IX								
Cotton farms.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	Cotton farms.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Class I.....	0.3	(Z)	(Z)	(Z)	2.2	43.8	98.0	(Z)	Class I.....	28.6	(Z)	(Z)	1.1	0.7	5.6	37.3	65.0
II.....	1.0	(Z)	(Z)	(Z)	48.7	54.8	2.0	(Z)	II.....	39.6	(Z)	(Z)	15.8	23.4	21.2	17.5	3.3
III.....	4.0	(Z)	(Z)	2.9	38.6	42.4	1.4	(Z)	III.....	16.0	(Z)	(Z)	21.0	35.3	25.9	15.8	3.7
IV.....	19.1	0.1	2.6	34.5	48.7	5.6	(Z)	(Z)	IV.....	9.8	(Z)	21.0	34.2	21.8	3.7	1.5	(Z)
V.....	40.8	5.4	42.6	53.1	7.4	0.2	(Z)	(Z)	V.....	5.3	50.0	52.6	34.2	21.8	3.7	1.5	(Z)
VI.....	34.8	94.5	54.8	9.5	0.3	0.9	(Z)	(Z)	VI.....	0.7	50.0	26.4	13.6	0.3	0.1	(Z)	(Z)
REGION IV									REGION X								
Cotton farms.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	Cotton farms.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Class I.....	2.3	(Z)	(Z)	(Z)	0.1	4.9	62.7	98.8	Class I.....	38.0	(Z)	(Z)	0.9	6.6	53.3	97.4	99.9
II.....	4.7	(Z)	(Z)	(Z)	7.0	64.6	35.3	1.2	II.....	25.9	(Z)	(Z)	10.3	67.5	45.0	2.1	0.1
III.....	11.8	(Z)	0.1	4.9	52.9	27.3	2.0	(Z)	III.....	17.2	(Z)	6.7	48.5	23.1	1.2	0.5	(Z)
IV.....	28.0	0.5	6.2	41.5	35.0	3.0	(Z)	(Z)	IV.....	11.7	11.7	38.3	34.4	2.2	0.5	(Z)	(Z)
V.....	39.8	13.8	59.1	48.2	4.9	0.2	(Z)	(Z)	V.....	5.7	43.2	46.0	5.6	0.6	(Z)	(Z)	(Z)
VI.....	13.5	85.7	34.6	5.3	0.2	(Z)	(Z)	(Z)	VI.....	1.6	45.1	8.9	0.3	(Z)	(Z)	(Z)	(Z)
REGION V																	
Cotton farms.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0									
Class I.....	1.0	(Z)	(Z)	(Z)	0.7	13.3	74.7	(Z)									
II.....	2.5	(Z)	(Z)	(Z)	1.1	13.8	47.3	22.7									
III.....	6.8	(Z)	0.1	0.9	14.5	36.5	31.4	2.6									
IV.....	16.5	0.4	0.6	12.9	39.0	37.5	8.0	(Z)									
V.....	32.3	2.2	11.8	47.9	40.2	11.3	(Z)	(Z)									
VI.....	40.9	97.4	87.5	38.3	5.2	0.2	(Z)	(Z)									

Z 0.05 percent or less.

Table 18 shows, for each region, the distribution of farms having various sizes of cotton enterprises for each economic class. Somewhat more general data concerning the geographic distribution of cotton farms by size of the cotton enterprise are provided by the dot maps of figures 6, 7, 8, and 9.

The relative importance of cropland, of cotton and of other major crops, to the incomes of cotton farmers is further indicated by data in table 19. This table shows percentage distributions for each economic class of farm in each region, for total farm sales by the crop or livestock enterprise source.

Crops account for about 90 percent of the total sales for each economic class in each region except for Class I farms in Region

II. For Class I farms in this region crops account for 76 percent of total sales. Cotton provides about 75 percent of the total sales for most economic classes and regions. In Region I, cotton sales account for around 70 percent of the total sales on farms in Classes I, II, and III, and on Class I farms in Region II cotton accounts for only 60 percent of total sales. Both tobacco and peanuts are important sources of farm income on many cotton farms of Region I. Livestock and livestock products are an unusually important source of income on Class I cotton farms in Region II.

As indicated by data in table 19, cotton sales account for a larger percentage of total sales on the smaller than on the larger size-of-business groups of farms.

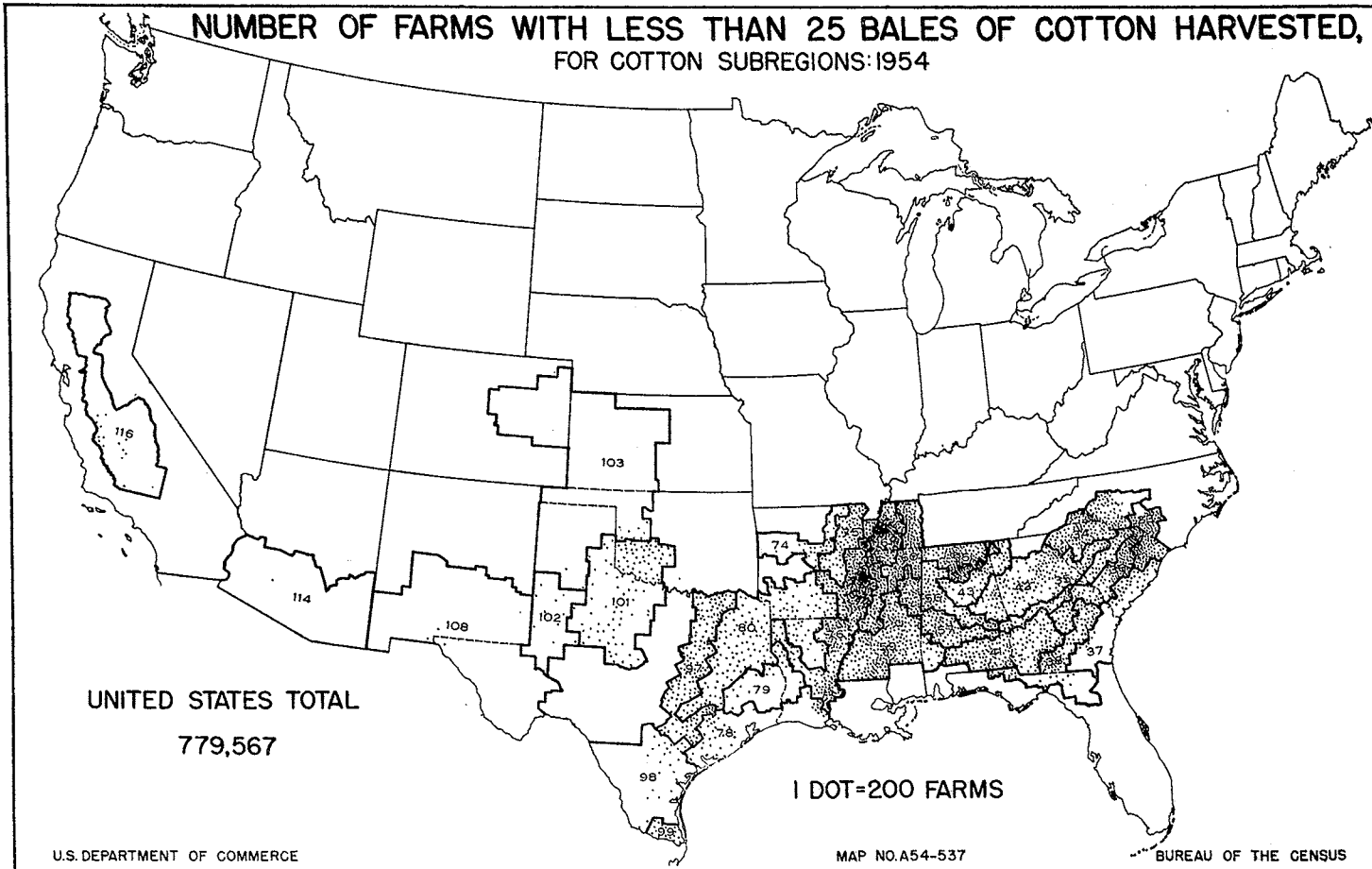


FIGURE 6.

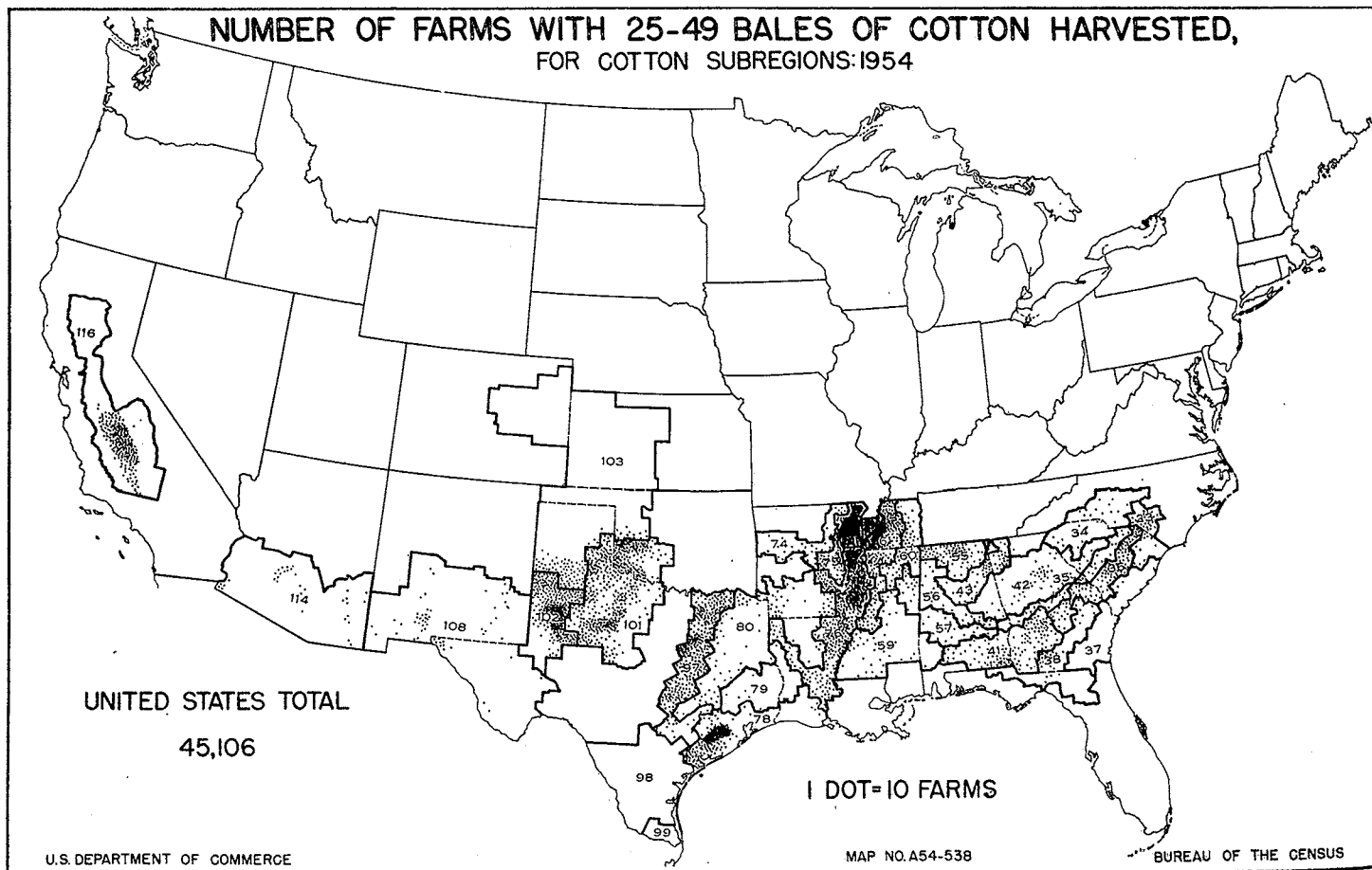


FIGURE 7.

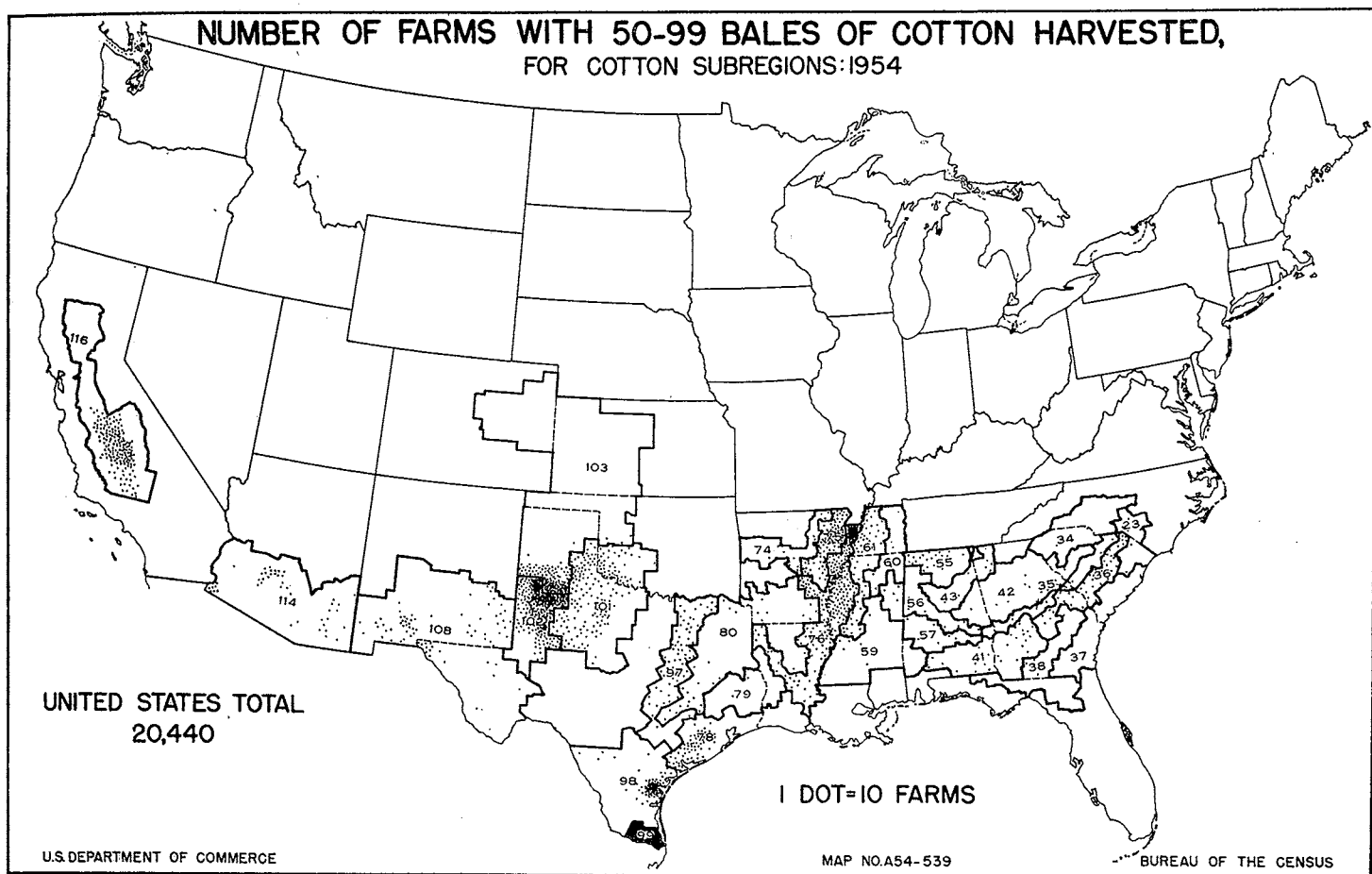


FIGURE 8.

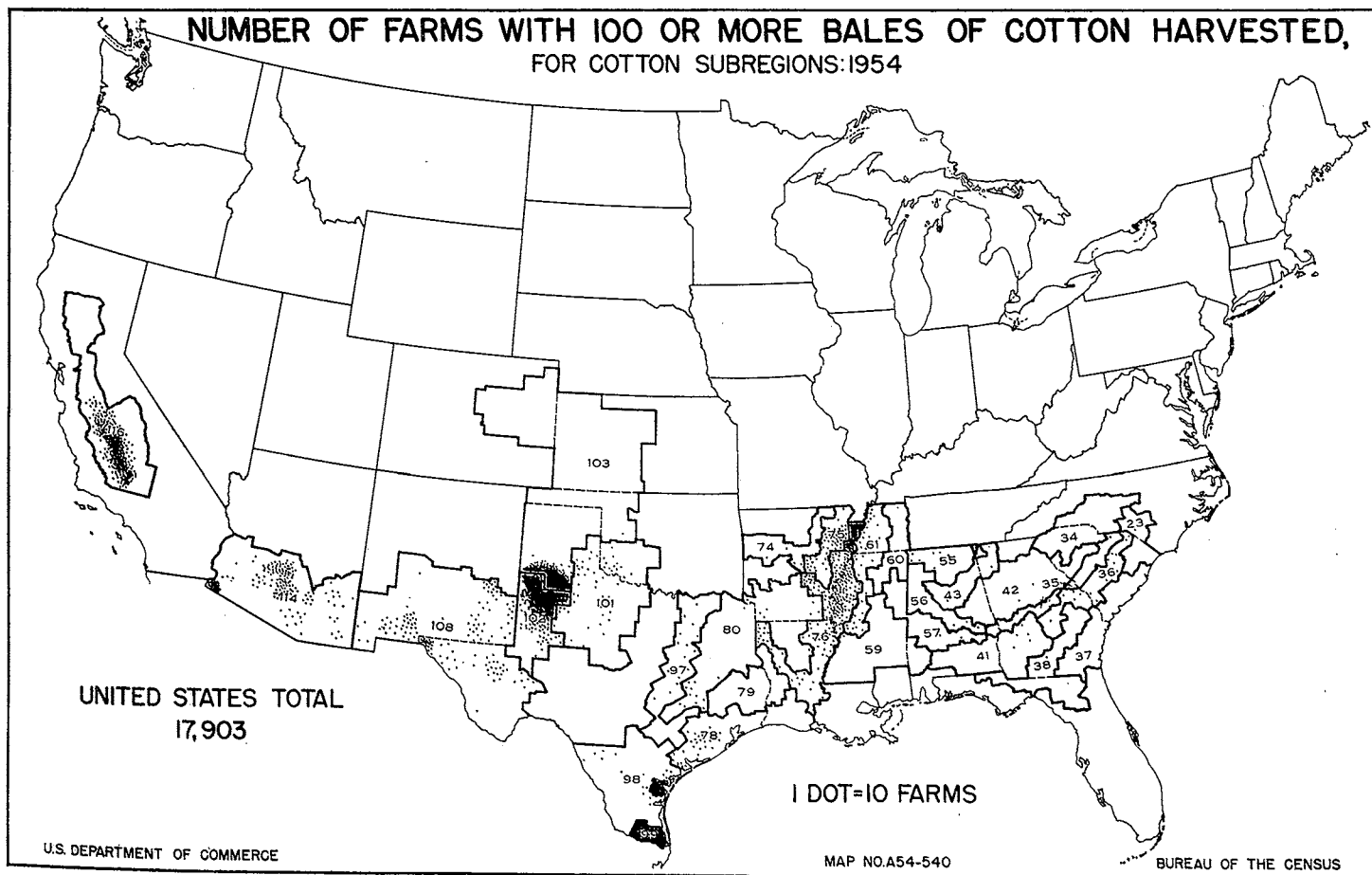


FIGURE 9.

FARMERS AND FARM PRODUCTION

TABLE 19.—DISTRIBUTION OF FARM SALES BY SOURCE, FOR COTTON FARMS, BY ECONOMIC CLASS, BY REGIONS: 1954

Region and item	All classes		Economic class of farm					
	Dollars	Percent	I Percent	II Percent	III Percent	IV Percent	V Percent	VI Percent
REGION I								
Gross sales.....	158,390,782	100.0	100.0	100.0	100.0	100.0	100.0	100.0
All crops.....	146,702,510	92.6	89.5	88.2	92.5	94.0	93.4	94.4
Cotton.....	116,223,089	73.4	71.0	68.5	69.8	73.4	70.6	81.4
Corn.....	3,239,284	2.0	2.0	2.2	2.1	2.3	1.9	1.2
Tobacco.....	11,752,720	7.4	2.7	3.5	10.4	9.6	6.4	4.7
Peanuts.....	9,221,847	5.8	2.4	5.8	6.9	6.4	5.0	4.1
Oats.....	1,540,720	1.0	5.3	2.7	0.7	0.3	0.1	0.3
All other crops.....	4,724,850	3.0	6.1	5.5	2.6	2.0	2.5	2.7
All livestock and livestock products.....	11,095,020	7.0	9.4	11.2	7.1	5.8	6.4	5.3
Cattle and calves.....	3,240,704	2.0	5.3	4.8	2.1	1.2	1.1	1.1
Hogs and pigs.....	7,051,278	4.6	2.9	5.3	4.7	4.4	5.0	3.8
Poultry and poultry products.....	528,129	0.3	0.4	0.6	0.3	0.2	0.3	0.4
Dairy products.....	218,928	0.1	0.7	0.5	(Z)	(Z)	(Z)	(Z)
All other livestock and livestock products.....	55,981	(Z)	0.1	(Z)	(Z)	(Z)	(Z)	(Z)
Forest products.....	593,252	0.4	1.1	0.6	0.4	0.2	0.2	0.3
REGION II								
Gross sales.....	66,675,670	100.0	100.0	100.0	100.0	100.0	100.0	100.0
All crops.....	62,110,765	93.1	76.4	88.1	83.3	93.1	94.4	94.7
Cotton.....	55,969,596	83.0	60.7	73.5	73.0	83.0	86.1	88.2
Corn.....	1,064,273	1.6	1.0	1.4	1.7	1.8	1.8	1.0
Wheat.....	1,160,569	1.7	4.8	4.0	4.1	2.1	1.3	0.7
Oats.....	777,119	1.2	2.4	3.5	2.9	1.4	0.9	0.3
All other crops.....	3,139,208	4.7	7.5	5.6	6.4	4.8	4.3	4.5
All livestock and livestock products.....	4,059,875	6.1	17.8	10.9	10.6	6.2	5.0	4.7
Cattle and calves.....	1,691,067	2.5	11.8	7.0	5.6	2.3	1.8	1.6
Hogs and pigs.....	650,914	1.0	1.0	0.6	1.0	0.9	1.0	1.0
Poultry and poultry products.....	714,359	1.1	0.8	0.5	2.0	1.4	0.8	1.0
Dairy products.....	954,332	1.4	4.1	2.7	2.0	1.5	1.3	1.0
All other livestock and livestock products.....	49,203	0.1	(Z)	0.1	(Z)	0.1	0.1	0.1
Forest products.....	505,030	0.8	5.8	1.0	1.1	0.8	0.6	0.6
REGION III								
Gross sales.....	366,693,693	100.0	100.0	100.0	100.0	100.0	100.0	100.0
All crops.....	336,410,511	91.7	88.3	88.6	90.1	92.2	92.8	92.8
Cotton.....	314,401,906	85.7	76.6	79.0	83.6	86.4	88.1	88.4
Corn.....	10,070,290	2.7	1.9	2.4	3.2	3.4	2.7	1.7
Soybeans.....	4,548,729	1.2	6.9	5.2	1.6	0.6	0.2	0.1
All other crops.....	7,389,586	2.0	2.9	2.1	1.7	1.8	1.9	2.6
All livestock and livestock products.....	28,762,558	7.8	11.1	11.0	9.5	7.5	6.8	6.6
Cattle and calves.....	12,803,709	3.5	6.6	6.8	4.3	2.9	2.7	2.9
Hogs and pigs.....	7,713,805	2.1	1.6	2.2	3.0	2.4	1.7	1.5
Poultry and poultry products.....	2,203,220	0.6	0.2	0.8	0.6	0.5	0.7	0.8
Dairy products.....	5,568,587	1.5	2.5	1.1	1.3	1.6	1.5	1.2
All other livestock and livestock products.....	473,237	0.1	0.2	0.3	0.2	0.1	0.1	0.1
Forest products.....	1,520,624	0.4	0.6	0.4	0.4	0.3	0.4	0.6
REGION IV								
Gross sales.....	583,700,660	100.0	100.0	10.0	100.0	100.0	100.0	100.0
All crops.....	564,008,500	96.6	95.2	96.4	97.1	97.4	97.8	97.1
Cotton.....	506,672,777	86.8	79.4	83.0	88.0	92.3	94.6	94.5
Rice.....	4,878,592	0.8	2.4	0.3	0.2	0.2	(Z)	0.5
Soybeans for beans.....	34,191,420	5.9	8.8	10.1	6.6	2.4	0.8	0.1
Oats.....	5,669,693	1.0	2.4	1.1	0.5	0.1	0.1	0.1
All other crops.....	12,596,018	2.2	2.3	1.9	1.8	2.4	2.3	2.1
All livestock and livestock products.....	19,282,879	3.3	4.7	3.5	2.9	2.5	2.1	2.8
Cattle and calves.....	11,697,608	2.0	3.5	2.2	1.4	1.1	1.0	1.6
Hogs and pigs.....	5,199,591	0.9	0.7	1.0	1.1	1.0	0.8	0.8
Poultry and poultry products.....	1,280,848	0.2	0.2	0.2	0.2	0.2	0.3	0.4
Dairy products.....	752,595	0.1	0.2	0.1	0.1	0.1	(Z)	0.1
All other livestock and livestock products.....	352,237	0.1	0.1	0.1	(Z)	(Z)	(Z)	0.1
Forest products.....	409,281	0.1	0.1	0.1	(Z)	0.1	(Z)	0.1
REGION V								
Gross sales.....	61,382,197	100.0	100.0	100.0	100.0	100.0	100.0	100.0
All crops.....	54,832,539	89.3	88.7	89.6	90.1	89.4	89.5	88.4
Cotton.....	50,934,495	83.0	81.1	80.5	80.8	84.6	85.1	81.2
Corn.....	689,711	1.1	0.6	1.9	1.1	1.4	1.1	0.9
Soybeans.....	1,042,412	1.7	1.6	4.6	2.8	1.1	0.4	0.3
Oats.....	393,065	0.6	1.2	0.9	0.5	0.2	(Z)	0.3
All other crops.....	1,862,856	3.0	4.4	1.7	1.9	2.1	2.9	6.0
All livestock and livestock products.....	6,347,078	10.3	11.0	10.2	9.6	10.4	10.0	10.8
Cattle and calves.....	4,502,117	7.3	9.2	8.6	6.7	6.7	6.3	6.1
Hogs and pigs.....	983,470	1.6	0.9	0.6	1.9	2.1	1.9	2.3
Poultry and poultry products.....	511,068	0.8	0.4	0.7	0.7	0.8	1.1	1.7
Dairy products.....	310,511	0.5	0.6	0.3	0.2	0.6	0.6	0.6
All other livestock and livestock products.....	39,912	0.1	(Z)	(Z)	(Z)	0.1	0.1	0.2
Forest products.....	202,580	0.3	0.2	0.2	0.3	0.2	0.5	0.8

Z 0.05 percent or less.

COTTON PRODUCERS AND COTTON PRODUCTION

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TABLE 19.—DISTRIBUTION OF FARM SALES BY SOURCE, FOR COTTON FARMS, BY ECONOMIC CLASS, BY REGIONS: 1954—Continued

Region and item	All classes		Economic class of farm					
	Dollars	Percent	I	II	III	IV	V	VI
			Percent	Percent	Percent	Percent	Percent	Percent
REGION VI								
Gross sales.....	43,010,986	100.0	100.0	100.0	100.0	100.0	100.0	100.0
All crops.....	40,278,887	93.6	93.9	94.3	94.1	93.3	91.3	89.5
Cotton.....	36,116,319	84.0	78.2	85.3	86.9	83.2	81.9	85.6
Corn.....	983,971	2.3	2.0	2.2	2.8	2.2	1.6	1.1
Sweetpotatoes.....	767,033	1.8	(Z)	(Z)	1.1	5.3	4.6	1.7
Sorghum.....	1,548,856	3.6	8.8	6.0	1.7	0.7	0.4	0.1
All other crops.....	862,708	2.0	4.9	0.7	1.6	1.9	2.9	1.0
All livestock and livestock products.....	2,724,399	6.3	6.1	5.7	5.8	6.6	8.7	10.5
Cattle and calves.....	1,593,951	3.7	5.6	3.9	2.7	3.0	4.6	4.2
Hogs and pigs.....	301,478	0.7	0.2	0.5	0.8	0.9	1.1	1.7
Poultry and poultry products.....	770,397	1.8	0.2	1.2	2.1	2.6	2.8	4.6
Dairy products.....	35,185	0.1	(Z)	(Z)	0.1	0.1	0.2	0.1
All other livestock and livestock products.....	23,388	0.1	0.1	0.1	0.1	(Z)	0.1	0.1
Forest products.....	7,700	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
REGION VII								
Gross sales.....	268,194,743	100.0	100.0	100.0	100.0	100.0	100.0	100.0
All crops.....	246,045,470	91.7	96.3	92.7	90.7	88.6	86.7	87.4
Cotton.....	201,863,264	75.3	71.4	76.0	76.5	76.5	76.8	80.0
Corn.....	6,551,292	2.4	0.8	1.8	3.3	3.8	3.4	2.2
Sorghum.....	23,840,124	8.9	18.8	9.8	5.5	3.3	2.0	0.6
All other crops.....	13,790,790	5.1	5.3	5.1	5.3	5.0	4.5	4.5
All livestock and livestock products.....	22,117,398	8.2	3.7	7.3	9.3	11.3	13.3	12.6
Cattle and calves.....	14,418,639	5.4	3.1	5.3	6.3	6.4	7.1	5.9
Hogs and pigs.....	2,516,156	0.9	0.2	0.7	1.2	1.4	1.6	1.6
Poultry and poultry products.....	3,359,847	1.3	0.1	0.5	1.2	2.4	3.7	4.4
Dairy products.....	1,270,045	0.5	0.1	0.5	0.4	0.9	0.7	0.5
All other livestock and livestock products.....	552,711	0.2	0.1	0.3	0.3	0.2	0.2	0.1
Forest products.....	31,875	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
REGION VIII								
Gross sales.....	89,657,922	100.0	100.0	100.0	100.0	100.0	100.0	100.0
All crops.....	87,118,133	97.2	96.7	98.0	97.5	97.7	97.9	99.1
Cotton.....	72,866,378	81.3	79.4	83.7	84.0	85.3	87.0	93.7
Sorghum.....	3,992,971	4.5	5.2	4.0	2.4	2.0	0.7	0.7
All other crops.....	10,258,784	11.4	12.1	10.2	11.0	10.4	10.3	5.4
All livestock and livestock products.....	2,536,589	2.8	3.3	2.0	2.5	2.3	2.1	0.9
Cattle and calves.....	1,590,915	1.7	2.2	1.0	1.6	0.6	0.9	0.5
Hogs and pigs.....	251,426	0.3	0.3	0.3	0.3	0.4	0.5	0.1
Poultry and poultry products.....	171,290	0.2	(Z)	0.3	0.5	1.1	0.6	0.3
Dairy products.....	518,087	0.6	(Z)	0.4	0.1	0.2	(Z)	(Z)
All other livestock and livestock products.....	4,871	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
Forest products.....	3,200	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
REGION IX								
Gross sales.....	319,545,051	100.0	100.0	100.0	100.0	100.0	100.0	100.0
All crops.....	310,726,070	97.2	97.7	97.1	95.4	92.0	89.5	85.5
Cotton.....	251,809,122	78.8	77.7	80.5	81.7	79.6	79.5	80.1
Sorghum.....	51,014,670	16.0	17.2	14.9	11.3	9.2	6.4	1.7
Wheat.....	4,929,607	1.5	1.8	1.0	1.3	2.3	2.2	3.5
All other crops.....	2,972,671	0.9	1.0	0.8	1.0	0.8	1.4	0.2
All livestock and livestock products.....	8,818,681	2.8	2.3	2.9	4.6	8.0	10.5	14.5
Cattle and calves.....	4,924,031	1.5	1.5	1.4	2.4	3.9	4.4	5.1
Hogs and pigs.....	1,281,393	0.4	0.3	0.6	0.5	0.6	0.8	0.8
Poultry and poultry products.....	1,124,217	0.4	0.2	0.5	1.1	2.0	2.7	5.8
Dairy products.....	936,319	0.3	0.2	0.4	0.5	1.5	2.6	3.7
All other livestock and livestock products.....	552,721	0.2	0.2	0.1	0.1	(Z)	(Z)	(Z)
Forest products.....	300	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
REGION X								
Gross sales.....	567,765,189	100.0	100.0	100.0	100.0	100.0	100.0	100.0
All crops.....	543,091,872	95.6	95.8	95.0	94.1	94.3	97.7	99.3
Cotton.....	433,009,827	76.3	75.5	80.7	83.1	85.5	93.3	98.6
Barley.....	33,798,494	6.0	6.6	1.6	1.2	0.4	0.4	0.4
Rice.....	3,341,928	0.6	0.7	0.2	0.2	0.2	0.2	0.2
Alfalfa and mixture.....	23,715,254	4.2	4.1	5.9	3.9	1.4	1.6	0.2
Sugar beets.....	4,081,571	0.7	0.8	(Z)	(Z)	(Z)	(Z)	(Z)
Sorghum.....	7,941,113	1.4	1.4	1.5	0.6	0.3	0.8	0.2
Vegetables.....	8,609,591	1.5	1.6	0.7	0.5	0.7	0.2	0.2
Fruits and nuts.....	6,040,566	1.1	0.8	2.3	3.2	5.0	1.4	0.1
All other crops.....	22,553,538	4.0	4.3	2.2	1.4	0.9	0.1	0.6
All livestock and livestock products.....	24,660,312	4.3	4.2	5.0	5.9	5.6	2.3	0.7
Cattle and calves.....	16,827,061	3.0	3.1	2.4	2.2	2.3	1.0	0.2
Poultry and poultry products.....	340,059	0.1	(Z)	0.2	0.6	0.3	0.7	0.2
Dairy products.....	5,144,906	0.9	0.7	2.1	2.5	1.7	0.2	0.2
All other livestock and livestock products.....	2,348,286	0.4	0.4	0.4	0.7	1.2	0.4	0.5
Forest products.....	13,005	(Z)	(Z)	(Z)	(Z)	0.2	(Z)	(Z)

Z 0.05 percent or less.

FARMERS AND FARM PRODUCTION

Pasture and Woodland

Examination of the distribution of gross sales by source reveals that for most economic classes of farms and for most regions, pasture and woodland resources on cotton farms do not contribute substantially to cash farm income. The data in tables 14 and 15, however, show that, especially in some regions, pasture and woodland resources comprise, from the standpoint of acreage, a substantial part of the land resources on cotton farms.

In appraising the use of pasture resources on farms it is relevant to examine the data concerning the kinds and numbers of livestock found on different economic classes of cotton farms in the different regions. Information of this type is given in table 20.

In general, only the larger size-of-business groups of farms in each region have livestock enterprises of a commercial size and type. The beef-cattle enterprise appears to be the most common, but hogs are important in a few regions.

TABLE 20.—AVERAGE NUMBER PER FARM REPORTING AND PERCENT OF FARMS REPORTING SPECIFIED CLASSES OF LIVESTOCK, FOR COTTON FARMS, BY ECONOMIC CLASS OF FARM, BY REGIONS: 1954

Region and item	Economic class of farm							Region and item	Economic class of farm						
	All classes	I	II	III	IV	V	VI		All classes	I	II	III	IV	V	VI
REGION I								REGION IV							
Horses and mules:								Horses and mules:							
Percent of farms reporting.....	61.8	80.1	61.8	62.1	58.2	58.5	60.3	Percent of farms reporting.....	28.2	57.5	30.5	25.5	27.9	25.8	32.3
Average number per farm reporting..	2	10	5	3	2	2	1	Average number per farm reporting..	3	7	4	2	2	2	2
All cattle and calves:								All cattle and calves:							
Percent of farms reporting.....	58.3	87.8	81.1	68.3	58.3	56.4	55.6	Percent of farms reporting.....	46.4	66.8	63.0	56.8	50.5	39.5	39.9
Average number per farm reporting..	7	99	40	13	7	5	3	Average number per farm reporting..	11	112	25	10	7	5	5
Milk cows:								Milk cows:							
Percent of farms reporting.....	45.1	41.1	49.4	52.0	46.1	44.8	42.6	Percent of farms reporting.....	37.7	32.2	43.1	46.8	42.7	33.1	31.7
Average number per farm reporting..	2	7	3	2	2	2	2	Average number per farm reporting..	2	5	2	2	2	2	2
Hogs and pigs:								Hogs and pigs:							
Percent of farms reporting.....	72.5	65.9	78.2	80.2	74.6	72.4	68.1	Percent of farms reporting.....	48.8	43.8	48.9	50.8	53.4	47.7	41.9
Average number per farm reporting..	12	74	38	21	14	9	6	Average number per farm reporting..	6	35	13	9	6	4	3
Chickens 4 months old and over:								Chickens 4 months old and over:							
Percent of farms reporting.....	78.6	44.0	71.7	80.9	79.6	78.0	79.0	Percent of farms reporting.....	70.2	51.1	72.0	73.2	75.0	68.9	64.1
Average number per farm reporting..	25	125	61	35	25	23	20	Average number per farm reporting..	29	60	43	37	29	24	23
Sales of livestock and livestock products as a percent of gross farm sales.....	7.0	9.4	11.2	7.1	5.8	6.4	5.3	Sales of livestock and livestock products as a percent of gross farm sales.....	3.3	4.7	3.5	2.9	2.5	2.1	2.8
REGION II								REGION V							
Horses and mules:								Horses and mules:							
Percent of farms reporting.....	58.9	95.7	60.6	60.4	52.6	54.9	63.9	Percent of farms reporting.....	60.2	66.0	51.6	45.5	46.9	52.4	74.6
Average number per farm reporting..	2	13	5	3	2	2	2	Average number per farm reporting..	2	8	3	2	2	2	2
All cattle and calves:								All cattle and calves:							
Percent of farms reporting.....	69.4	95.7	95.0	77.4	72.9	70.2	67.3	Percent of farms reporting.....	77.0	85.1	83.5	80.7	77.6	72.5	70.1
Average number per farm reporting..	5	213	53	24	8	5	3	Average number per farm reporting..	17	242	67	33	19	12	8
Milk cows:								Milk cows:							
Percent of farms reporting.....	62.8	39.1	55.6	56.9	64.2	63.8	61.9	Percent of farms reporting.....	60.0	21.4	49.3	50.7	62.1	56.8	63.4
Average number per farm reporting..	2	24	6	4	3	2	2	Average number per farm reporting..	3	13	3	3	3	3	2
Hogs and pigs:								Hogs and pigs:							
Percent of farms reporting.....	72.1	78.3	77.8	68.5	73.0	73.7	70.6	Percent of farms reporting.....	60.6	36.7	44.4	54.2	61.7	59.4	63.8
Average number per farm reporting..	4	30	12	7	5	4	3	Average number per farm reporting..	6	34	10	10	8	5	4
Chickens 4 months old and over:								Chickens 4 months old and over:							
Percent of farms reporting.....	75.5	60.9	66.1	64.0	75.0	75.9	75.9	Percent of farms reporting.....	83.3	25.1	66.8	79.0	83.6	83.5	86.2
Average number per farm reporting..	29	249	72	47	42	20	24	Average number per farm reporting..	32	38	51	42	39	31	28
Sales of livestock and livestock products as a percent of gross farm sales.....	6.1	17.8	10.9	10.6	6.2	5.0	4.7	Sales of livestock and livestock products as a percent of gross farm sales.....	10.3	11.0	10.2	9.6	10.4	10.0	10.8
REGION III								REGION VI							
Horses and mules:								Horses and mules:							
Percent of farms reporting.....	56.7	73.7	58.4	49.5	47.5	52.6	67.1	Percent of farms reporting.....	44.8	42.9	36.2	28.2	40.3	58.9	64.8
Average number per farm reporting..	2	10	5	3	3	2	2	Average number per farm reporting..	3	5	2	2	3	3	3
All cattle and calves:								All cattle and calves:							
Percent of farms reporting.....	73.1	79.2	84.2	81.5	75.2	71.8	72.1	Percent of farms reporting.....	81.3	76.2	81.0	81.4	85.0	82.4	72.3
Average number per farm reporting..	9	168	60	20	10	7	5	Average number per farm reporting..	16	106	38	16	10	10	8
Milk cows:								Milk cows:							
Percent of farms reporting.....	62.4	40.0	54.6	67.0	65.4	62.4	60.7	Percent of farms reporting.....	62.0	38.1	53.0	59.3	69.3	66.6	52.6
Average number per farm reporting..	3	14	5	4	3	3	2	Average number per farm reporting..	3	3	3	3	2	3	2
Hogs and pigs:								Hogs and pigs:							
Percent of farms reporting.....	68.1	62.3	67.3	72.0	71.3	68.4	65.5	Percent of farms reporting.....	67.5	38.1	52.0	64.6	71.0	73.2	70.4
Average number per farm reporting..	5	44	20	12	7	5	3	Average number per farm reporting..	6	13	7	8	6	4	4
Chickens 4 months old and over:								Chickens 4 months old and over:							
Percent of farms reporting.....	81.4	50.3	71.1	84.0	84.3	80.9	80.5	Percent of farms reporting.....	84.1	57.1	70.0	85.0	86.9	86.2	87.3
Average number per farm reporting..	30	77	70	46	35	29	24	Average number per farm reporting..	80	80	133	101	78	62	47
Sales of livestock and livestock products as a percent of gross farm sales.....	7.8	11.1	11.0	9.5	7.5	6.8	6.6	Sales of livestock and livestock products as a percent of gross farm sales.....	6.3	6.1	5.7	5.8	6.6	8.7	10.5

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TABLE 20.—AVERAGE NUMBER PER FARM REPORTING AND PERCENT OF FARMS REPORTING SPECIFIED CLASSES OF LIVESTOCK, FOR COTTON FARMS, BY ECONOMIC CLASS OF FARM, BY REGIONS: 1954—Continued

Region and item	Economic class of farm							Region and item	Economic class of farm						
	All classes	I	II	III	IV	V	VI		All classes	I	II	III	IV	V	VI
REGION VII								REGION IX							
Horses and mules:								Horses and mules:							
Percent of farms reporting.....	21.2	31.9	27.6	20.5	15.5	19.7	33.7	Percent of farms reporting.....	17.7	23.0	15.7	14.1	14.0	18.9	33.3
Average number per farm reporting..	2	3	2	2	2	2	2	Average number per farm reporting..	2	2	2	2	2	2	2
All cattle and calves:								All cattle and calves:							
Percent of farms reporting.....	78.4	67.0	77.2	82.9	80.0	77.4	71.6	Percent of farms reporting.....	66.2	64.8	66.2	68.7	68.2	61.1	71.4
Average number per farm reporting..	16	68	31	19	13	11	8	Average number per farm reporting..	15	25	12	11	12	11	8
Milk cows:								Milk cows:							
Percent of farms reporting.....	58.0	34.6	47.1	58.7	60.4	61.5	57.3	Percent of farms reporting.....	52.6	47.3	54.7	54.8	55.1	52.9	71.4
Average number per farm reporting..	3	3	3	3	3	3	2	Average number per farm reporting..	3	3	3	3	3	3	2
Hogs and pigs:								Hogs and pigs:							
Percent of farms reporting.....	42.4	24.3	34.2	41.5	43.7	44.8	46.7	Percent of farms reporting.....	31.8	30.9	33.9	32.8	28.0	27.5	14.3
Average number per farm reporting..	6	18	11	8	6	5	4	Average number per farm reporting..	10	15	11	6	5	3	2
Chickens 4 months old and over:								Chickens 4 months old and over:							
Percent of farms reporting.....	74.9	39.2	60.8	73.6	78.3	79.5	79.3	Percent of farms reporting.....	68.2	58.3	70.7	75.5	73.4	68.7	81.0
Average number per farm reporting..	67	64	71	70	71	66	47	Average number per farm reporting..	69	67	72	70	67	62	41
Sales of livestock and livestock products as a percent of gross farm sales.....	8.2	3.7	7.3	9.3	11.3	13.3	12.6	Sales of livestock and livestock products as a percent of gross farm sales.....	2.8	2.3	2.9	4.6	8.0	10.5	14.5
REGION VIII								REGION X							
Horses and mules:								Horses and mules:							
Percent of farms reporting.....	15.6	18.3	12.1	13.2	11.6	22.0	29.6	Percent of farms reporting.....	23.6	34.7	21.5	16.1	11.4	12.0	7.9
Average number per farm reporting..	2	3	2	1	1	2	2	Average number per farm reporting..	3	3	2	2	2	1	2
All cattle and calves:								All cattle and calves:							
Percent of farms reporting.....	47.9	53.0	57.1	54.0	32.5	37.0	42.6	Percent of farms reporting.....	50.4	48.6	59.0	51.3	43.7	42.3	21.1
Average number per farm reporting..	24	77	17	12	6	5	4	Average number per farm reporting..	49	107	21	13	10	3	2
Milk cows:								Milk cows:							
Percent of farms reporting.....	34.5	31.7	42.7	41.2	23.2	27.1	35.2	Percent of farms reporting.....	33.8	27.4	43.2	39.1	30.7	27.5	21.1
Average number per farm reporting..	4	10	3	3	2	2	2	Average number per farm reporting..	7	13	6	4	3	1	1
Hogs and pigs:								Hogs and pigs:							
Percent of farms reporting.....	20.2	15.1	22.6	24.1	16.5	21.2	18.5	Percent of farms reporting.....	15.4	12.2	20.1	17.8	14.3	14.1	5.3
Average number per farm reporting..	11	37	11	6	5	4	3	Average number per farm reporting..	14	26	9	9	12	3	2
Chickens 4 months old and over:								Chickens 4 months old and over:							
Percent of farms reporting.....	37.6	24.3	41.4	40.4	39.6	37.0	48.1	Percent of farms reporting.....	40.2	30.4	49.2	41.9	48.7	42.3	39.5
Average number per farm reporting..	46	47	58	45	47	31	21	Average number per farm reporting..	38	40	38	43	34	32	30
Sales of livestock and livestock products as a percent of gross farm sales.....	2.8	3.3	2.0	2.5	2.3	2.1	.9	Sales of livestock and livestock products as a percent of gross farm sales.....	4.3	4.2	5.0	5.9	5.6	2.3	.7

FARMERS AND FARM PRODUCTION

Section 5.—LABOR RESOURCES AND USE

For two chief reasons the characteristics and the utilization of labor on cotton farms are of special importance.

First, it represents the input of the human agent in cotton farming. Second, the extent to which labor is combined with other resources, in patterns that are economically and technically effective, determines the levels of income from farming that are available to the people on cotton farms.

This report provides several types of data on labor resources and use: (1) The age composition of the operators of cotton farms; (2) the days of off-farm work by operators of cotton farms; (3) the proportion of cotton farms for which off-farm income of the family exceeds the value of farm sales; (4) the man-equivalents of all labor and its percentage distributions by type of worker; (5) the distributions of expenditures for hired labor; and (6) acres of cropland and acres of cotton harvested per man-equivalent.

AGE OF OPERATOR

Information relating to the distribution of farm operators by age groups by economic class of farm, and data concerning the proportions of farms in each economic class that are operated by persons in each age group, are useful in analyzing the characteristics of the labor resource on cotton farms.

Data concerning the distribution of farm operators of each age group among economic classes of farms are found in table 21.

For most regions about 3 percent of all operators of cotton farm are under 25 years of age. In Regions I through V more than 7 and usually nearer 80 percent of farm operators under 25 years of age are found on farms in Economic Classes V and VI. These are farms that had gross sales of between \$250 and \$2,500 in 1954. It would seem reasonable to infer that a number of these young operators would be relatively receptive to opportunities for non-farm work and/or to adjustments that would permit an increase in the size of their farm business.

In Regions I through V about one-eighth of all operators of cotton farms are between 25 and 35 years of age. Most of these also are on Class V and Class VI farms. They would appear to face problems of adjustment similar to those of operators under 25 years of age.

In Regions VI and VII about 40 and 35 percent, respectively, of operators under 25 years of age are found on Classes V and VI farms. Nearly one-third of the operators from 25 to 35 years old also operate Class V or VI farms.

For the remaining 3 regions small percentages of the younger age groups of farm operators are found on the 2 smallest size-of-business groups.

TABLE 21.—PERCENT DISTRIBUTION OF OPERATORS OF COTTON FARMS IN EACH AGE GROUP, BY ECONOMIC CLASS OF FARM, BY REGIONS: 1954

Region and age of operator	Economic class of farm						
	All classes	I	II	III	IV	V	VI
REGION I							
All age groups.....	100.0	0.5	2.2	7.7	25.8	36.3	27.5
Under 25 years.....	100.0	0.5	0.9	7.3	18.4	42.6	30.8
25 to 34 years.....	100.0	0.2	2.4	7.4	26.8	37.4	25.8
35 to 44 years.....	100.0	0.5	2.4	9.5	30.5	36.7	20.4
45 to 54 years.....	100.0	0.5	2.3	8.8	27.9	36.5	24.0
55 to 64 years.....	100.0	0.6	1.9	5.8	21.6	37.3	32.8
65 years and over.....	100.0	0.7	1.8	4.2	16.1	30.9	46.3
REGION II							
All age groups.....	100.0	0.1	0.5	1.8	11.9	39.9	45.8
Under 25 years.....	100.0	0.1	0.5	1.8	9.7	37.7	52.6
25 to 34 years.....	100.0	0.1	0.6	1.6	11.4	44.7	41.7
35 to 44 years.....	100.0	0.1	0.4	2.4	15.9	46.8	34.4
45 to 54 years.....	100.0	0.1	0.5	2.4	14.3	43.8	38.9
55 to 64 years.....	100.0	0.1	0.6	1.1	8.6	34.6	55.0
65 years and over.....	100.0	(Z)	0.2	1.1	6.0	24.7	68.0
REGION III							
All age groups.....	100.0	0.3	1.0	4.0	19.1	40.6	35.0
Under 25 years.....	100.0	0.1	0.2	1.6	13.1	45.1	30.9
25 to 34 years.....	100.0	0.3	1.0	3.9	17.6	46.7	30.5
35 to 44 years.....	100.0	0.3	0.9	5.4	25.0	43.9	24.5
45 to 54 years.....	100.0	0.4	1.1	4.6	21.6	41.7	30.6
55 to 64 years.....	100.0	0.2	1.1	3.0	15.6	36.3	43.8
65 years and over.....	100.0	0.2	0.6	1.9	8.5	27.8	61.0
REGION IV							
All age groups.....	100.0	2.3	4.7	11.9	28.2	39.5	13.4
Under 25 years.....	100.0	0.5	2.2	6.3	19.5	50.9	20.6
25 to 34 years.....	100.0	2.2	5.1	11.0	25.5	43.6	12.6
35 to 44 years.....	100.0	3.1	6.1	13.8	31.6	36.4	9.0
45 to 54 years.....	100.0	2.3	4.8	13.8	31.4	36.7	11.0
55 to 64 years.....	100.0	2.1	3.6	10.4	26.7	40.4	16.8
65 years and over.....	100.0	2.0	2.8	7.2	19.5	42.5	26.0
REGION V							
All age groups.....	100.0	1.0	2.4	6.9	16.4	32.6	40.7
Under 25 years.....	100.0	0.5	1.0	2.1	17.7	34.4	44.8
25 to 34 years.....	100.0	2.4	2.0	9.8	21.4	37.0	27.4
35 to 44 years.....	100.0	1.4	3.0	9.5	21.8	35.9	28.4
45 to 54 years.....	100.0	0.7	2.7	7.1	17.8	34.8	36.9
55 to 64 years.....	100.0	0.8	2.2	4.8	12.3	29.3	50.6
65 years and over.....	100.0	0.2	1.6	4.2	7.7	24.0	62.3

Region and age of operator	Economic class of farm						
	All classes	I	II	III	IV	V	VI
REGION VI							
All age groups.....	100.0	2.1	9.7	22.2	30.0	22.7	13.3
Under 25 years.....	100.0	2.3	9.3	27.9	23.3	32.5	7.0
25 to 34 years.....	100.0	2.3	13.1	22.4	31.2	24.1	6.9
35 to 44 years.....	100.0	2.6	13.9	27.2	28.6	23.2	4.5
45 to 54 years.....	100.0	2.7	7.6	20.5	37.5	18.8	12.9
55 to 64 years.....	100.0	1.3	6.9	21.6	25.7	23.9	20.6
65 years and over.....	100.0	0.6	5.8	12.4	20.7	25.3	35.2
REGION VII							
All age groups.....	100.0	2.7	10.0	21.2	30.7	25.2	10.2
Under 25 years.....	100.0	1.7	6.8	22.1	34.5	24.7	10.2
25 to 34 years.....	100.0	3.2	11.4	26.6	30.0	22.8	6.0
35 to 44 years.....	100.0	3.2	12.5	24.4	31.7	22.0	6.2
45 to 54 years.....	100.0	3.0	10.7	21.1	33.2	23.7	8.3
55 to 64 years.....	100.0	2.1	7.7	17.5	28.7	30.2	13.8
65 years and over.....	100.0	1.4	5.2	14.6	25.5	29.6	23.7
REGION VIII							
All age groups.....	100.0	16.6	25.6	21.7	16.9	14.2	5.0
Under 25 years.....	100.0	42.5	1.9	37.0	37.0	9.3	9.3
25 to 34 years.....	100.0	20.5	29.8	18.3	18.3	11.8	1.3
35 to 44 years.....	100.0	23.0	29.5	16.2	12.6	12.6	6.1
45 to 54 years.....	100.0	17.7	26.2	19.8	16.8	15.0	4.5
55 to 64 years.....	100.0	8.6	25.3	29.8	16.3	16.3	3.7
65 years and over.....	100.0	7.9	13.1	29.0	23.5	15.2	11.3
REGION IX							
All age groups.....	100.0	28.5	39.6	16.1	9.8	5.3	0.7
Under 25 years.....	100.0	17.4	48.5	17.7	11.8	3.1	1.5
25 to 34 years.....	100.0	37.3	38.6	13.0	7.4	3.7	0.4
35 to 44 years.....	100.0	35.0	40.5	14.4	6.3	3.4	0.4
45 to 54 years.....	100.0	26.5	42.6	16.1	9.0	5.4	0.4
55 to 64 years.....	100.0	16.4	35.0	22.7	16.4	8.2	1.3
65 years and over.....	100.0	9.5	30.2	19.4	22.3	14.9	3.7
REGION X							
All age groups.....	100.0	37.6	26.1	17.2	11.7	5.8	1.6
Under 25 years.....	100.0	28.8	25.1	30.1	9.1	4.6	2.3
25 to 34 years.....	100.0	47.4	25.2	13.8	9.7	3.9	0.4
35 to 44 years.....	100.0	43.5	28.3	15.2	9.1	3.9	1.0
45 to 54 years.....	100.0	38.6	26.8	15.1	12.2	6.3	2.1
55 to 64 years.....	100.0	26.8	25.4	23.9	14.8	7.0	2.1
65 years and over.....	100.0	17.9	20.6	21.7	17.4	12.6	9.8

Z 0.05 percent or less.

The differences in the implications of these data for the 3 most western and 5 most eastern cotton-production regions seem significant.

For the 10 regions used in this report from 25 to 30 percent of farm operators are between the ages of 45 and 54. It seems reasonable to suppose that those in this age group would, in general, have attained most of their adjustments toward an efficient and productive farm business. In this perspective it is interesting to examine the distribution, among economic classes of farms, of operators in the 45-to-54 years of age group for the various regions.

In Regions I, II, III, and V from 61 to 83 percent of the operators in the age group 45 to 64 years are found on Class V and Class VI farms. From 0.6 percent to about 3 percent of operators in this age group are found on farms in Classes I and II in these regions.

Region IV, "The Mississippi Delta," has a substantially smaller proportion of farm operators in this age group in the two smallest size-of-business groups, and a much larger percentage are found on Classes I and II farms. The actual percentages here are 7 and 48 percent, respectively, for the 2 largest and the 2 smallest size-of-business groups.

For Regions VI and VII, just under one-third of the operators between 45 and 54 years of age are found on Classes V and VI farms, while 10 and 14 percent of the operators in this age group in these two regions have farms that fall in the 2 largest size-of-business groups.

In the three remaining regions strikingly larger percentages of operators in this age group are found on Classes I and II farms. Conversely very much smaller proportions are found on farms that fall in the two smallest size-of-business groups.

The picture with respect to the age composition of all operators of cotton farms and of the operators of farms in each of the economic classes is shown for each region in table 22. These data enable one to appraise, for each region, the proportionate age distribution of farm operators in various economic classes.

For example, in Region IV, 30 percent of the operators of Class IV farms are shown to be between 45 and 54 years of age. Operators in this age group account for 27 percent of all cotton-farm operators in the region. This age group is, therefore, somewhat more than proportionally represented among farms that fall in Economic Class IV.

The proportions of the smaller size-of-business groups of farms that are operated by persons in the older age groups is a statistic of some interest. For it frequently is, and has in this report been, assumed that future adjustments in resource use on cotton farms will significantly affect the number and characteristics of farms that are now in these economic classes.

It is interesting to observe that in Regions I through V from about 40 to 48 percent of Class VI farms have operators who are 55 years of age or older, and that in these same regions about 23 to 30 percent of the operators of Class V farms fall in this older age group. In each of these 5 regions, except Region IV, Classes V and VI farms account for from about 65 to more than 85 percent of all cotton farms. In Region IV these two smallest size-of-business groups comprise about 53 percent of all cotton farms.

The older group of operators account for substantially higher proportions of all operators of Classes V and VI cotton farms in the remaining regions. From the standpoint of the regions as a whole, however, these smaller size-of-business farms are of much less significance in these regions.

TABLE 22.—PERCENT DISTRIBUTION OF OPERATORS OF EACH ECONOMIC CLASS OF COTTON FARM, BY AGE, BY REGIONS: 1954

Region and age of operator	Economic class of farm						
	All classes	I	II	III	IV	V	VI
REGION I							
All age groups.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Under 25 years.....	3.1	1.2	2.9	2.2	3.6	3.5	
25 to 34 years.....	13.0	4.7	14.3	12.5	13.5	13.4	12.2
35 to 44 years.....	27.7	28.3	30.3	34.0	32.9	28.0	20.6
45 to 54 years.....	27.8	28.4	29.7	31.4	30.0	27.9	24.3
55 to 64 years.....	17.3	22.2	15.3	13.1	14.5	17.7	20.7
65 years and over.....	11.1	16.4	9.2	6.1	6.9	9.4	18.7
REGION II							
All age groups.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Under 25 years.....	2.2				1.8	2.1	2.6
25 to 34 years.....	9.9		13.3	8.5	9.4	11.1	9.0
35 to 44 years.....	25.3	27.3	23.9	33.3	33.8	29.6	19.0
45 to 54 years.....	27.2	27.3	27.2	36.2	32.5	30.0	23.0
55 to 64 years.....	21.2	40.9	29.5	13.0	15.3	18.4	25.3
65 years and over.....	14.2	4.5	6.1	9.0	7.2	8.8	21.1
REGION III							
All age groups.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Under 25 years.....	3.6	0.9	0.8	1.5	2.5	4.0	4.2
25 to 34 years.....	13.9	14.7	14.2	13.4	12.8	16.0	12.1
35 to 44 years.....	26.0	26.5	25.3	35.0	34.0	28.1	18.2
45 to 54 years.....	28.0	36.3	32.5	31.8	31.5	28.7	24.3
55 to 64 years.....	17.6	13.4	20.7	13.1	14.3	15.7	22.1
65 years and over.....	10.9	8.2	6.5	5.2	4.9	7.5	19.1
REGION IV							
All age groups.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Under 25 years.....	4.5	1.0	2.1	2.4	3.1	5.8	7.0
25 to 34 years.....	16.1	15.2	17.2	14.9	14.6	17.8	15.2
35 to 44 years.....	27.0	35.6	35.2	31.4	30.3	24.9	18.2
45 to 54 years.....	27.2	26.4	27.7	31.5	30.2	25.2	22.2
55 to 64 years.....	16.9	14.8	12.9	14.7	16.0	17.3	21.2
65 years and over.....	8.3	7.0	4.9	5.1	5.8	9.0	16.2
REGION V							
All age groups.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Under 25 years.....	2.2		1.0	0.7	2.4	2.3	2.5
25 to 34 years.....	8.4	20.7	7.1	12.1	11.0	9.5	5.7
35 to 44 years.....	21.5	31.7	26.9	29.9	28.5	23.7	15.0
45 to 54 years.....	31.8	24.5	35.4	33.0	34.3	34.0	28.7
55 to 64 years.....	24.5	20.7	22.1	17.3	18.3	22.0	30.4
65 years and over.....	11.6	2.4	7.5	7.0	5.5	8.5	17.7
REGION VI							
All age groups.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Under 25 years.....	2.8	2.6	3.5	2.1	4.0	4.0	1.4
25 to 34 years.....	14.9	16.7	20.1	15.0	15.4	15.8	7.7
35 to 44 years.....	24.2	30.9	34.8	29.7	23.0	24.9	8.2
45 to 54 years.....	28.2	36.3	22.2	26.2	35.3	23.4	27.4
55 to 64 years.....	21.5	13.6	15.3	20.9	18.4	22.6	33.2
65 years and over.....	8.4	2.5	5.0	4.7	6.8	9.3	22.1
REGION VII							
All age groups.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Under 25 years.....	2.1	1.4	1.4	2.2	2.4	2.1	2.1
25 to 34 years.....	12.5	14.8	14.3	15.7	12.3	11.4	7.3
35 to 44 years.....	25.0	29.0	31.4	28.8	25.9	21.9	15.3
45 to 54 years.....	29.1	32.1	31.2	28.9	31.3	27.2	23.6
55 to 64 years.....	21.2	16.8	16.4	17.5	19.8	25.5	28.4
65 years and over.....	10.1	5.3	5.3	6.9	8.3	11.9	23.3
REGION VIII							
All age groups.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Under 25 years.....	1.2	2.8	0.1		2.4	0.7	2.0
25 to 34 years.....	15.3	18.8	17.7	12.9	16.5	12.7	4.0
35 to 44 years.....	22.9	31.8	26.4	17.1	17.1	20.4	28.0
45 to 54 years.....	28.6	30.6	29.2	26.2	28.5	30.2	26.0
55 to 64 years.....	21.4	11.0	21.2	29.5	20.7	24.6	16.0
65 years and over.....	10.6	5.0	5.4	14.3	14.8	11.4	24.0
REGION IX							
All age groups.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Under 25 years.....	4.7	2.9	5.8	5.2	5.7	2.8	10.5
25 to 34 years.....	20.9	27.4	20.3	16.9	16.0	14.7	
35 to 44 years.....	28.9	35.4	29.4	25.8	18.5	18.7	15.8
45 to 54 years.....	26.7	24.8	28.6	26.6	24.7	27.3	15.8
55 to 64 years.....	13.2	7.6	11.6	18.7	22.2	20.5	26.3
65 years and over.....	5.6	1.9	4.3	6.8	12.9	16.0	31.6
REGION X							
All age groups.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Under 25 years.....	1.9	1.4	1.8	3.3	1.5	1.5	2.8
25 to 34 years.....	17.0	21.5	16.4	13.6	14.1	11.2	
35 to 44 years.....	28.9	33.6	31.2	25.5	22.4	19.2	
45 to 54 years.....	26.0	27.6	27.6	23.5	28.0	28.9	16.7
55 to 64 years.....	16.1	11.5	15.7	22.4	20.3	19.2	22.2
65 years and over.....	9.2	4.4	7.3	11.7	13.7	20.0	58.3

OFF-FARM USE OF LABOR RESOURCES

Two types of data are available to indicate the extent to which operator and family labor resources on the various economic classes of cotton farms in the different regions are used in off-farm employment. These data are for operators of cotton farms classified by the days of off-farm work, and the percentage of farms for which off-farm income of the family exceeded the value of farm sales. The information relating to days of off-farm work is given in table 23. And those concerning the off-farm income of the family in relation to the value of farm sales are shown in table 24.

Questions frequently are raised as to whether the farm families on Classes V and VI farms represent, essentially, a welfare problem

rather than an economic problem in the organization and use of resources.

Few of the data in this report illumine the question of whether most of the families on Classes V and VI cotton farms represent welfare rather than economic problems. Data concerning the age distribution of operators are only partly applicable. These data, however, do not indicate, for those regions where there are appreciable numbers of these small farms, that most of them are in the hands of the aged.

The data on off-farm work of operators, and on the proportion of farms for which off-farm income exceeds farm sales, suggest that most families on Classes V and VI cotton farms are primarily dependent upon farming for their incomes.

TABLE 23.—PERCENT DISTRIBUTION OF OPERATORS OF COTTON FARMS BY DAYS OF WORK OFF FARM, BY ECONOMIC CLASS, BY REGIONS: 1954

Region and days worked off farm	Economic class of farm							Region and days worked off farm	Economic class of farm						
	All classes	I	II	III	IV	V	VI		All classes	I	II	III	IV	V	VI
REGION I								REGION VI							
Total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	Total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
None.....	70.1	76.3	77.0	77.0	71.2	65.1	71.8	None.....	67.4	80.4	72.4	68.3	67.7	64.5	64.8
1 to 99 days.....	22.0	8.0	9.9	15.5	20.5	23.1	28.2	1 to 99 days.....	23.5	9.5	22.1	25.1	23.4	17.1	35.2
100 to 199 days.....	3.1	4.2	2.6	2.8	3.5	5.3	—	100 to 199 days.....	3.9	7.1	1.6	2.8	3.8	8.3	—
200 days or more.....	3.0	11.5	10.4	4.7	4.7	5.5	—	200 days or more.....	5.2	3.0	3.9	3.8	5.2	10.2	—
REGION II								REGION VII							
Total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	Total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
None.....	61.0	65.2	66.7	69.3	69.7	54.2	66.8	None.....	62.7	77.9	71.4	66.6	60.8	55.5	65.7
1 to 99 days.....	29.7	8.7	21.1	15.1	26.2	27.7	33.2	1 to 99 days.....	25.3	11.7	17.4	24.1	26.2	26.2	34.3
100 to 199 days.....	4.0	4.3	5.6	4.0	5.6	8.1	—	100 to 199 days.....	5.2	2.4	3.0	4.2	6.5	7.4	—
200 days or more.....	5.3	21.7	6.7	11.6	8.6	10.0	—	200 days or more.....	6.8	8.0	7.3	5.2	6.5	10.8	—
REGION III								REGION VIII							
Total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	Total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
None.....	67.0	77.8	79.0	72.3	69.4	63.3	69.0	None.....	72.7	82.1	79.2	77.7	63.8	48.5	90.0
1 to 99 days.....	26.1	7.8	7.7	17.2	21.8	25.4	31.0	1 to 99 days.....	8.2	6.0	7.2	9.2	9.9	8.4	10.0
100 to 199 days.....	3.4	6.3	3.9	4.9	4.5	5.7	—	100 to 199 days.....	4.7	3.4	3.4	4.4	6.6	8.4	—
200 days or more.....	3.4	8.0	9.4	5.7	4.4	5.5	—	200 days or more.....	14.3	8.4	10.2	8.8	19.8	34.8	—
REGION IV								REGION IX							
Total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	Total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
None.....	71.8	85.8	80.4	75.7	71.8	68.7	72.0	None.....	72.4	87.0	74.2	59.6	53.5	52.5	68.4
1 to 99 days.....	22.1	7.8	13.4	17.1	21.8	23.7	28.0	1 to 99 days.....	17.4	9.5	17.4	23.6	26.3	22.6	31.6
100 to 199 days.....	3.1	1.9	1.8	3.1	3.6	4.0	—	100 to 199 days.....	4.1	1.2	3.3	7.3	8.6	9.1	—
200 days or more.....	3.0	4.4	4.5	4.0	2.8	3.6	—	200 days or more.....	6.2	2.3	5.1	9.5	11.7	15.8	—
REGION V								REGION X							
Total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	Total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
None.....	60.2	82.8	76.4	71.2	66.6	54.2	59.1	None.....	66.4	82.5	67.5	57.9	38.1	35.3	81.1
1 to 99 days.....	32.2	6.5	12.1	18.7	24.9	30.2	40.9	1 to 99 days.....	15.8	9.7	22.3	17.2	19.4	13.7	18.9
100 to 199 days.....	3.7	0.9	4.5	4.2	5.0	7.8	—	100 to 199 days.....	4.5	1.9	3.2	7.8	10.3	7.5	—
200 days or more.....	3.8	9.8	6.9	5.9	3.6	7.8	—	200 days or more.....	13.3	5.9	7.0	17.1	32.2	43.5	—

TABLE 24.—PERCENT OF OPERATORS OF COTTON FARMS WITH OTHER INCOME OF FAMILY EXCEEDING VALUE OF FARM PRODUCTS SOLD, BY ECONOMIC CLASS OF FARM, BY REGIONS: 1954

Region	Economic class of farm						
	All classes	I	II	III	IV	V	VI
I.....	6.2	8.0	7.8	5.5	5.9	11.2	—
II.....	9.8	8.7	14.4	12.6	13.3	19.9	—
III.....	5.5	6.9	8.3	6.4	5.6	10.0	—
IV.....	3.9	1.9	2.6	3.1	3.4	6.2	—
V.....	7.6	2.8	4.9	7.6	6.7	17.9	—
VI.....	6.8	2.4	3.4	6.5	5.9	14.3	—
VII.....	9.5	5.6	4.9	6.0	10.0	18.0	—
VIII.....	12.0	3.5	4.7	6.1	22.5	35.2	—
IX.....	6.0	1.5	3.1	9.2	16.1	24.6	—
X.....	11.6	2.6	5.0	14.4	32.8	53.3	—
Total, 10 regions.....	6.2	2.7	4.3	5.8	6.5	15.8	—

For example, two-thirds or more of the operators of Class VI farms in each region, except Region V, report no days of off-farm work. In Region V, 59 percent of these operators reported no days of off-farm work. For Class V farms about 80 percent of the operators in all regions, except Regions VIII and X—which have very few Class V farms—report less than 100 days of off-farm work. Generally speaking, from two-thirds to three-fourths of those who report less than 100 days of off-farm work did no off-farm work at all.

By definition, the value of farm sales for Class VI farms must exceed the total of family income from off-farm sources. This restriction does not, however, apply to Class V farms. In those regions—I through VII—where Class V farms are found in considerable numbers four-fifths or more of them report the value of farm sales as exceeding total family income from other sources. The value of farm sales on Class V farms is between \$1,200 and \$2,499. Data on the average level of sales from these farms will be found in Part VII of this report.

MAN-EQUIVALENT WORKERS PER COTTON FARM

The data in table 25 provides a more specific picture of the characteristics and size of the labor resource on cotton farms. These data indicate the average size of the labor force on cotton farms in each economic class for each region, in terms of estimated man-equivalents. A percentage distribution of this labor force in terms of operators, family workers, and hired workers is also given.

The size of the total labor force on cotton farms of various economic classes varies by region. Generally, regions in which mechanization of cotton production has progressed the most show significantly smaller total labor resources per farm than the other regions. Among regions of the humid climatic belt, for example, mechanization is more advanced in Regions IV and VI than in Regions I, II, III, and V. In Regions I, II, III, and V, Class I farms have an average labor force of 10 man-equivalents, while

in Regions IV and VI the labor resource on Class I farms is smaller, about 30 and 50 percent, respectively. Similar differences, though not as great, exist among other economic classes of farms in these two groups of regions.

Cotton production in Regions IX and X is also highly mechanized. Region IX has one of the smallest inputs of the labor resource per farm for each economic class of any region. This is particularly striking in the instance of Class I farms.

The labor resources per farm on Class I farms in Region X may not seem to indicate a high degree of mechanization, since the man-equivalents used here are almost twice those indicated for Class I farms in Region IX. Average sales of Class I farms in Region X, however, are more than twice as high as sales for the same class farms in Region IX (see table 31).

The percentage of the labor force which is comprised of operator workers, family workers, and hired workers on different economic classes of cotton farms is of particular interest (see table 25).

TABLE 25.—TOTAL MAN-EQUIVALENT PER ALL COMMERCIAL FARMS AND PER COTTON FARM, AND PERCENT DISTRIBUTION IN EACH ECONOMIC CLASS OF COTTON FARM, BY TYPE OF WORKER, BY REGIONS: 1954

Region and item		All commercial farms	Cotton farms by economic class of farm						
			All classes	I	II	III	IV	V	VI
REGION I									
Total man-equivalent.....	number.....	1.6	1.6	9.4	3.4	2.3	1.7	1.4	1.2
Operator.....	percent.....	53.6	54.5	8.4	24.1	39.7	51.7	60.3	70.0
Family workers.....	percent.....	24.0	30.4	1.5	6.9	30.6	36.1	33.3	27.5
Hired labor.....	percent.....	22.4	15.1	90.1	69.0	29.7	12.2	6.4	2.5
REGION II									
Total man-equivalent.....	number.....	1.3	1.2	10.0	3.1	2.0	1.5	1.3	1.1
Operator.....	percent.....	60.1	65.5	7.8	27.2	40.1	54.0	63.3	75.1
Family workers.....	percent.....	25.0	27.8	2.6	4.8	25.0	34.6	31.6	23.0
Hired labor.....	percent.....	14.9	6.7	89.6	68.0	34.9	11.4	5.1	1.9
REGION III									
Total man-equivalent.....	number.....	1.5	1.5	9.9	3.2	2.2	1.8	1.4	1.2
Operator.....	percent.....	56.4	56.9	8.5	26.6	39.2	48.5	58.5	70.9
Family workers.....	percent.....	31.4	34.7	1.5	13.0	37.2	42.7	37.5	27.3
Hired labor.....	percent.....	12.2	8.4	90.0	60.4	23.6	8.8	4.0	1.8
REGION IV									
Total man-equivalent.....	number.....	1.8	1.8	7.7	2.7	2.0	1.8	1.5	1.3
Operator.....	percent.....	48.6	48.8	11.7	33.4	43.7	49.7	58.5	70.1
Family workers.....	percent.....	30.9	33.0	1.8	12.4	35.6	43.2	38.4	28.6
Hired labor.....	percent.....	20.5	18.2	86.5	54.2	20.7	7.1	3.1	1.3
REGION V									
Total man-equivalent.....	number.....	1.3	1.5	10.8	3.1	2.1	1.7	1.4	1.2
Operator.....	percent.....	59.0	54.9	8.3	27.8	42.0	52.0	58.8	70.7
Family workers.....	percent.....	21.7	27.8	1.5	8.6	25.5	33.2	35.1	27.5
Hired labor.....	percent.....	19.3	17.3	90.2	63.6	32.5	14.8	6.1	1.8
REGION VI									
Total man-equivalent.....	number.....	1.7	1.7	4.6	2.2	1.9	1.6	1.3	1.2
Operator.....	percent.....	48.9	51.6	19.8	40.4	47.0	55.8	60.2	69.9
Family workers.....	percent.....	17.8	25.1	6.9	12.8	24.0	29.6	32.9	27.3
Hired labor.....	percent.....	33.3	23.3	73.3	46.8	29.0	14.6	6.9	2.8
REGION VII									
Total man-equivalent.....	number.....	1.6	1.8	8.1	2.8	1.9	1.4	1.2	1.2
Operator.....	percent.....	48.4	46.7	10.9	30.7	46.4	56.3	61.9	70.8
Family workers.....	percent.....	16.7	16.8	2.1	7.9	15.1	21.9	26.4	24.8
Hired labor.....	percent.....	34.9	36.5	87.0	61.4	38.5	21.8	11.7	4.4
REGION VIII									
Total man-equivalent.....	number.....	3.3	3.4	9.4	3.2	2.1	1.4	1.1	1.2
Operator.....	percent.....	23.6	23.7	9.3	26.7	39.5	48.5	56.9	68.1
Family workers.....	percent.....	5.4	5.5	1.6	4.6	8.3	14.7	21.9	23.7
Hired labor.....	percent.....	71.0	70.8	89.1	68.7	52.2	36.8	21.2	8.2
REGION IX									
Total man-equivalent.....	number.....	1.7	2.7	4.7	2.4	1.6	1.2	1.0	1.1
Operator.....	percent.....	48.0	31.9	20.2	37.8	48.6	60.3	67.2	68.9
Family workers.....	percent.....	15.8	6.8	3.4	7.8	12.7	15.9	21.7	33.6
Hired labor.....	percent.....	36.2	61.3	76.4	54.4	38.7	23.8	11.1	2.5
REGION X									
Total man-equivalent.....	number.....	2.8	4.1	8.3	2.0	1.4	1.1	0.9	1.0
Operator.....	percent.....	26.3	18.9	10.6	40.4	50.4	51.5	56.2	70.0
Family workers.....	percent.....	8.8	5.0	1.9	9.8	16.2	25.7	31.8	26.2
Hired labor.....	percent.....	64.9	76.1	87.5	49.8	33.4	22.8	12.0	3.8
TOTAL, 10 REGIONS									
Total man-equivalent.....	number.....	1.7	1.7	7.3	2.7	2.0	1.7	1.4	1.2
Operator.....	percent.....	49.8	49.9	12.3	32.9	43.4	50.8	59.4	71.2
Family workers.....	percent.....	23.4	27.8	2.2	9.4	28.1	38.3	35.9	26.9
Hired labor.....	percent.....	26.8	22.3	85.5	57.7	28.5	10.9	4.7	1.9

FARMERS AND FARM PRODUCTION

On Class I cotton farms in the various regions operator and family labor account for from about 10 to 20 percent of the total labor resources used per farm. The percentage of total labor resources supplied by operator and family workers is, however, generally higher in those regions in which it has been most economically feasible to mechanize cotton harvesting. Mechanized harvesting has, in general, been found most feasible in Regions IV, VI, IX, and X. For Class I farms in Region X this tendency is obscured somewhat by the fact that the average size of business for Class I farms in this region is far greater than for any other region.

On Class II farms the proportion of total labor resources accounted for by hired labor varies from a low of just under one-half in Regions VI and X to a high of a little over two-thirds. The highest percentages of the labor resources accounted for by hired labor on this class of farm are found in Regions I, II, and VIII.

This same general regional relationship between the degree of mechanization and the percentage of the labor resources accounted for by hired labor is found on Class III farms. The overall percentages are significantly lower, ranging from a low of about 20 percent to a high of slightly over 50 percent of the total labor resources accounted for by hired labor.

For some regions, such as Regions VII, VIII, IX, and X, even Class IV farms hire a rather substantial proportion of all labor used. In general, however, cotton farms in Economic Classes IV through VI hire very little labor.

Data in table 26 show the percentage distribution of farms in each economic class for each region by designated ranges of total expenditure for hired labor. These data indicate that many of the larger farms are operated primarily with operator and family labor. For example, a considerable percentage of the Class II farms, especially in the more mechanized areas hire relatively small amounts of labor.

TABLE 26.—PERCENT DISTRIBUTION OF FARMS REPORTING SPECIFIED EXPENDITURES FOR HIRED LABOR FOR COTTON FARMS, BY ECONOMIC CLASS OF FARM, BY REGIONS: 1954

Item	Economic class of farm							Item	Economic class of farm						
	All classes	I	II	III	IV	V	VI		All classes	I	II	III	IV	V	VI
REGION I								REGION VI							
Farms with a dollar expenditure of—								Farms with a dollar expenditure of—							
Total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	Total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1 to 499.....	79.6	79.6	6.1	33.9	74.4	93.7	98.6	1 to 499.....	47.7	0.6	8.6	17.0	50.7	84.2	98.3
500 to 999.....	10.6	0.3	7.5	23.9	19.5	5.4	1.2	500 to 999.....	22.0	10.2	16.0	20.7	38.2	15.4	—
1,000 to 2,499.....	6.4	2.8	30.7	34.2	5.7	0.9	0.1	1,000 to 2,499.....	22.0	9.6	35.0	55.1	12.8	0.4	1.7
2,500 to 4,999.....	2.0	12.1	35.0	6.6	0.4	—	0.1	2,500 to 4,999.....	6.3	26.1	34.3	7.2	0.3	—	—
5,000 to 9,999.....	1.0	39.8	17.8	1.4	—	—	—	5,000 to 9,999.....	1.5	33.1	6.1	—	—	—	—
10,000 to 19,999.....	0.3	33.7	2.9	—	—	—	(Z)	10,000 to 19,999.....	0.3	11.5	—	—	—	—	—
20,000 and over.....	0.1	11.3	—	—	—	—	—	20,000 and over.....	0.2	8.9	—	—	—	—	—
REGION II								REGION VII							
Farms with a dollar expenditure of—								Farms with a dollar expenditure of—							
Total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	Total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1 to 499.....	91.1	—	5.9	28.2	78.5	95.6	99.4	1 to 499.....	43.5	0.2	6.0	16.7	40.0	83.2	97.2
500 to 999.....	5.4	—	8.8	27.5	16.3	3.6	0.5	500 to 999.....	23.3	3.0	5.2	19.2	45.4	14.7	1.4
1,000 to 2,499.....	2.5	4.3	28.2	35.1	4.6	0.7	0.1	1,000 to 2,499.....	21.9	6.0	30.3	63.4	14.3	2.1	1.4
2,500 to 4,999.....	0.7	8.7	34.7	8.3	0.4	0.1	—	2,500 to 4,999.....	7.5	13.6	46.1	7.3	0.3	—	—
5,000 to 9,999.....	0.3	34.8	20.6	0.9	0.2	—	—	5,000 to 9,999.....	2.5	37.9	11.4	0.3	—	—	—
10,000 to 19,999.....	(Z)	26.1	1.8	—	—	—	—	10,000 to 19,999.....	1.0	29.0	1.0	0.1	—	—	—
20,000 and over.....	(Z)	26.1	—	—	—	—	—	20,000 and over.....	0.3	10.3	(Z)	—	—	—	—
REGION III								REGION VIII							
Farms with a dollar expenditure of—								Farms with a dollar expenditure of—							
Total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	Total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1 to 499.....	87.6	2.4	10.4	36.5	78.5	96.9	99.7	1 to 499.....	19.5	0.5	1.6	7.6	23.9	77.5	88.9
500 to 999.....	7.3	0.6	10.9	28.7	17.2	2.8	0.3	500 to 999.....	14.1	1.1	2.3	12.1	50.3	13.2	11.1
1,000 to 2,499.....	3.5	8.6	30.8	30.1	4.1	0.3	(Z)	25.2	6.6	27.1	55.6	20.3	8.5	—	—
2,500 to 4,999.....	0.9	10.5	32.4	3.9	0.2	(Z)	(Z)	2,500 to 4,999.....	17.9	5.8	43.2	22.5	3.1	0.8	—
5,000 to 9,999.....	0.4	31.9	13.4	0.7	(Z)	—	—	5,000 to 9,999.....	12.8	33.0	23.6	1.8	1.8	—	—
10,000 to 19,999.....	0.2	31.4	2.1	0.1	(Z)	—	—	10,000 to 19,999.....	6.8	33.0	2.2	0.4	0.6	—	—
20,000 and over.....	0.1	14.6	—	—	—	—	—	20,000 and over.....	3.7	20.0	—	—	—	—	—
REGION IV								REGION IX							
Farms with a dollar expenditure of—								Farms with a dollar expenditure of—							
Total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	Total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1 to 499.....	67.0	0.7	10.9	36.9	68.8	94.0	99.3	1 to 499.....	14.7	2.3	9.6	16.8	41.5	84.7	80.0
500 to 999.....	12.5	1.8	10.1	19.0	22.7	5.1	0.6	500 to 999.....	12.3	3.2	9.5	21.5	39.5	12.7	20.0
1,000 to 2,499.....	11.4	6.5	28.6	37.0	8.1	0.8	0.1	1,000 to 2,499.....	29.3	14.5	36.8	52.0	18.4	2.6	—
2,500 to 4,999.....	4.5	15.7	32.7	6.8	0.4	0.1	—	2,500 to 4,999.....	23.1	22.7	36.7	8.8	0.2	—	—
5,000 to 9,999.....	2.5	28.6	16.0	0.3	(Z)	(Z)	—	5,000 to 9,999.....	14.6	38.0	7.2	0.3	0.4	—	—
10,000 to 19,999.....	1.4	29.7	1.7	(Z)	—	—	—	10,000 to 19,999.....	5.1	16.4	0.2	—	—	—	—
20,000 and over.....	0.7	17.0	(Z)	—	—	—	—	20,000 and over.....	0.9	2.9	—	—	—	—	—
REGION V								REGION X							
Farms with a dollar expenditure of—								Farms with a dollar expenditure of—							
Total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	Total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1 to 499.....	73.5	0.5	4.0	20.6	58.7	91.1	99.0	1 to 499.....	15.1	1.3	11.8	19.7	37.2	68.9	88.2
500 to 999.....	12.7	0.9	6.4	25.2	30.2	8.0	1.0	500 to 999.....	11.8	1.2	10.3	18.8	36.3	27.3	11.8
1,000 to 2,499.....	8.5	7.0	31.8	43.3	10.3	0.8	(Z)	21.0	7.8	27.8	46.2	24.5	3.8	—	—
2,500 to 4,999.....	3.1	10.3	39.3	10.3	0.8	0.1	—	2,500 to 4,999.....	16.7	13.8	33.0	13.9	1.6	—	—
5,000 to 9,999.....	1.3	33.7	16.8	0.6	—	—	—	5,000 to 9,999.....	14.2	24.2	15.8	1.4	—	—	—
10,000 to 19,999.....	0.5	23.8	1.7	—	—	—	—	10,000 to 19,999.....	10.8	25.6	1.3	—	0.4	—	—
20,000 and over.....	0.4	23.8	—	—	—	—	—	20,000 and over.....	10.5	26.1	—	—	—	—	—

* Z 0.05 percent or less.

TOTAL CROPLAND AND COTTON ACRES PER MAN-EQUIVALENT

Most of the information relating to measures of the relative efficiency with which resources are used on the various economic classes of farms is presented in Section 7. But data concerning the acres of cropland and of cotton harvested per man-equivalent are available in table 27.

In one region (Region IX) there are some special circumstances, which will be noted, but generally speaking, the acreage of cropland harvested per man-equivalent on farms of different economic classes, for a given region, is indicative of the relative efficiency with which the labor resource is used on the various size-of-business groups of farms.

Except for Region IX, there is a steady and substantial increase in cropland harvested per man-equivalent from Class VI through Class II farms for all regions. In Region IX, Class III farms have more cropland harvested per man-equivalent than do farms in Class II.

The extent as well as the fact of increased cropland harvested per unit of labor as between Class VI and Class II farms should be noted. For most regions, Class II farms have about 4 times as much cropland harvested per man-equivalent as do those farms in Economic Class VI. Even between Class III and Class II farms there is, for nearly all regions, a striking increase in cropland per man-equivalent. In 7 of the 10 regions, Class II farms have about 40 percent more acres of cropland per unit of labor than farms in Class III. In Region II, this difference between these two classes is about 38 percent. The differences in cropland acreage per man between classes within these regions seem large enough to suggest that labor is utilized more effectively on larger farms, up to those in Economic Class II.

In Region VII only about 10 percent more cropland is harvested per man on Class II than on Class III farms. Special circumstances, which are discussed later, prevail in Region IX.

While Class I farms are indicated to have much more cropland harvested per worker, in most regions, than do farms in Classes III through VI, there are several regions in which Class II farms indicate more cropland per worker than do those in the largest size-of-business group. This situation is shown to exist in Regions II, III, V, and VII. In Region IX, the acreage of cropland harvested per worker is practically the same for farms in Classes I and II. In the other five regions the acreage of cropland harvested per worker is higher on Class I than on Class II farms.

In the instance of Region IX, the High Plains of Texas, special circumstances require that the data of table 27 be carefully in-

terpreted. Although in this region there is considerable irrigated land, only on Class I farms does there appear to be enough irrigated land for all cotton to be grown under irrigation. The proportions that irrigated land account for of cotton acreage per farm for other economic classes decline rapidly from about 70 percent for Class II, to 25 percent for Class III, and to insignificant percentages for Classes IV through VI. Region IX has a semiarid climate which, in general, means that, in relatively frequent years, there is too little rainfall for good yields. The average yields for nonirrigated crops are, therefore, much lower than for those grown under irrigation. At the same time, both terrain and the period of its development for crop farming favor large-scale mechanized farming units in Region IX. These latter conditions, taken in conjunction with the lack of irrigated land and consequent relatively low output per acre, seem to explain the fact that Classes III and IV farms have larger acreages of cropland per worker in Region IX than do farms in Classes I and II.

TABLE 27.—ACRES OF CROPLAND HARVESTED AND ACRES OF COTTON HARVESTED PER MAN-EQUIVALENT FOR COTTON FARMS, BY ECONOMIC CLASS, AND BY REGIONS: 1954

Region	Economic class of farm						
	All classes	I	II	III	IV	V	VI
Acres of cropland harvested							
I.....	31.9	80.1	74.1	43.9	32.9	27.1	18.3
II.....	25.8	68.3	71.3	52.0	33.3	23.8	17.3
III.....	20.7	57.7	60.3	35.0	23.3	18.6	13.3
IV.....	26.1	78.4	63.0	34.5	17.8	11.3	8.5
V.....	33.3	62.7	70.3	51.0	36.6	25.7	17.6
VI.....	36.5	84.1	68.2	42.1	26.9	22.3	14.2
VII.....	80.6	82.7	112.1	99.5	80.0	57.5	32.5
VIII.....	40.9	49.1	43.8	32.9	27.1	18.2	10.0
IX.....	120.0	118.1	117.1	132.5	119.2	101.0	38.2
X.....	55.4	61.8	42.0	28.6	18.2	13.3	6.0
Acres of cotton harvested							
I.....	10.0	23.9	21.8	14.3	11.2	8.6	5.8
II.....	10.0	21.9	26.8	19.5	14.7	10.0	6.4
III.....	8.7	21.1	21.9	14.5	10.0	7.9	5.0
IV.....	12.8	30.6	25.6	17.0	10.6	7.3	5.4
V.....	17.3	30.3	33.9	27.1	20.0	14.3	8.3
VI.....	18.8	44.6	38.2	21.6	13.8	10.0	5.8
VII.....	39.4	36.9	54.6	50.0	40.7	29.2	15.8
VIII.....	23.5	27.3	25.0	21.0	15.7	11.8	6.7
IX.....	53.3	51.3	53.3	60.6	52.5	47.0	15.5
X.....	28.3	28.7	22.5	16.4	12.7	8.9	5.0

Section 6.—INVESTMENT ON COTTON FARMS

Information concerning total farm investments and its distribution by major categories is particularly useful. Through the common denominator of estimated dollar value, such data provide the best measure of the quantity of the various kinds and qualities of physical resources that are used in production on cotton farms. Investment data are available to us for three major categories of resources—land and buildings, machinery and equipment, and livestock.

The land and capital resources on these farms are employed for other purposes as well as in cotton production, of course, but, as table 19 shows, the cotton enterprise accounts for an overwhelmingly large proportion of total sales from cotton farms in every region, on each economic class of farm. The continued employment of these resources is, consequently, mainly supported by the cotton enterprise.

The approximately 8.4 billion dollars of investment on cotton farms in our ten regions is an impressive aggregate of resources. It amounts to about 8 percent of the estimated total investment on commercial farms in the United States.

REGIONAL DISTRIBUTION OF TOTAL INVESTMENT
AMONG ECONOMIC CLASSES

In this perspective let us examine the distribution of total investment for the ten regions among farms with total annual gross sales of less than \$5,000. It seems probable that among such businesses are likely to occur most of the difficulties of remunerating at "opportunity costs" both the resources which comprise the investment aggregate and the human agent of operator and family labor and management.

With respect to this distribution three groups of regions are clearly discernible. In Regions I, II, III, and V, from just under 60 percent to almost 90 percent of total investment is found on farms in Classes IV through VI. A much smaller, but still substantial, proportion of around 35 percent of total investment is found in Regions IV, VI, and VII on farms with gross sales of less than \$5,000. In Regions VIII, IX, and X these smaller size-of-business farms account for 9, 5, and 3 percent, respectively, of regional total investment.

TABLE 28.—DISTRIBUTION OF INVESTMENT ON COTTON FARMS, BY ECONOMIC CLASS, BY REGIONS: 1954

Region and item	All cotton farms	Economic class of farm					
		I	II	III	IV	V	VI
REGION I							
Total investment.....	Mil. dollars 428.5	Per-cent 8.3	Per-cent 13.2	Per-cent 16.3	Per-cent 26.4	Per-cent 24.4	Per-cent 11.4
Land and buildings.....	347.7	8.3	13.7	16.3	26.4	24.0	11.3
Machinery and equipment.....	50.7	9.4	11.5	17.6	25.8	25.2	10.4
Livestock.....	30.0	6.1	10.8	14.4	26.9	27.1	14.7
REGION II							
Total investment.....	232.8	1.2	3.8	6.9	19.3	39.2	29.7
Land and buildings.....	188.8	1.1	3.8	6.8	19.6	38.8	29.8
Machinery and equipment.....	29.7	1.4	3.7	7.3	18.2	41.8	27.5
Livestock.....	14.3	1.8	3.9	6.4	17.4	38.3	32.2
REGION III							
Total investment.....	1,153.2	6.4	8.4	11.4	24.8	31.7	17.3
Land and buildings.....	944.1	6.6	8.9	11.4	24.9	31.0	17.1
Machinery and equipment.....	126.2	6.0	6.2	12.0	25.2	35.3	15.4
Livestock.....	82.9	4.5	6.3	9.7	23.4	33.9	22.1
REGION IV							
Total investment.....	1,717.7	32.7	18.6	16.4	16.9	12.7	2.8
Land and buildings.....	1,359.8	33.5	18.1	16.8	16.4	12.3	2.9
Machinery and equipment.....	306.1	29.9	21.9	15.0	18.2	12.9	2.1
Livestock.....	51.8	27.1	12.5	13.7	21.2	19.7	5.8
REGION V							
Total investment.....	248.5	16.8	11.9	14.9	18.4	21.0	17.1
Land and buildings.....	196.6	17.8	11.9	15.3	17.8	20.4	16.7
Machinery and equipment.....	30.4	12.7	13.4	13.1	21.9	22.7	16.2
Livestock.....	21.4	13.3	9.4	13.0	18.9	23.6	21.9
REGION VI							
Total investment.....	182.6	13.2	25.9	25.8	21.0	10.8	3.3
Land and buildings.....	154.4	13.6	25.9	25.9	20.9	10.6	3.1
Machinery and equipment.....	20.2	11.2	28.2	25.7	21.5	9.8	3.6
Livestock.....	8.0	11.1	20.6	22.9	22.4	16.2	6.8

Region and item	All cotton farms	Economic class of farm					
		I	II	III	IV	V	VI
REGION VII							
Total investment.....	Mil. dollars 1,387.6	Per-cent 15.3	Per-cent 23.1	Per-cent 25.9	Per-cent 22.0	Per-cent 11.0	Per-cent 2.7
Land and buildings.....	1,191.0	16.0	23.1	26.2	21.4	10.7	2.6
Machinery and equipment.....	152.2	12.0	24.5	23.8	25.1	11.5	3.2
Livestock.....	44.4	8.7	17.7	25.3	26.2	17.1	5.0
REGION VIII							
Total investment.....	384.4	55.6	23.8	11.3	5.5	3.1	0.8
Land and buildings.....	342.1	56.6	23.1	11.1	5.3	3.1	0.8
Machinery and equipment.....	37.8	45.9	30.8	12.2	7.6	2.7	0.7
Livestock.....	4.5	58.7	21.3	12.8	3.5	2.7	0.9
REGION IX							
Total investment.....	1,130.4	54.8	32.8	7.6	3.4	1.3	0.1
Land and buildings.....	991.7	56.0	31.9	7.5	3.2	1.3	0.1
Machinery and equipment.....	125.5	46.0	40.4	7.9	4.2	1.4	0.1
Livestock.....	13.2	44.4	32.3	12.0	7.4	3.4	0.4
REGION X							
Total investment.....	1,557.9	79.7	13.2	4.5	2.0	0.5	0.1
Land and buildings.....	1,328.6	81.0	12.2	4.3	1.8	0.5	0.1
Machinery and equipment.....	198.1	70.9	20.0	5.4	2.8	0.7	0.1
Livestock.....	31.3	79.5	13.2	4.8	2.1	0.4	0.1
TOTAL, 10 REGIONS							
Total investment.....	8,423.7	35.9	18.4	13.5	14.4	12.3	5.4
Land and buildings.....	7,044.9	37.2	18.2	13.6	14.0	11.8	5.2
Machinery and equipment.....	1,076.9	32.0	21.4	13.2	15.7	13.0	4.7
Livestock.....	301.9	20.2	12.0	13.2	20.0	22.1	12.6

INVESTMENT PER FARM

Aggregate investment data for regions and economic classes of cotton farms are useful, but information on average investment per farm for economic classes and regions is perhaps of more widespread interest, and is valuable for several uses. The data on per farm investment are given in table 29. Such data measure more completely than any other available data the relative quantities of physical resources that are used in production on cotton farms of different economic classes in the various regions. They also suggest, at the readily comprehensible level of the individual farm, the quantities of other resources that are used in conjunction with human resources.

Class I farms in all regions have average investments well in excess of \$100,000, but there is considerable variation in the average level of investment among regions. The Class I farms in Region X have far larger total investment than do those of any other region.

Total investment in Class II farms shows considerably less

regional variation. The range here is from a low of about \$45,000 in Region I to a little over \$70,000 in Region VII. Considerable regional variation will be observed in total investment per farm for Classes III through VI. The general level decreases from Class III to Class VI. Among Class III farms the range is from about \$16,000 for Region I to almost \$38,000 in Regions VII and VIII. Class IV farms exhibit a range in total investment of from about \$8,000 to more than \$26,000. Investment per farm for Class V farms varies from a low of a little more than \$4,000 in Region IV to a high of almost \$20,000 in Region IX. Class VI farms show a range in investment per farm from about \$3,000 to \$12,000.

Table 29 also shows the percentage distribution of investment among land and buildings, machinery and equipment, and livestock. Land and buildings account for 75 percent or more of total investment for every region and every economic class of farm. Moreover, there is striking similarity for the different economic classes in each of the ten regions in the percentage of total investment which is accounted for by each of the three major investment components.

TABLE 29.—TOTAL INVESTMENT AND PERCENT DISTRIBUTION OF INVESTMENT PER FARM FOR COTTON FARMS, BY ECONOMIC CLASS, BY REGIONS: 1954

Region and item	Economic class of farm						
	All classes	I	II	III	IV	V	VI
REGION I							
Total investment.....dollars.....	7,469	123,774	45,887	15,867	7,614	5,017	3,104
Land and buildings.....percent.....	81.2	81.4	83.9	81.0	81.3	80.0	80.2
Machinery and equipment.....percent.....	11.8	13.4	10.3	12.8	11.6	12.2	10.8
Livestock.....percent.....	7.0	5.2	5.8	6.2	7.1	7.8	9.0
REGION II							
Total investment.....dollars.....	5,781	119,347	49,141	21,350	9,345	5,692	3,739
Land and buildings.....percent.....	81.1	75.3	81.3	80.6	82.4	80.4	81.5
Machinery and equipment.....percent.....	12.8	15.3	12.4	13.7	12.0	13.6	11.8
Livestock.....percent.....	6.1	9.4	6.3	5.7	5.6	6.0	6.7
REGION III							
Total investment.....dollars.....	6,737	154,708	58,173	19,052	8,745	5,239	3,343
Land and buildings.....percent.....	81.9	84.5	86.7	82.4	82.1	80.1	81.1
Machinery and equipment.....percent.....	10.9	10.4	8.0	11.5	11.1	12.2	9.7
Livestock.....percent.....	7.2	6.1	5.3	6.1	6.8	7.7	9.2
REGION IV							
Total investment.....dollars.....	13,415	187,621	53,685	18,069	8,081	4,271	2,802
Land and buildings.....percent.....	79.2	81.2	77.0	81.2	77.0	77.2	80.5
Machinery and equipment.....percent.....	17.8	16.3	21.0	16.3	19.2	18.1	13.3
Livestock.....percent.....	3.0	2.5	2.0	2.5	3.8	4.7	6.2
REGION V							
Total investment.....dollars.....	11,167	194,311	53,506	24,282	12,459	7,247	4,659
Land and buildings.....percent.....	79.1	84.0	79.4	81.7	76.6	77.0	77.3
Machinery and equipment.....percent.....	12.3	9.2	13.8	10.8	14.6	13.3	11.6
Livestock.....percent.....	8.6	6.8	6.8	7.5	8.8	9.7	11.1
REGION VI							
Total investment.....dollars.....	22,843	143,470	61,210	26,511	16,027	10,820	5,690
Land and buildings.....percent.....	84.5	86.9	84.5	85.1	84.0	83.3	78.8
Machinery and equipment.....percent.....	11.1	9.4	12.0	11.0	11.3	10.0	12.1
Livestock.....percent.....	4.4	3.7	3.5	3.9	4.7	6.7	9.1
REGION VII							
Total investment.....dollars.....	30,872	178,125	72,053	37,942	22,096	13,432	8,106
Land and buildings.....percent.....	85.8	89.6	85.9	86.8	83.7	83.6	81.3
Machinery and equipment.....percent.....	11.0	8.6	11.6	10.1	12.5	11.4	12.8
Livestock.....percent.....	3.2	1.8	2.5	3.1	3.8	5.0	5.9
REGION VIII							
Total investment.....dollars.....	72,538	233,985	70,105	37,882	23,177	15,586	10,989
Land and buildings.....percent.....	89.0	90.7	86.3	88.0	85.7	90.3	89.1
Machinery and equipment.....percent.....	9.8	8.1	12.7	10.7	13.5	8.7	9.5
Livestock.....percent.....	1.2	1.2	1.0	1.3	0.8	1.0	1.4
REGION IX							
Total investment.....dollars.....	77,159	147,607	64,005	36,584	26,399	19,644	12,060
Land and buildings.....percent.....	87.7	89.7	85.2	86.6	83.6	85.1	82.2
Machinery and equipment.....percent.....	11.1	9.3	13.7	11.5	13.8	11.0	13.5
Livestock.....percent.....	1.2	1.0	1.2	1.9	2.6	3.0	4.3
REGION X							
Total investment.....dollars.....	131,386	275,743	67,270	34,363	22,149	12,032	7,873
Land and buildings.....percent.....	85.3	86.7	78.8	82.6	79.7	80.3	81.0
Machinery and equipment.....percent.....	12.7	11.3	19.2	15.3	18.1	18.1	17.9
Livestock.....percent.....	2.0	2.0	2.0	2.1	2.2	1.6	1.1
TOTAL, 10 REGIONS							
Total investment.....dollars.....	16,718	202,214	61,984	25,126	10,846	5,764	3,617
Land and buildings.....percent.....	83.6	86.6	82.8	84.0	81.1	80.1	80.7
Machinery and equipment.....percent.....	12.8	11.4	14.9	12.5	13.9	13.5	11.0
Livestock.....percent.....	3.6	2.0	2.3	3.5	5.0	6.4	8.3

INVESTMENT PER ACRE AND PER MAN-EQUIVALENT

The investment data per farm of table 29 were divided by acres of all land, acres of cropland, and number of man-equivalent workers per farm, to obtain the investment measures per farm shown in table 30.

Perhaps the most significant economic measure of those shown in table 30 is investment per man-equivalent worker. This measure provides an index of the relationship of other productive resources to the human resources used on these farms.

In general there is a steady and substantial increase in investment per worker from Class VI to Class I farms for all regions.

For the 10 regions, taken as a whole, the average investment per worker on Class VI farms is about \$3,000, the comparable average for Class I farms is almost \$28,000. Examination of the data in table 30 for individual regions reveals some striking differences between regions for the same economic classes of farms. In general, it will be observed that investment per worker is much lower for each economic class of farm in Regions I through V than in Regions VI through X. It is interesting to note that in several of the western regions average investment per worker is higher on Classes IV and V farms than such investment on Classes I and II farms in some of the eastern regions.

TABLE 30.—TOTAL INVESTMENT PER ACRE OF ALL LAND IN FARMS, PER ACRE OF TOTAL CROPLAND, AND PER MAN-EQUIVALENT, FOR COTTON FARMS, BY ECONOMIC CLASS, BY REGIONS: 1954

Region and item	Economic class of farm						
	All classes	I	II	III	IV	V	VI
REGION I							
Investment per acre of—	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
All land in farms	71	68	74	78	75	68	60
Cropland	122	131	146	133	119	111	109
Investment per man-equivalent	4,668	13,167	13,496	6,899	4,470	3,584	2,587
REGION II							
Investment per acre of—							
All land in farms	72	55	68	72	83	76	64
Cropland	145	124	150	142	147	146	143
Investment per man-equivalent	4,818	11,935	15,852	10,675	6,230	4,379	3,399
REGION III							
Investment per acre of—							
All land in farms	83	99	105	97	92	80	63
Cropland	167	196	210	182	164	160	150
Investment per man-equivalent	4,491	15,627	18,179	8,660	4,858	3,742	2,786
REGION IV							
Investment per acre of—							
All land in farms	178	189	205	183	167	155	111
Cropland	246	269	206	242	224	211	188
Investment per man-equivalent	7,453	24,366	19,883	9,335	4,489	2,847	2,165
REGION V							
Investment per acre of—							
All land in farms	76	104	94	79	75	69	53
Cropland	150	198	170	165	143	134	128
Investment per man-equivalent	7,445	17,992	17,260	11,563	7,329	5,176	3,883
REGION VI							
Investment per acre of—							
All land in farms	194	178	204	196	216	179	139
Cropland	312	290	336	291	329	323	266
Investment per man-equivalent	13,437	31,189	27,823	13,953	10,017	8,323	4,742
REGION VII							
Investment per acre of—							
All land in farms	123	162	135	118	114	106	90
Cropland	174	232	189	164	158	155	151
Investment per man-equivalent	17,151	21,991	25,733	19,969	15,783	11,193	6,755
REGION VIII							
Investment per acre of—							
All land in farms	341	330	342	362	385	398	364
Cropland	418	417	402	418	475	504	413
Investment per man-equivalent	21,335	24,892	21,908	18,039	16,555	14,169	9,163
REGION IX							
Investment per acre of—							
All land in farms	170	193	173	112	105	88	60
Cropland	210	245	208	161	158	143	136
Investment per man-equivalent	28,577	31,406	26,669	22,865	21,999	19,644	10,990
REGION X							
Investment per acre of—							
All land in farms	242	228	310	323	317	497	82
Cropland	444	414	597	643	790	718	1,026
Investment per man-equivalent	32,045	33,222	33,635	24,545	20,135	13,369	7,890
TOTAL, 10 REGIONS							
Investment per acre of—							
All land in farms	135	196	165	129	112	92	60
Cropland	217	302	241	194	174	161	149
Investment per man-equivalent	9,834	27,701	22,957	12,563	6,380	4,117	3,000

Section 7.—SELECTED MEASURES OF FARM INCOME AND EFFICIENCY

In this section two additional sets of basic data are presented for economic classes of cotton farms in the ten regions. These are the value of sales per farm, and per farm amounts of expenditure for a number of items of cash-production expense. The per farm totals of these designated items of cash-production expenses are referred to as "specified expenses."

The basic data on average sales per farm are shown in table 31; those concerning designated items of expense are given in table 32.

The data relating to average sales per farm probably provide the best available measure of both the absolute and the relative sizes of farm business that are found on the various economic classes of cotton farms.

In recent years concern has been expressed in some quarters about the fact of secularly increasing size-of-farm businesses. This report is not, of course, designed to analyze the complex relationships between social goals and necessary economic adjustments on farms that are involved in questions relating to trends in size-of-farm businesses. An examination of the average levels of total sales on the three largest size-of-business groups of cotton farms does, however, provide an objective measure of the size of these largest cotton farms.

Class I farms include all those with sales of \$25,000 or more. Except for Region X where the average is \$110,000, the farms in this class have average total sales of from \$40,000 to \$60,000.

TABLE 31.—TOTAL SALES, COTTON SALES, ALL CROP SALES, AND LIVESTOCK AND LIVESTOCK PRODUCTS SALES PER COTTON FARM, BY ECONOMIC CLASS, AND BY REGIONS: 1954

Region and item	Economic class of farm						
	All classes	I	II	III	IV	V	VI
REGION I							
Total sales.....	Dollars 2,761	Dollars 42,084	Dollars 14,349	Dollars 6,479	Dollars 3,412	Dollars 1,770	Dollars 795
All crops.....	2,557	37,876	12,659	5,995	3,205	1,653	750
Cotton.....	2,026	29,902	9,830	4,628	2,502	1,354	647
All livestock and livestock products.....	193	3,958	1,602	461	198	113	42
REGION II							
Total sales.....	1,656	48,196	14,364	6,839	3,290	1,732	775
All crops.....	1,543	36,822	12,656	6,041	3,062	1,635	734
Cotton.....	1,390	29,252	10,553	5,015	2,731	1,492	683
All livestock and livestock products.....	101	8,565	1,559	725	203	86	37
REGION III							
Total sales.....	2,142	50,842	14,397	6,395	3,317	1,729	757
All crops.....	1,966	44,905	12,755	5,764	3,058	1,605	703
Cotton.....	1,837	38,935	11,367	5,348	2,868	1,522	670
All livestock and livestock products.....	168	5,653	1,588	606	248	117	50
REGION IV							
Total sales.....	4,559	57,071	14,643	6,693	3,379	1,769	797
All crops.....	4,405	54,336	14,118	6,498	3,292	1,731	774
Cotton.....	3,957	45,309	12,157	5,891	3,118	1,674	753
All livestock and livestock products.....	161	2,677	515	192	84	38	22
REGION V							
Total sales.....	2,758	60,316	14,157	6,573	3,359	1,706	658
All crops.....	2,464	53,526	12,684	5,924	3,003	1,527	582
Cotton.....	2,288	48,899	11,398	5,509	2,842	1,452	534
All livestock and livestock products.....	285	6,650	1,449	630	349	171	71
REGION VI							
Total sales.....	5,380	39,893	14,385	6,831	3,663	1,894	787
All crops.....	5,098	37,458	13,558	6,430	3,419	1,729	704
Cotton.....	4,517	31,215	12,276	5,938	3,047	1,551	673
All livestock and livestock products.....	341	2,432	822	399	243	165	83
REGION VII							
Total sales.....	5,967	52,695	14,473	6,908	3,613	1,915	840
All crops.....	5,474	50,747	13,418	6,266	3,203	1,660	735
Cotton.....	4,481	37,622	10,995	5,286	2,766	1,472	673
All livestock and livestock products.....	492	1,943	1,064	641	410	255	106
REGION VIII							
Total sales.....	16,920	59,207	16,670	7,826	3,513	1,918	835
All crops.....	16,440	57,260	16,337	7,632	3,432	1,878	827
Cotton.....	13,751	46,999	13,957	6,577	2,997	1,668	783
All livestock and livestock products.....	479	1,944	333	194	81	39	7
REGION IX							
Total sales.....	21,812	46,675	16,962	7,723	3,976	1,969	721
All crops.....	21,210	45,600	16,472	7,365	3,656	1,761	617
Cotton.....	17,188	36,248	13,660	6,313	3,166	1,565	578
All livestock and livestock products.....	602	1,075	490	358	319	207	105
REGION X							
Total sales.....	47,880	110,441	15,996	7,192	3,921	1,880	858
All crops.....	45,799	105,776	15,192	6,765	3,695	1,837	854
Cotton.....	36,516	83,358	12,903	5,978	3,352	1,753	847
All livestock and livestock products.....	2,080	4,664	802	426	218	43	6

It will be remembered that the range of sales volume possible for farms in Class II is from \$10,000 to \$24,999. The midpoint of such a range is \$17,500. In no region does average sales per farm for Class II farms go as high as the midpoint of the range for the class. In most regions, sales for this class average from \$14,000 to \$15,000 per farm.

For Class III farms the most general level of average sales found in the regions is about \$6,500. The possible range of sales in this class is, of course, from \$5,000 to \$9,999. Only in Regions VIII and IX, where average sales are \$7,800 and \$7,700, respectively, does total farm sales of Class III farms reach the midpoint of the sales range for the class.

It seems doubtful that sales volumes such as the averages for farms in these classes would, in the instance of any type of non-farm business, be taken to connote unusually large or economically menacing size.

In this general context it is also important to look at per farm sales on the three smallest economic classes from the standpoint of the adequacy of business volume to supply generally acceptable levels of income to a farm family.

The range among regions for average sales per Class IV cotton farms is from almost \$3,300 to almost \$4,000. For Class V farms the comparable range is from about \$1,730 to \$1,970, while the range in region-average total sales for Class VI cotton farms is from about \$660 to about \$860.

TABLE 32.—PERCENT OF FARMS REPORTING AND AVERAGE EXPENDITURE FOR SELECTED ITEMS PER FARM, FOR COTTON FARMS, BY ECONOMIC CLASS, BY REGIONS: 1954

Region and item	Economic class of farm							Region and item	Economic class of farm						
	All classes	I	II	III	IV	V	VI		All classes	I	II	III	IV	V	VI
REGION I								REGION IV							
Machine hire:								Machine hire:							
Percent of farms reporting.....	67.8	60.6	63.9	69.9	68.7	68.4	65.9	Percent of farms reporting.....	68.5	70.1	73.3	69.3	67.7	68.5	67.8
Dollars per farm reporting.....	146	1,528	661	343	171	106	57	Dollars per farm reporting.....	320	3,366	1,124	474	236	132	75
Hired labor:								Hired labor:							
Percent of farms reporting.....	65.4	98.3	96.2	84.2	75.8	64.6	48.6	Percent of farms reporting.....	56.1	98.9	95.4	79.3	59.7	46.9	34.5
Dollars per farm reporting.....	479	11,581	3,204	1,023	353	185	87	Dollars per farm reporting.....	1,104	12,644	2,887	1,004	399	184	85
Feed for livestock and poultry:								Feed for livestock and poultry:							
Percent of farms reporting.....	46.0	61.7	65.6	54.1	46.0	43.2	45.6	Percent of farms reporting.....	40.8	50.4	54.2	47.9	42.5	35.6	40.0
Dollars per farm reporting.....	151	1,604	731	316	144	98	67	Dollars per farm reporting.....	166	1,444	373	181	118	88	88
Gasoline, fuel, and oil:								Gasoline, fuel, and oil:							
Percent of farms reporting.....	47.0	95.8	96.6	77.6	57.8	43.4	28.2	Percent of farms reporting.....	49.6	98.5	95.3	76.1	53.4	37.5	29.9
Dollars per farm reporting.....	305	3,730	1,401	492	241	154	88	Dollars per farm reporting.....	462	3,989	1,064	422	209	120	76
Fertilizer and fertilizer material:								Fertilizer and fertilizer material:							
Percent of farms reporting.....	97.2	99.0	97.4	98.5	97.6	96.7	97.1	Percent of farms reporting.....	87.9	95.1	90.9	87.4	88.2	88.8	82.6
Dollars per farm reporting.....	444	6,866	2,471	915	474	320	167	Dollars per farm reporting.....	281	3,285	877	364	198	120	75
Lime and liming material:								Lime and liming material:							
Percent of farms reporting.....	4.5	29.3	21.9	10.8	5.0	3.6	1.6	Percent of farms reporting.....	1.5	11.3	5.0	2.9	1.1	0.6	0.8
Dollars per farm reporting.....	112	388	270	129	83	63	54	Dollars per farm reporting.....	244	713	248	200	93	61	55
Average of specified expenses per farm dollars..	1,062	23,814	7,804	2,569	1,066	612	298	Average of specified expenses per farm dollars..	1,386	22,726	5,603	1,856	735	360	201
REGION II								REGION V							
Machine hire:								Machine hire:							
Percent of farms reporting.....	63.2	56.5	48.9	59.7	65.5	63.1	62.9	Percent of farms reporting.....	49.1	66.5	63.4	60.6	55.9	49.2	43.1
Dollars per farm reporting.....	90	1,191	670	342	162	95	54	Dollars per farm reporting.....	228	3,630	1,265	439	225	119	61
Hired labor:								Hired labor:							
Percent of farms reporting.....	51.5	100.0	94.4	90.5	69.3	56.5	40.5	Percent of farms reporting.....	57.4	99.5	96.2	86.7	78.8	60.1	38.4
Dollars per farm reporting.....	226	12,110	3,062	1,073	346	161	74	Dollars per farm reporting.....	723	15,311	3,190	1,197	497	219	86
Feed for livestock and poultry:								Feed for livestock and poultry:							
Percent of farms reporting.....	44.8	87.0	48.3	48.3	43.4	42.8	46.6	Percent of farms reporting.....	69.7	57.2	63.0	66.3	64.8	65.3	76.4
Dollars per farm reporting.....	121	2,216	984	536	218	115	72	Dollars per farm reporting.....	202	2,974	773	401	222	159	117
Gasoline, fuel, and oil:								Gasoline, fuel, and oil:							
Percent of farms reporting.....	42.1	100.0	94.4	85.9	50.9	45.0	32.6	Percent of farms reporting.....	53.9	100.0	96.4	85.8	77.6	58.2	32.0
Dollars per farm reporting.....	154	3,023	1,302	551	222	122	73	Dollars per farm reporting.....	302	3,549	1,000	479	272	163	84
Fertilizer and fertilizer material:								Fertilizer and fertilizer material:							
Percent of farms reporting.....	97.2	100.0	95.0	99.3	96.5	97.6	97.1	Percent of farms reporting.....	82.9	83.3	90.9	85.8	83.8	82.5	81.9
Dollars per farm reporting.....	281	8,394	2,608	1,197	479	281	158	Dollars per farm reporting.....	243	3,199	880	459	307	192	105
Lime and liming material:								Lime and liming material:							
Percent of farms reporting.....	5.1	52.2	23.3	21.4	9.7	5.4	2.7	Percent of farms reporting.....	1.3	10.7	4.0	1.7	3.2	0.8	0.4
Dollars per farm reporting.....	81	542	334	122	103	66	41	Dollars per farm reporting.....	126	381	174	162	99	105	42
Average of specified expenses per farm dollars..	569	26,411	7,481	3,123	1,036	533	276	Average of specified expenses per farm dollars..	1,033	25,609	6,128	2,378	1,133	548	262
REGION III								REGION VI							
Machine hire:								Machine hire:							
Percent of farms reporting.....	55.1	69.1	61.6	56.2	54.2	56.4	53.6	Percent of farms reporting.....	55.4	85.1	68.4	69.8	49.1	48.5	43.7
Dollars per farm reporting.....	112	2,060	722	298	160	91	49	Dollars per farm reporting.....	361	2,408	757	387	215	103	65
Hired labor:								Hired labor:							
Percent of farms reporting.....	52.2	97.9	92.5	80.0	64.9	52.5	40.1	Percent of farms reporting.....	81.4	93.5	93.5	89.9	87.7	73.3	56.3
Dollars per farm reporting.....	317	12,188	2,772	856	317	143	69	Dollars per farm reporting.....	958	7,303	2,224	1,236	523	254	121
Feed for livestock and poultry:								Feed for livestock and poultry:							
Percent of farms reporting.....	53.6	66.1	63.8	60.2	52.4	51.2	56.0	Percent of farms reporting.....	72.9	75.0	69.5	74.7	72.9	72.7	72.8
Dollars per farm reporting.....	128	2,000	752	347	168	102	71	Dollars per farm reporting.....	259	1,062	506	320	207	161	137
Gasoline, fuel, and oil:								Gasoline, fuel, and oil:							
Percent of farms reporting.....	43.4	97.7	93.0	80.7	61.0	44.1	26.7	Percent of farms reporting.....	76.8	100.0	94.2	92.6	77.9	66.6	49.3
Dollars per farm reporting.....	200	3,386	1,106	430	213	123	72	Dollars per farm reporting.....	310	1,648	624	358	199	143	70
Fertilizer and fertilizer material:								Fertilizer and fertilizer material:							
Percent of farms reporting.....	95.5	98.9	97.2	97.2	96.2	95.7	94.6	Percent of farms reporting.....	45.8	66.7	48.3	42.2	47.8	50.2	34.7
Dollars per farm reporting.....	237	4,326	1,387	589	330	201	119	Dollars per farm reporting.....	229	1,466	450	257	151	125	77
Lime and liming material:								Lime and liming material:							
Percent of farms reporting.....	2.2	23.6	15.0	7.5	4.0	1.7	.7	Percent of farms reporting.....	0.5	0.6	-----	0.3	0.6	0.8	-----
Dollars per farm reporting.....	110	633	249	138	89	66	44	Dollars per farm reporting.....	71	1,250	-----	5	46	40	-----
Average of specified expenses per farm dollars..	612	22,414	5,903	1,992	832	426	226	Average of specified expenses per farm dollars..	1,513	12,303	3,754	2,069	942	512	262

TABLE 32.—PERCENT OF FARMS REPORTING AND AVERAGE EXPENDITURE FOR SELECTED ITEMS PER FARM, FOR COTTON FARMS, BY ECONOMIC CLASS, BY REGIONS: 1954—Continued

Region and item	Economic class of farm							Region and item	Economic class of farm						
	All classes	I	II	III	IV	V	VI		All classes	I	II	III	IV	V	VI
REGION VII								REGION IX							
Machine hire:								Machine hire:							
Percent of farms reporting.....	82.9	88.4	91.7	89.4	84.6	77.3	68.1	Percent of farms reporting.....	90.7	94.2	90.7	90.7	91.2	75.9	47.6
Dollars per farm reporting.....	453	3,128	1,022	507	288	169	89	Dollars per farm reporting.....	1,431	2,801	1,157	592	352	207	123
Hired labor:								Hired labor:							
Percent of farms reporting.....	85.6	90.5	98.4	94.4	89.9	77.2	59.3	Percent of farms reporting.....	93.0	99.0	94.5	92.0	85.3	74.6	23.8
Dollars per farm reporting.....	1,262	11,169	2,973	1,298	606	315	142	Dollars per farm reporting.....	3,284	6,665	2,440	1,266	618	286	259
Feed for livestock and poultry:								Feed for livestock and poultry:							
Percent of farms reporting.....	69.9	58.9	70.3	73.5	71.4	68.9	62.8	Percent of farms reporting.....	65.3	59.9	67.1	68.7	69.5	64.9	57.1
Dollars per farm reporting.....	288	871	513	331	267	192	128	Dollars per farm reporting.....	470	695	440	367	331	231	138
Gasoline, fuel, and oil:								Gasoline, fuel, and oil:							
Percent of farms reporting.....	90.4	99.7	98.2	96.8	93.0	86.6	69.4	Percent of farms reporting.....	98.0	98.7	99.0	98.0	96.1	92.1	85.7
Dollars per farm reporting.....	447	2,151	893	531	328	222	136	Dollars per farm reporting.....	1,538	2,951	1,303	675	449	301	145
Fertilizer and fertilizer material:								Fertilizer and fertilizer material:							
Percent of farms reporting.....	21.4	29.1	23.4	24.8	20.6	20.0	16.0	Percent of farms reporting.....	15.7	28.0	13.8	7.7	5.6	86	4.8
Dollars per farm reporting.....	217	1,138	363	228	161	115	74	Dollars per farm reporting.....	691	1,035	406	239	108	53	80
Lime and liming material:								Lime and liming material:							
Percent of farms reporting.....	0.2	0.8	0.2	0.2	0.3	0.1	-----	Percent of farms reporting.....	(Z)	(Z)	0.1	-----	-----	-----	-----
Dollars per farm reporting.....	62	154	134	48	46	45	-----	Dollars per farm reporting.....	60	270	6	-----	-----	-----	-----
Average of specified expenses per farm dollars.....	2,107	16,867	5,184	2,493	1,318	721	331	Average of specified expenses per farm dollars.....	6,274	12,858	4,998	2,633	1,515	802	327
REGION VIII								REGION X							
Machine hire:								Machine hire:							
Percent of farms reporting.....	58.5	69.1	62.9	53.5	49.5	56.3	59.3	Percent of farms reporting.....	81.3	86.7	84.4	77.9	73.7	61.5	63.2
Dollars per farm reporting.....	1,031	2,919	966	503	319	223	99	Dollars per farm reporting.....	3,365	7,023	1,356	634	357	322	79
Hired labor:								Hired labor:							
Percent of farms reporting.....	93.8	100.0	98.1	97.4	91.8	85.4	66.7	Percent of farms reporting.....	93.1	99.1	94.5	89.0	89.8	78.6	44.7
Dollars per farm reporting.....	4,171	13,957	3,735	1,842	981	441	239	Dollars per farm reporting.....	9,099	19,834	2,828	1,418	750	352	188
Feed for livestock and poultry:								Feed for livestock and poultry:							
Percent of farms reporting.....	34.1	37.2	40.0	35.2	29.2	25.8	29.6	Percent of farms reporting.....	43.8	38.2	51.4	48.4	44.3	33.4	36.8
Dollars per farm reporting.....	565	1,508	403	415	372	116	94	Dollars per farm reporting.....	1,298	3,016	490	554	277	225	155
Gasoline, fuel, and oil:								Gasoline, fuel, and oil:							
Percent of farms reporting.....	91.8	98.9	98.3	96.5	89.5	78.8	61.1	Percent of farms reporting.....	94.6	97.6	97.9	95.0	88.8	77.1	65.8
Dollars per farm reporting.....	1,109	3,128	1,108	623	360	230	182	Dollars per farm reporting.....	2,001	4,103	966	535	291	177	84
Fertilizer and fertilizer material:								Fertilizer and fertilizer material:							
Percent of farms reporting.....	48.7	68.0	54.5	50.4	39.0	31.7	27.8	Percent of farms reporting.....	77.4	92.1	79.6	70.2	58.5	47.5	18.4
Dollars per farm reporting.....	826	2,198	677	309	201	117	74	Dollars per farm reporting.....	2,612	5,214	717	303	176	108	53
Lime and liming material:								Lime and liming material:							
Percent of farms reporting.....	0.4	1.8	-----	0.4	-----	-----	-----	Percent of farms reporting.....	1.6	1.8	1.8	2.2	0.4	-----	-----
Dollars per farm reporting.....	319	376	-----	134	-----	-----	-----	Dollars per farm reporting.....	562	847	418	253	250	-----	-----
Average of specified expenses per farm dollars.....	6,129	21,132	5,891	2,966	1,567	752	378	Average of specified expenses per farm dollars.....	15,695	35,726	5,593	2,751	1,422	738	256

Z 0.05 percent or less.

The interpretation of these sales levels in terms of the levels of income from farming that are associated with them is facilitated by examination of the data in table 33. In this table the total of specified production expense items has been subtracted from total sales per farm. The fact should be borne in mind that, in general, the total of these specified items of expense probably does not exceed 60 percent of total cash production expenses when all items are included.

For Class IV farms the sales minus specified expenses per farm are, for most regions, between \$2,200 and \$2,500. Only in Regions IV and VI, which show \$2,600 and \$2,700, respectively, does the average of sales minus specified expenses for Class IV farms exceed \$2,500.

In the instance of Class V farms, the cash incomes above specified expenses are between \$1,100 and \$1,200 for seven of the ten regions. Farms in Region IV have the highest value for per farm sales minus specified expenses for Class V farms. This is shown to be \$1,400.

For farms in Class VI average value of sales minus specified expenses for the ten regions is \$520. The highest value for any

region is \$603, while in the region having the lowest value the amount is \$394.

TABLE 33.—SALES MINUS SPECIFIED EXPENSES PER FARM FOR COTTON FARMS, BY ECONOMIC CLASS, BY REGIONS: 1954

Region	Economic class of farm						
	All classes	I	II	III	IV	V	VI
I.....	Dollars 1,699	Dollars 18,272	Dollars 6,546	Dollars 3,910	Dollars 2,355	Dollars 1,158	Dollars 496
II.....	1,087	21,787	6,884	3,716	2,254	1,199	498
III.....	1,530	28,429	8,494	4,403	2,485	1,303	531
IV.....	3,172	34,345	9,039	4,836	2,644	1,409	596
V.....	1,725	34,711	8,029	4,195	2,227	1,159	396
VI.....	3,867	27,590	10,631	4,772	2,721	1,382	524
VII.....	3,860	35,828	9,289	4,415	2,295	1,194	509
VIII.....	10,791	38,076	10,779	4,860	1,946	1,166	457
IX.....	15,638	33,817	11,964	5,090	2,461	1,167	394
X.....	32,185	74,714	10,403	4,441	2,499	1,142	603
Total, 10 regions.....	3,406	46,103	9,887	4,547	2,478	1,289	520

It has been mentioned that, since Census data do not cover all cash expense items, the value of sales less specified expenses per farm probably overstates net cash farm income. It also probably overstates, even more, net incomes on tenant-operated farms since they receive only a share of crops. There is one important item of noncash cost for which it is possible to make an estimate using Census data as a basis. This is interest on investment per farm. Estimated values for this item are shown in table 34. These values were obtained by applying rates of 5 percent to value of investment in land and buildings, and 7 percent to the value of investment in machinery and equipment and livestock.

TABLE 34.—ESTIMATED INTEREST ON INVESTMENT PER FARM FOR COTTON FARMS, BY ECONOMIC CLASS, BY REGIONS: 1954

Region	Economic class of farm						
	All classes	I	II	III	IV	V	VI
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
I.....	403	6,684	2,432	857	373	246	149
II.....	312	6,564	2,654	1,153	495	307	202
III.....	364	7,735	3,083	1,029	472	283	181
IV.....	724	10,132	2,953	1,008	444	235	161
V.....	603	10,298	2,889	1,311	685	399	262
VI.....	1,211	7,604	3,244	1,405	849	573	307
VII.....	1,636	9,263	3,819	2,011	1,171	712	438
VIII.....	3,772	12,167	3,716	1,970	1,228	810	571
IX.....	4,012	7,676	3,392	1,939	1,309	1,041	651
X.....	6,963	14,614	3,633	1,821	1,196	650	425
Total, 10 regions.....	886	10,717	3,285	1,332	586	311	195

When this allowance is made for remuneration of the aggregate of physical sources that are employed, the residual of sales that is left to compensate the human agent, to take care of nonspecified cash expenses, and to allow for replacement of worn-out equipment, is strikingly small on the three smallest size-of-business groups. Even for Class III farms, the residual of around \$3,000 per farm for most regions suggests very modest returns to the people involved.

TABLE 35.—SALES PER FARM MINUS SPECIFIED EXPENSES AND IMPUTED INTEREST ON INVESTMENT FOR ECONOMIC CLASSES OF COTTON FARMS, BY REGIONS: 1954

Region	Economic class of farm						
	All classes	I	II	III	IV	V	VI
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
I.....	1,296	11,588	4,114	3,063	1,982	912	347
II.....	775	15,223	4,230	2,563	1,759	892	266
III.....	1,166	20,694	5,411	3,374	2,013	1,020	350
IV.....	2,448	24,213	6,086	3,828	2,200	1,174	445
V.....	1,122	24,413	5,140	2,884	1,542	760	144
VI.....	2,656	19,986	7,387	3,367	1,872	809	217
VII.....	2,224	26,565	5,470	2,404	1,124	482	71
VIII.....	7,019	25,909	7,063	2,890	718	356	-114
IX.....	11,528	26,141	8,572	3,151	1,062	126	-257
X.....	25,222	60,100	6,770	2,620	1,303	492	178
Total, 10 regions.....	2,520	35,386	6,602	3,215	1,892	978	325

Data that relate more specifically to the levels of labor productivity on cotton farms are provided in tables 36 and 37. In these tables sales per farm minus specified expenses, and sales per farm minus both specified expenses and imputed interest on investment have been divided by the estimated man-equivalent workers per farm.

For these two tables expenditures for hired labor were not deducted. This procedure was used because hired workers are a component of the farm labor resources. The reader should keep in mind that not all cash expenses are allowed for, and that no deduction has been made for depreciation. The values shown in these two tables, therefore, overstate the net output and productivity of the human agent.

Attention is invited to the relatively modest values shown for even the largest farms. In a different context, and with different implications, it is important to note also the progressive increase shown in this crude measure of labor productivity as the size of business increases from Class VI to Class I in any region.

TABLE 36.—SALES MINUS SPECIFIED EXPENSES (EXCEPT HIRED LABOR) PER MAN-EQUIVALENT, FOR COTTON FARMS, BY ECONOMIC CLASS AND REGIONS: 1954

Region	Economic class of farm						
	All classes	I	II	III	IV	V	VI
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
I.....	1,272	3,153	2,784	2,121	1,548	911	435
II.....	969	3,372	3,132	2,324	1,640	1,027	470
III.....	1,121	4,064	3,453	2,281	1,478	947	461
IV.....	2,031	6,055	4,346	2,742	1,600	1,005	499
V.....	1,393	4,631	3,564	2,544	1,546	942	356
VI.....	2,789	7,421	5,743	3,091	2,031	1,176	403
VII.....	2,788	8,846	4,359	3,037	1,925	1,153	507
VIII.....	4,405	5,504	4,488	3,202	1,927	1,435	524
IX.....	6,860	8,667	6,007	3,755	2,462	1,325	401
X.....	9,866	11,895	6,264	3,979	2,907	1,716	716
Total, 10 regions.....	2,401	8,105	4,734	2,748	1,618	984	459

TABLE 37.—SALES MINUS SPECIFIED EXPENSES (EXCEPT HIRED LABOR) AND IMPUTED INTEREST ON INVESTMENT PER MAN-EQUIVALENT, FOR COTTON FARMS, BY ECONOMIC CLASS AND REGIONS: 1954

Region	Economic class of farm						
	All classes	I	II	III	IV	V	VI
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
I.....	1,020	2,442	2,069	1,748	1,329	735	311
II.....	699	2,716	2,276	1,747	1,310	791	286
III.....	878	3,283	2,490	1,813	1,216	745	310
IV.....	1,689	4,739	3,252	2,238	1,353	848	383
V.....	991	3,678	2,632	1,920	1,143	657	146
VI.....	2,077	5,768	4,268	2,352	1,500	735	237
VII.....	1,879	4,702	2,995	1,979	1,089	560	142
VIII.....	3,206	4,210	3,327	2,264	1,050	609	48
IX.....	5,374	7,034	4,684	2,543	1,296	284	-191
X.....	8,168	9,634	4,448	2,678	1,820	994	291
Total, 10 regions.....	1,880	6,637	3,517	2,082	1,273	762	297

INDICATED RETURNS PER OPERATOR AND FAMILY MAN-EQUIVALENT WORKER

The data examined above give some indication of the productivity and possible returns to all labor. Data are presented in tables 38 and 39 to indicate returns to operator and family labor and management. Table 38 shows the return per man-equivalent operator and family worker for the use of capital and their labor and management.

TABLE 38.—SALES MINUS SPECIFIED EXPENSES PER OPERATOR AND FAMILY WORKER FOR COTTON FARMS, BY ECONOMIC CLASS AND REGIONS: 1954

Region	Economic class of farm						
	All classes	I	II	III	IV	V	VI
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
I.....	1,214	20,302	6,546	2,444	1,570	891	413
II.....	988	21,787	6,884	2,858	1,734	999	453
III.....	1,093	28,429	6,534	2,690	1,462	1,002	443
IV.....	2,116	34,345	7,532	3,023	1,555	939	458
V.....	1,438	31,555	7,299	2,996	1,455	892	330
VI.....	2,975	22,992	8,859	3,409	1,944	1,152	437
VII.....	3,509	32,571	8,445	3,679	2,080	1,080	403
VIII.....	10,791	38,076	10,779	4,860	2,162	1,295	415
IX.....	15,538	30,743	10,876	5,090	2,734	1,297	358
X.....	32,185	67,922	10,403	4,934	2,777	1,428	603
Total, 10 regions.....	2,620	41,381	8,988	3,248	1,652	992	433

In table 39, on the other hand, imputed interest on investment has been deducted. The indication here, therefore, is of return to operator and family labor and management per man-equivalent worker.

TABLE 39.—SALES MINUS SPECIFIED EXPENSES AND IMPUTED INTEREST ON INVESTMENT PER MAN-EQUIVALENT OF OPERATOR AND FAMILY WORKERS FOR ECONOMIC CLASSES OF COTTON FARMS, BY REGIONS: 1954

Region	Economic class of farm						
	All classes	I	II	III	IV	V	VI
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
I.....	926	12,875	4,114	1,908	1,321	702	289
II.....	705	15,223	4,230	1,972	1,353	743	269
III.....	833	20,604	4,162	1,985	1,184	785	292
IV.....	1,632	24,213	5,072	2,392	1,294	783	342
V.....	935	22,104	4,673	2,060	1,028	585	120
VI.....	2,043	16,655	6,156	2,405	1,337	674	181
VII.....	2,022	24,150	4,973	2,003	1,022	438	65
VIII.....	7,019	25,909	7,063	2,890	798	396	-104
IX.....	11,528	23,765	7,793	3,151	1,180	140	-234
X.....	26,222	54,636	6,770	2,911	1,448	615	178
Total, 10 regions.....	1,938	32,169	6,002	2,296	1,261	752	271

It will be observed that for Class VI farms the returns per worker for both capital and labor and management are below \$500 in all regions except one; there it is only \$600.

After allowing for interest on investment, the range among regions of indicated returns per operator and family worker on the various size-of-business groups is as follows: Class VI—from a loss to about \$342; Class V—from \$140 to \$785; Class IV—from about \$800 to about \$1,450; Class III—from about \$1,910 to about \$2,910; Class II—from about \$4,100 to about \$7,800; and Class I—from \$12,875 to \$54,636.

INVESTMENT PER DOLLAR OF SALES

In table 40 data are given that show the ratio of total investment to total sales and to sales minus specified expenses. These data afford a very rough indication of the relative productivity of capital employed on the various economic classes of cotton farms, in the different regions. In a general way, relatively low values of investment per dollar of sales indicate relatively high productivity of capital.

The principal conclusion which might tentatively be drawn from these data is that the productivity of capital—like that of labor—is generally higher on the larger than on the smaller size-of-business farms.

TABLE 40.—TOTAL INVESTMENT ON COTTON FARMS PER DOLLAR OF SALES, BY ECONOMIC CLASS OF FARM, BY REGIONS: 1954

Region	Economic class of farm						
	All classes	I	II	III	IV	V	VI
Investment per dollar of gross sales (dollar)							
I.....	2.71	2.94	3.20	2.45	2.23	2.83	3.91
II.....	3.49	2.48	3.42	3.12	2.84	3.29	4.83
III.....	3.14	3.04	4.04	2.98	2.64	3.03	4.41
IV.....	2.94	3.20	3.67	2.79	2.39	2.41	3.52
V.....	4.05	3.22	3.78	3.69	3.71	4.25	7.08
VI.....	4.25	3.60	4.26	3.88	4.38	5.71	7.23
VII.....	5.17	3.38	4.98	5.49	6.12	7.01	9.64
VIII.....	4.29	3.95	4.21	4.84	6.60	8.13	13.16
IX.....	3.54	3.16	3.77	4.74	6.64	9.98	16.72
X.....	2.74	2.50	4.21	4.78	5.65	6.40	9.16
Total, 10 regions.....	3.34	2.92	4.03	3.71	3.18	3.27	4.72
Investment per dollar of sales less specified expenses (dollars)							
I.....	4.40	6.77	7.01	4.06	3.23	4.33	6.25
II.....	5.32	5.48	7.14	5.75	4.15	4.75	7.50
III.....	4.40	5.44	6.85	4.33	3.52	4.02	6.29
IV.....	4.23	5.46	5.94	3.86	3.06	3.03	4.70
V.....	6.47	5.60	6.66	5.79	5.60	6.25	11.77
VI.....	5.91	5.20	5.76	5.56	5.89	7.83	10.85
VII.....	8.00	4.97	7.76	8.59	9.63	11.25	15.91
VIII.....	6.72	6.15	6.50	7.79	11.91	13.37	24.03
IX.....	4.97	4.36	5.35	7.19	10.73	16.83	30.61
X.....	4.08	3.69	6.47	7.74	8.86	10.54	13.05
Total, 10 regions.....	4.90	4.39	6.28	5.53	4.38	4.46	6.95

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Agricultural Research Service
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U. S. Department of Commerce
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Bureau of the Census
Robert W. Burgess, Director

United States Census of Agriculture: 1954

Volume III SPECIAL REPORTS

Part 9

Farmers and Farm Production in the United States (A Cooperative Report)

Chapter III

Tobacco and Peanut Producers and Production

CHARACTERISTICS OF FARMERS and FARM PRODUCTION •
PRINCIPAL TYPES OF FARMS •



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PREFACE

The purpose of this report is to present an analysis of the characteristics of farmers and farm production for the most important types of farms as shown by data for the 1954 Census of Agriculture. The analysis deals with the relative importance, pattern of resource use, some measures of efficiency, and problems of adjustment and change for the principal types of farms.

The data given in the various chapters of this report have been derived largely from the special tabulation of data for each type of farm, by economic class, for the 1954 Census of Agriculture. The detailed statistics for each type of farm for the United States and the principal subregions appear in Part 8 of Volume III of the reports for the 1954 Census of Agriculture.

This cooperative report was prepared under the direction of Ray Hurley, Chief of the Agriculture Division of the Bureau of the Census, U. S. Department of Commerce, and Kenneth L. Bachman, Head, Production, Income, and Costs Section, Production Economics Research Branch, Agricultural Research Service of the U. S. Department of Agriculture.

Jackson V. McElveen, Agricultural Economist, Production, Income, and Costs Section, Production Economics Research Branch, Agricultural Research Service of the U. S. Department of Agriculture, supervised a large part of the detailed planning and analysis for the various chapters.

The list of chapters and the persons preparing each chapter are as follows:

Chapter I.....	Wheat Producers and Wheat Production A. W. Epp, University of Nebraska.	Chapter VI.....	Western Stock Ranches and Livestock Farms Mont H. Saunderson, Western Ranching and Lands Consultant, Bozeman, Mont.
Chapter II.....	Cotton Producers and Cotton Production Robert B. Glasgow, Production Economics Research Branch, Agricultural Research Service, United States Department of Agriculture.	Chapter VII....	Cash-grain and Livestock Producers in the Corn Belt Edwin G. Strand, Production Economics Research Branch, Agricultural Research Service, United States Department of Agriculture.
Chapter III.....	Tobacco and Peanut Producers and Production R. E. L. Greene, University of Florida.	Chapter VIII..	Part-time Farming H. G. Halcrow, University of Connecticut.
Chapter IV.....	Poultry Producers and Poultry Production William P. Mortenson, University of Wisconsin.	Chapter IX.....	Agricultural Producers and Production in the United States— A General View Jackson V. McElveen, Production Economics Research Branch, Agricultural Research Service, United States Department of Agriculture.
Chapter V.....	Dairy Producers and Dairy Production P. E. McNall, University of Wisconsin.		

The editorial work for this report was performed by Caroline B. Sherman, and the preparation of the statistical tables was supervised by Margaret Wood.

December 1956

UNITED STATES CENSUS OF AGRICULTURE: 1954

REPORTS

Volume I.—Counties and State Economic Areas. Statistics for counties include number of farms, acreage, value, and farm operators; farms by color and tenure of operator; facilities and equipment; use of commercial fertilizer; farm labor; farm expenditures; livestock and livestock products; specified crops harvested; farms classified by type of farm and by economic class; and value of products sold by source.

Data for State economic areas include farms and farm characteristics by tenure of operator, by type of farm, and by economic class. Volume I is published in 33 parts.

Volume II.—General Report. Statistics by Subjects, United States Census of Agriculture, 1954. Summary data and analyses of the data for States, for Geographic Divisions, and for the United States by subjects.

Volume III.—Special Reports

Part 1.—Multiple-Unit Operations. This report will be similar to Part 2 of Volume V of the reports for the 1950 Census of Agriculture. It will present statistics for approximately 900 counties and State economic areas in 12 Southern States and Missouri for the number and characteristics of multiple-unit operations and farms in multiple units.

Part 2.—Ranking Agricultural Counties. This special report will present statistics for selected items of inventory and agricultural production for the leading counties in the United States.

Part 3.—Alaska, Hawaii, Puerto Rico, District of Columbia, and U. S. Possessions. These areas were not included in the 1954 Census of Agriculture. The available current data from various Government sources will be compiled and published in this report.

Part 4.—Agriculture, 1954, a Graphic Summary. This report will present graphically some of the significant facts regarding agriculture and agricultural production as revealed by the 1954 Census of Agriculture.

Part 5.—Farm-Mortgage Debt. This will be a cooperative study by the Agricultural Research Service of the U. S. Department of Agriculture and the Bureau of the Census. It will present, by States, data based on the 1954 Census of Agriculture and a special mail survey conducted in January 1956, on the number of mortgaged farms, the amount of mortgage debt, and the amount of debt held by principal lending agencies.

Part 6.—Irrigation in Humid Areas. This cooperative report by the Agricultural Research Service of the U. S. Department of Agriculture and the Bureau of the Census will present data obtained by a mail survey of operators of irrigated farms in 28 States on the source of water, method of applying water, number of pumps used, acres of crops irrigated in 1954 and 1955, the number of times each crop was irrigated, and the cost of irrigation equipment and the irrigation system.

Part 7.—Popular Report of the 1954 Census of Agriculture. This report is planned to be a general, easy-to-read publication for the general public on the status and broad characteristics of United States agriculture. It will seek to delineate such aspects of agriculture as the geographic distribution and differences by size of farm for such items as farm acreage, principal crops, and important kinds of livestock, farm facilities, farm equipment, use of fertilizer, soil conservation practices, farm tenure, and farm income.

Part 8.—Size of Operation by Type of Farm. This will be a cooperative special report to be prepared in cooperation with the Agricultural Research Service of the U. S. Department of Agriculture. This report will contain data for 119 economic sub-

regions (essentially general type-of-farming areas) showing the general characteristics for each type of farm by economic class. It will provide data for a current analysis of the differences that exist among groups of farms of the same type. It will furnish statistical basis for a realistic examination of production of such commodities as wheat, cotton, and dairy products in connection with actual or proposed governmental policies and programs.

Part 9.—Farmers and Farm Production in the United States. The purpose of this report is to present an analysis of the characteristics of farmers and farm production for the most important types of farms as shown by data for the 1954 Census of Agriculture. The analysis deals with the relative importance, pattern of resource use, some measures of efficiency, and problems of adjustment and change for the principal types of farms. The report was prepared in cooperation with the Agricultural Research Service of the U. S. Department of Agriculture.

The list of chapters (published separately only) and title for each chapter are as follows:

Chapter I—*Wheat Producers and Wheat Production*

II—*Cotton Producers and Cotton Production*

III—*Tobacco and Peanut Producers and Production*

IV—*Poultry Producers and Poultry Production*

V—*Dairy Producers and Dairy Production*

VI—*Western Stock Ranches and Livestock Farms*

VII—*Cash-Grain and Livestock Producers in the Corn Belt*

VIII—*Part-Time Farming*

IX—*Agricultural Producers and Production in the United States—A General View*

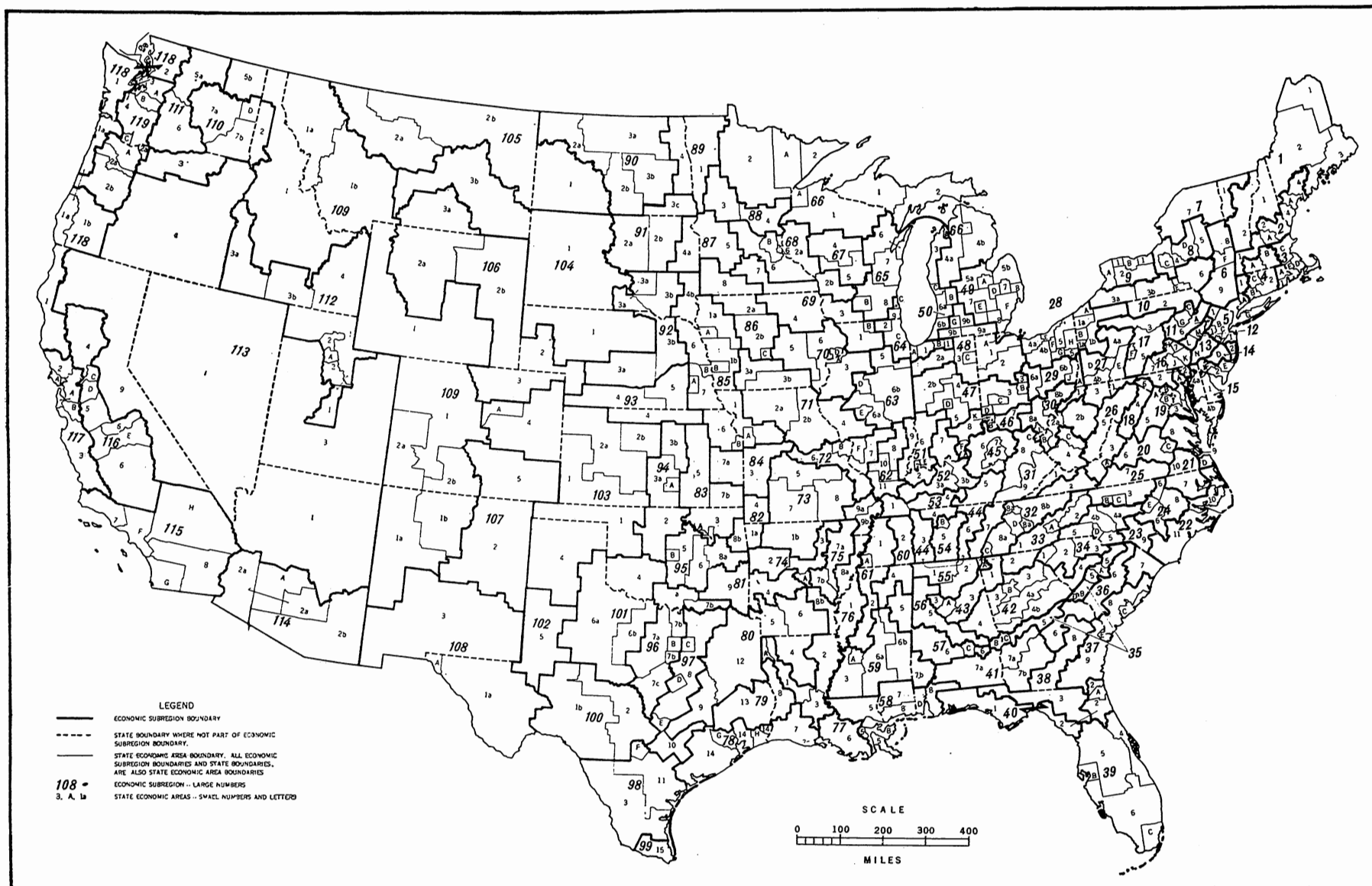
Part 10.—Use of Fertilizer and Lime. The purpose of this report is to present in one publication most of the detailed data compiled for the 1954 Census of Agriculture regarding the use of fertilizer and lime. The report presents data for counties, State economic areas, and generalized type-of-farming areas regarding the quantity used, acreage on which used, and expenditures for fertilizer and lime. The Agricultural Research Service cooperated with the Bureau of the Census in the preparation of this report.

Part 11.—Farmers' Expenditures. This report presents detailed data on expenditures for a large number of items used for farm production in 1955, and on the living expenditures of farm operators' families. The data were collected and compiled cooperatively by the Agricultural Marketing Service of the U. S. Department of Agriculture and the Bureau of the Census.

Part 12.—Methods and Procedures. This report contains an outline and a description of the methods and procedures used in taking and compiling the 1954 Census of Agriculture.

INTRODUCTION

ECONOMIC SUBREGIONS AND STATE ECONOMIC AREAS



INTRODUCTION

Purpose and scope.—American agriculture is exceedingly diverse and is undergoing revolutionary changes. Farmers and their families obtain their income by producing a large variety of products under a large variety of conditions as well as from sources other than farming. The organization of production, type of farming, productivity, income, expenditures, size, and characteristics of operators of the 4.8 million farms in the United States vary greatly. Agriculture has been a dynamic, moving, adjusting part of our economy. Basic changes in farming have been occurring and will continue to be necessary. Adjustments brought by technological change, by changing consumer wants, by growth of population, and by changes in the income of nonfarm people, have been significant forces in changing agriculture since World War II. The transition from war to an approximate peacetime situation has also made it necessary to reduce the output of some farm products. Some of the adjustments in agriculture have not presented relatively difficult problems as they could be made by the transfer of resources from the production of one product to another. Others require substantial shifts in resources and production.

Moreover, a considerable number of farm families, many of whom are employed full time in agriculture, have relatively low incomes. Most of these families operate farms that are small when compared with farms that produce higher incomes. The acreage of land and the amount of capital controlled by the operators of these small farms are too small to provide a very high level of income. In recent years, many farm families on these small farms have made adjustments by leaving the farm to earn their incomes elsewhere, by discontinuing their farm operations, and by earning more non-farm income while remaining on the farm or on the place they farmed formerly.

One objective of this report is to describe and analyze some of the existing differences and recent adjustments in the major types of farming and farm production. For important commodities and groups of farms, the report aims to make available, largely from the detailed data for the 1954 Census of Agriculture but in a more concise form, facts regarding the size of farms, capital, labor, and land resources on farms, amounts and sources of farm income and expenditures, combinations of crop and livestock enterprises, adjustment problems, operator characteristics, and variation in use of resources and in size of farms by areas and for widely differing production conditions. Those types of farms on which production of surplus products is important have been emphasized. The report will provide a factual basis for a better understanding of the widespread differences among farms in regard to size, resources, and income. It will also provide a basis for evaluating the effects of existing and proposed farm programs on the production and incomes of major types and classes of farms.

Income from nonfarm sources is important on a large number of farms. About 1.4 million of the 4.8 million farm-operator families, or about 3 in 10, obtain more income from off-farm sources than from the sale of agricultural products. More than three-fourths of a million farm operators live on small-scale part-time farms and ordinarily are not dependent on farming as the main source of family income. These part-time farmers have a quite different relation to adjustments, changes, and farm problems than do commercial farmers. A description of and facts regarding these part-time farms and the importance of nonfarm income for commercial farms are presented in Chapter 8.

Except for Chapter 8, this report deals with commercial farms (see economic class of farm). The analysis is limited to the major types of agricultural production and deals primarily with geographic areas in which each of the major types of agricultural production has substantial significance.

Source of data.—Most of the data presented in this report are from special compilations made for the 1954 Census of Agriculture, although pertinent data from research findings and surveys of the U. S. Department of Agriculture, State Agricultural Colleges, and other agencies have been used to supplement Census data. The detailed Census data used for this report are contained in Part 8 of Volume III of the reports of the 1954 Census of Agriculture. Reference should be made to that report for detailed explanations and definitions and statements regarding the characteristics and reliability of the data.

Areas for which data are presented.—Data are presented in this report primarily for selected economic subregions and for the United States. The boundaries of the 119 subregions used for the compilation of data on which this report is based are indicated by the map on page vi. These subregions represent primarily general type-of-farming areas. Many of them extend into two or more States. (For a more detailed description of economic subregions, see the publication "Economic Subregions of the United States, Series Census BAE; No. 19, published cooperatively by the Bureau of the Census, and the Bureau of Agricultural Economics, U. S. Department of Agriculture, July 1953.)

DEFINITIONS AND EXPLANATIONS

Definitions and explanations are given only for some of the more important items. For more detailed definitions and explanations, reference can be made to Part 8 of Volume III and to Volume II of the reports of the 1954 Census of Agriculture.

A farm.—For the 1954 Census of Agriculture, places of 3 or more acres were counted as farms if the annual value of agricultural products, exclusive of home-garden products, amounted to \$150 or more. The agricultural products could have been either for home use or for sale. Places of less than 3 acres were counted as farms only if the annual value of sales of agricultural products amounted to \$150 or more. Places for which the value of agricultural products for 1954 was less than these minima because of crop failure or other unusual conditions, and places operated at the time of the Census for the first time were counted as farms if normally they could be expected to produce these minimum quantities of agricultural products.

All the land under the control of one person or partnership was included as one farm. Control may have been through ownership, or through lease, rental, or cropping arrangement.

Farm operator.—A "farm operator" is a person who operates a farm, either performing the labor himself or directly supervising it. He may be an owner, a hired manager, or a tenant, renter, or sharecropper. If he rents land to others or has land cropped for him by others, he is listed as the operator of only that land which he retains. In the case of a partnership, only one partner was included as the operator. The number of farm operators is considered the same as the number of farms.

Farms reporting or operators reporting.—Figures for farms reporting or operators reporting, based on a tabulation of all farms, represent the number of farms, or farm operators, for which the specified item was reported. For example, if there were 11,922 farms in a subregion and only 11,465 had chickens over 4 months old on hand, the number of farms reporting chickens would be 11,465. The difference between the total number of farms and the number of farms reporting an item represents the number of farms not having that item, provided the inquiry was answered completely for all farms.

Farms by type.—The classification of commercial farms by type was made on the basis of the relationship of the value of sales from a particular source, or sources, to the total value of all farm products sold from the farm. In some cases, the type of farm was determined on the basis of the sale of an individual farm product, such as cotton, or on the basis of the sales of closely related products, such as dairy products. In other cases, the type of farm was determined on the basis of sales of a broader group of products, such as grain crops including corn, sorghums, all small grains, field peas, field beans, cowpeas, and soybeans. In order to be classified as a particular type, sales or anticipated sales of a product or group of products had to represent 50 percent or more of the total value of products sold.

The types of commercial farms for which data are shown, together with the product or group of products on which the classification is based are:

<i>Type of farm</i>	<i>Product or group of products amounting to 50 percent or more of the value of all farm products sold</i>
Cash-grain-----	Corn, sorghum, small grains, field peas, field beans, cowpeas, and soybeans.
Cotton-----	Cotton (lint and seed).
Other field-crop-----	Peanuts, Irish potatoes, sweet-potatoes, tobacco, sugarcane, sugar beets for sugar, and other miscellaneous crops.
Vegetable-----	Vegetables.
Fruit-and-nut-----	Berries and other small fruits, and tree fruits, nuts, and grapes.
Dairy-----	Milk and other dairy products. The criterion of 50 percent of the total sales was modified in the case of dairy farms. A farm for which the value of sales of dairy products represented less than 50 percent of the total value of farm products sold was classified as a dairy farm if— (a) Milk and other dairy products accounted for 30 percent or more of the total value of products sold, and (b) Milk cows represented 50 percent or more of all cows, and (c) Sales of dairy products, together with the sales of cattle and calves, amounted to 50 percent or more of the total value of farm products sold.
Poultry-----	Chickens, eggs, turkeys, and other poultry products.
Livestock farms other than dairy and poultry.	Cattle, calves, hogs, sheep, goats, wool, and mohair, provided the farm did not qualify as a dairy farm.

Type of farm

General----- Farms were classified as general when the value of products from one source or group of sources did not represent as much as 50 percent of the total value of all farm products sold. Separate figures are given for three kinds of general farms:
(a) Primarily crop.
(b) Primarily livestock.
(c) Crop and livestock.

Primarily crop farms are those for which the sale of one of the following crops or groups of crops—vegetables, fruits and nuts, cotton, cash grains, or other field crops—did not amount to 50 percent or more of the value of all farm products sold, but for which the value of sales for all these groups of crops represented 70 percent or more of the value of all farm products sold.

Primarily livestock farms are those which could not qualify as dairy farms, poultry farms, or livestock farms other than dairy and poultry, but on which the sale of livestock and poultry and livestock and poultry products amounted to 70 percent or more of the value of all farm products sold.

General crop and livestock farms are those which could not be classified as either crop farms or livestock farms, but on which the sale of all crops amounted to at least 30 percent but less than 70 percent of the total value of all farm products sold.

Miscellaneous----- This group of farms includes those that had 50 percent or more of the total value of products accounted for by sale of horticultural products, or sale of horses, or sale of forest products.

Farms by economic class.—A classification of farms by economic class was made for the purpose of segregating groups of farms that are somewhat alike in their characteristics and size of operation. This classification was made in order to present an accurate description of the farms in each class and in order to provide basic data for an analysis of the organization of agriculture.

The classification of farms by economic class was made on the basis of three factors; namely, total value of all farm products sold, number of days the farm operator worked off the farm, and the relationship of the income received from nonfarm sources by the operator and members of his family to the value of all farm products sold. Farms operated by institutions, experiment stations, grazing associations, and community projects were classified as abnormal, regardless of any of the three factors.

For the purpose of determining the code for economic class and type of farm, it was necessary to obtain the total value of farm products sold as well as the value of some individual products sold.

The total value of farm products sold was obtained by adding the reported or estimated values for all products sold from the farm. The value of livestock, livestock products except wool and mohair, vegetables, nursery and greenhouse products, and forest

products was obtained by the enumerator from the farm operator for each farm. The enumerator also obtained from the farm operator the quantity sold for corn, sorghums, small grains, hays, and small fruits. The value of sales for these crops was obtained by multiplying the quantity sold by State average prices.

The quantity sold was estimated for all other farm products. The entire quantity produced for wool, mohair, cotton, tobacco, sugar beets for sugar, sugarcane for sugar, broomcorn, hops, and mint for oil was estimated as sold. To obtain the value of each product sold, the quantity sold was multiplied by State average prices.

In making the classification of farms by economic class, farms were grouped into two major groups, namely, commercial farms and other farms. In general, all farms with a value of sales of farm products amounting to \$1,200 or more were classified as commercial. Farms with a value of sales of \$250 to \$1,199 were classified as commercial only if the farm operator worked off the farm less than 100 days or if the income of the farm operator and members of his family received from nonfarm sources was less than the total value of all farm products sold.

Land in farms according to use.—Land in farms was classified according to the use made of it in 1954. The classes of land are mutually exclusive, i. e., each acre of land was included only once even though it may have had more than one use during the year.

The classes referred to in this report are as follows:

Cropland harvested.—This includes land from which crops were harvested; land from which hay (including wild hay) was cut; and land in small fruits, orchards, vineyards, nurseries, and greenhouses. Land from which two or more crops were reported as harvested was to be counted only once.

Cropland used only for pasture.—In the 1954 Census, the enumerator's instructions stated that rotation pasture and all other cropland that was used only for pasture were to be included under this class. No further definition of cropland pastured was given the farm operator or enumerator. Permanent open pasture may, therefore, have been included under this item or under "other pasture," depending on whether the enumerator or farm operator considered it as cropland.

Cropland not harvested and not pastured.—This item includes idle cropland, land in soil-improvement crops only, land on which all crops failed, land seeded to crops for harvest after 1954, and cultivated summer fallow.

In the Western States, this class was subdivided to show separately the acres of cultivated summer fallow. In these States, the acreage not in cultivated summer fallow represents largely crop failure. There are very few counties in the Western States in which there is a large acreage of idle cropland or in which the growing of soil-improvement crops is an important use of the land.

In the States other than the Western States, this general class was subdivided to show separately the acres of idle cropland (not used for crops or for pasture in 1954). In these States, the incidence of crop failure is usually low. It was expected that the acreage figure that excluded idle land would reflect the acreage in soil-improvement crops. However, the 1954 crop year was one of low rainfall in many Eastern and Southern States and, therefore, in these areas the acreage of cropland not harvested and not pastured includes more land on which all crops failed than would usually be the case.

Cultivated summer fallow.—This item includes cropland that was plowed and cultivated but left unseeded for several months to control weeds and conserve moisture. No land from which crops were harvested in 1954 was to be included under this item.

Cropland, total.—This includes cropland harvested, cropland used only for pasture, and cropland not harvested and not pastured.

Land pastured, total.—This includes cropland used only for pasture, woodland pastured, and other pasture (not cropland and not woodland).

Woodland, total.—This includes woodland pastured and woodland not pastured.

Value of land and buildings.—The value to be reported was the approximate amount for which the land and the buildings on it would sell.

Off-farm work and other income.—Many farm operators receive a part of their income from sources other than the sale of farm products from their farms. The 1954 Agriculture Questionnaire included several inquiries relating to work off the farm and non-farm income. These inquiries called for the number of days worked off the farm by the farm operator; whether other members of the operator's family worked off the farm; and whether the farm operator received income from other sources, such as sale of products from land rented out, cash rent, boarders, old age assistance, pensions, veterans' allowances, unemployment compensation, interest, dividends, profits from nonfarm business, and help from other members of the operator's family. Another inquiry asked whether the income of the operator and his family from off-farm work and other sources was greater than the total value of all agricultural products sold from the farm in 1954. Off-farm work was to include work at nonfarm jobs, businesses, or professions, whether performed on the farm premises or elsewhere; also, work on someone else's farm for pay or wages. Exchange work was not to be included.

Specified facilities and equipment.—Inquiries were made in 1954 to determine the presence or absence of selected items on each place such as (1) telephone, (2) piped running water, (3) electricity, (4) television set, (5) home freezer, (6) electric pig brooder, (7) milking machine, and (8) power feed grinder. Such facilities or equipment were to be counted even though temporarily out of order. Piped running water was defined as water piped from a pressure system or by gravity flow from a natural or artificial source. The enumerator's instructions stated that pig brooders were to include those heated by an electric heating element, by an infrared or heat bulb, or by ordinary electric bulbs. They could be homemade.

The number of selected types of other farm equipment was also obtained for a sample of farms. The selected kinds of farm equipment to be reported were (1) grain combines (for harvesting and threshing grains or seeds in one operation); (2) cornpickers; (3) pickup balers (stationary ones not to be reported); (4) field forage harvesters (for field chopping of silage and forage crops); (5) motortrucks; (6) wheel tractors (other than garden); (7) garden tractors; (8) crawler tractors (tracklaying, caterpillar); (9) automobiles; and (10) artificial ponds, reservoirs, and earth tanks.

Wheel tractors were to include homemade tractors but were not to include implements having built-in power units such as self-propelled combines, powered buck rakes, etc. Pickup and truck-trailer combinations were to be reported as motortrucks. School buses were not to be reported, and jeeps and station wagons were to be included as motortrucks or automobiles, depending on whether used for hauling farm products or supplies, or as passenger vehicles.

Farm labor.—The farm-labor inquiries for 1954, called for the number of persons doing farmwork or chores on the place during a specified calendar week. Since starting dates of the 1954 enumeration varied by areas or States, the calendar week to which the farm-labor inquiries related varied also. The calendar week was September 26–October 2 or October 24–30. States with the September 26–October 2 calendar week were: Arizona, California, Colorado, Connecticut, Florida, Idaho, Kansas, Kentucky, Louisiana, Maine, Massachusetts, Michigan, Minnesota, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico,

FARMERS AND FARM PRODUCTION

New York, North Dakota, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Dakota, Tennessee, Texas, Utah, Vermont, Washington, Wisconsin, and Wyoming. States with the October 24-30 calendar week were: Alabama, Arkansas, Delaware, Georgia, Illinois, Indiana, Iowa, Maryland, Mississippi, Missouri, North Carolina, Ohio, South Carolina, Virginia, and West Virginia. Farmwork was to include any work, chores, or planning necessary to the operation of the farm or ranch business. Housework, contract construction work, and labor involved when equipment was hired (custom work) were not to be included.

The farm-labor information was obtained in three parts: (1) Operators working, (2) unpaid members of the operator's family working, and (3) hired persons working. Operators were considered as working if they worked 1 or more hours; unpaid members of the operator's family, if they worked 15 or more hours; and hired persons, if they worked any time during the calendar week specified. Instructions contained no specifications regarding age of the persons working.

Regular and seasonal workers.—Hired persons working on the farm during the specified week were classed as "regular" workers if the period of actual or expected employment was 150 days or more during the year, and as "seasonal" workers if the period of actual or expected employment was less than 150 days. If the period of expected employment was not reported, the period of employment was estimated for the individual farm after taking into account such items as the basis of payment, wage rate, expenditures for labor in 1954, and the type and other characteristics of the farm.

Specified farm expenditures.—The 1954 Census obtained data for selected farm expense items in addition to those for fertilizer and lime. The expenditures were to include the total specified expenditures for the place whether made by landlord, tenant, or both.

Expenditures for machine hire were to include any labor included in the cost of such machine hire. Machine hire refers to custom machine work such as tractor hire, threshing, combining, silo filling, baling, ginning, plowing, and spraying. If part of the farm products was given as pay for machine hire, the value of the products traded for this service was to be included in the amount of expenditures reported. The cost of trucking, freight, and express was not to be included.

Expenditures for hired labor were to include only cash payments. Expenditures for housework, custom work, and contract construction work were not to be included.

Expenditures for feed were to include the expenditures for pasture, salt, condiments, concentrates, and mineral supplements, as well as those for grain, hay, and mill feeds. Expenditures for grinding and mixing feeds were also to be included. Payments made by a tenant to his landlord for feed grown on the land rented by the tenant were not to be included.

Expenditures for gasoline and other petroleum fuel and oil were to include only those used for the farm business. Petroleum products used for the farmer's automobile for pleasure or used exclusively in the farm home for heating, cooking, and lighting were not to be included.

Crops harvested.—The information on crops harvested refers to the acreage and quantity harvested for the 1954 crop year. An exception was made for land in fruit orchards and planted nut trees. In this case, the acreage represents that in both bearing and nonbearing trees and vines as of October and November 1954.

Hay.—The data for hay includes all kinds of hay except soybean, cowpea, sorghum, and peanut hay.

Livestock and poultry.—The data on the number of livestock and poultry represent the number on hand on the day of enumera-

tion (October-November 1954). The data relating to livestock products and the number of livestock sold relate to the sales made during the calendar year 1954.

LABOR RESOURCES

The data for labor resources available represent estimates based largely on Census data and developed for the purpose of making comparisons among farms of various size of operations. The labor resources available are stated in terms of man-equivalents.

To obtain the man-equivalents the total number of farm operators as reported by the 1954 Census were adjusted for estimated man-years of work off the farm and for the number of farm operators 65 years old and over. The farm operator was taken to represent a full man-equivalent of labor unless he was 65 years or older or unless he worked at an off-farm job in 1954.

The man-equivalent estimated for farm operators reporting specified amounts of off-farm work were as follows:

<i>Days worked off the farm in 1954</i>	<i>Estimated man-equivalent</i>
1-99 days.....	0.85
100-199 days.....	.50
200 days and over.....	.15

The man-equivalent for farm operators 65 years of age and older was estimated at 0.5.

Man-equivalents of members of the farm operator's family were based upon Census data obtained in response to the question "How many members of your family did 15 or more hours of farm work on this place the week of September 26-October 2 (or, in some areas, the week of October 24-30) without receiving cash wages?" Each family worker was considered as 0.5 man-equivalent. This estimate provides allowance for the somewhat higher incidence of women, children, and elderly persons in the unpaid family labor force.

In addition, the number of unpaid family workers who were reported as working 15 or more hours in the week of September 26-October 2 was adjusted to take account of seasonal changes in farm employment. Using published and unpublished findings of the U. S. Department of Agriculture and State Agricultural Colleges, and depending largely upon knowledge and experience with the geographic areas and type of farming, each author determined the adjustment factor needed to correct the number of family workers reported for the week of September 26-October 2 to an annual average basis.

Man-equivalents of hired workers are based entirely upon the expenditure for cash wages and the average wage of permanent hired laborers as reported in the 1954 Census of Agriculture.

Value of or investment in livestock.—Numbers of specified livestock and poultry in each subregion were multiplied by a weighted average value per head. The average values were computed from data compiled for each kind of livestock for the 1954 Census of Agriculture. The total value does not include the value of goats. (For a description of the method of obtaining the value of livestock, see Chapter VI of Volume II of the reports for the 1954 Census of Agriculture.)

Value of investment in machinery and equipment.—The data on value of investment in machinery and equipment were developed for the purpose of making broad comparisons among types and economic classes of farms and by subregions. Numbers of specified machines on farms, as reported by the Census, were multiplied by estimated average value per machine. Then the total values obtained were adjusted upward to provide for the inclusion of items of equipment not included in the Census inventory of farm machinery.

The estimates for average value of specified machines and the proportion of total value of all machinery represented by the value of these machines were based largely on published and unpublished data from the "Farm Costs and Returns" surveys conducted currently by the Agricultural Research Service, U. S. Department of Agriculture.¹ Modifications were made as needed in the individual chapters on the basis of State and local studies. The total estimated value of all machinery for all types and economic classes of farms is approximately equal to the value of all machinery as estimated by the U. S. Department of Agriculture.

Value of farm products sold, or gross sales.—Data on the value of the various farm products sold were obtained for 1954 by two methods. First, the values of livestock and livestock products sold, except wool and mohair; vegetables harvested for sale; nursery and greenhouse products; and forest products were obtained by asking each farm operator the value of sales. Second, the values of all other farm products sold were computed. For the most important crops, the quantity sold or to be sold was obtained for each farm. The entire quantity harvested for cotton and cottonseed, tobacco, sugar beets for sugar, hops, mint for oil, and sugarcane for sugar was considered sold. The quantity of minor crops sold was estimated. The value of sales for each crop was computed by multiplying the quantity sold by State average prices. In the case of wool and mohair, the value of sales was computed by multiplying the quantity shorn or clipped by the State average prices.

Gross sales include the value of all kinds of farm products sold. The total does not include rental and benefit, soil conservation, price adjustment, Sugar Act, and similar payments. The total

does include the value of the landlord's share of a crop removed from a farm operated by a share tenant. In most of the tables, detailed data are presented for only the more important sources of gross sales and the total for the individual farm products or sources will not equal the total as the values for the less important sources or farm products have been omitted. (For a detailed statement regarding the reliability and method of obtaining the value of farm products sold, reference should be made to Chapter IX of Volume II of the reports for the 1954 Census of Agriculture.)

Livestock and livestock products sold.—The value of sales for livestock and livestock products includes the value of live animals sold, dairy products sold, poultry and poultry products sold, and the calculated value of wool and mohair. The value of bees, honey, fur animals, goats, and goat milk is not included.

The value of dairy products includes the value of whole milk and cream sold, but does not include the value of butter and cheese, made on the farm, and sold. The value of poultry and products includes the value of chickens, broilers, chicken eggs, turkeys, turkey eggs, ducks, geese, and other miscellaneous poultry and poultry products sold. The value does not include the value of baby chicks sold.

Crops sold.—Vegetables sold includes the value of all vegetables harvested for sale, but does not include the value of Irish potatoes and sweetpotatoes.

The value of all crops sold includes the value of all crops sold except forest products. The value of field crops sold includes the value of sales of all crops sold except vegetables, small fruits and berries, fruits, and nuts.

¹ Farm Costs and Returns, 1955 (with comparisons), Agriculture Information Bulletin No. 158, Agricultural Research Service, U. S. Department of Agriculture, June 1956.

CHAPTER III

TOBACCO AND PEANUT PRODUCERS AND PRODUCTION

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TOBACCO AND PEANUT PRODUCERS AND PRODUCTION

R. E. L. GREENE

INTRODUCTION

Tobacco and peanut farms are highly important in several southern and eastern areas of the United States. Current interest in these types of farming is increased because of their prominence in farm policy discussions. Tabulations available from the 1954 Census of Agriculture now permit the analysis of production conditions prevalent on these farms in the major production areas.

While major attention is given to tobacco and peanut farms some information is given on the location of other types of field-crop farms such as Irish potatoes, sugarcane for sugar, and sugar beets. In general these crops are grown in rather distinct and restricted areas in the United States.

The classification of farms by type was made on the basis of the relation of the value of sales from a particular source or sources to the total value of all farm products sold from the farm. A farm was classified as of a particular type if sales or anticipated sales of a product or a group of products represented 50 percent or more of the total value of products sold. Other field-crop farms included the farms on which 50 percent or more of the total value of products sold was from tobacco, peanuts, Irish potatoes, sweetpotatoes, sugarcane, sugar beets for sugar, and other miscellaneous crops. In terms of the total number of commercial farms in the United States in 1955, these other field-crop farms comprised 7.7 percent of all farms and contained 2.9 percent of all land in farms, and 3.7 percent of all cropland harvested in 1954.

THE OTHER FIELD-CROP FARMS

Distribution.—Other field-crop farms included a number of minor field crops other than tobacco and peanuts. Many of these were grown in fairly restricted localities. (See Figure 1.) If thought of by areas, however, there is, necessarily, some overlapping in areas where two or more of these crops were grown.

Tobacco was the important cash crop on other field-crop farms in North Carolina, South Carolina, Kentucky, Tennessee, Virginia, Maryland, New York, Pennsylvania, Wisconsin, and Connecticut (see Figure 2). Tobacco was the important cash crop on many of the farms in southeastern Georgia, but there were also a number of specialized peanut farms in parts of this section.

Peanuts constituted the important cash crop on other field-crop farms in the northeastern corner of North Carolina, the southeastern corner of Virginia, and the southern parts of Alabama and Georgia (see Figure 3). They were also important on some farms in Oklahoma and Texas but broomcorn and sweetpotatoes were also main crops on some of the farms in about the same locations (see Figure 4). Sweetpotatoes formed the chief cash crop on some of the farms in Louisiana, but sugarcane for sugar was the prevailing cash crop on other crop farms in this State (see Figure 5).

The important cash crop on so-called other-crop farms in Maine, Minnesota, North Dakota, Colorado, and eastern Idaho, was Irish potatoes (see Figure 6). In most of the Western States sugar beets for sugar was the dominant crop (see Figure 7). More than 90 percent of all other field-crop farms were located in the South; on the majority of these farms tobacco was the largest source of income.

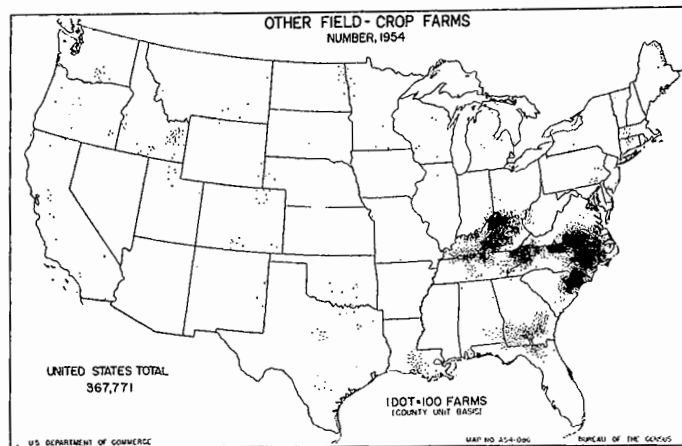


FIGURE 1

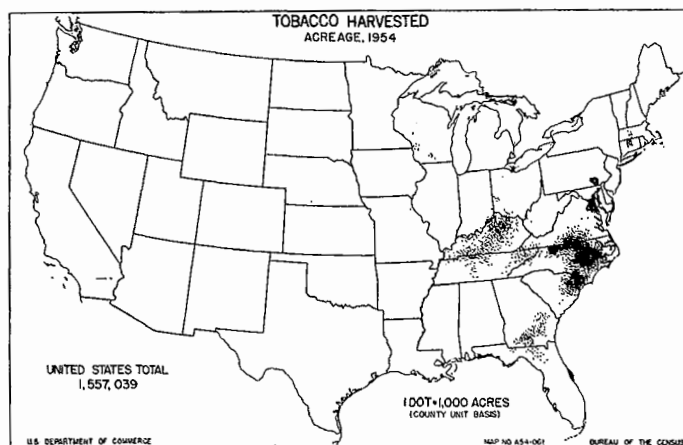


FIGURE 2

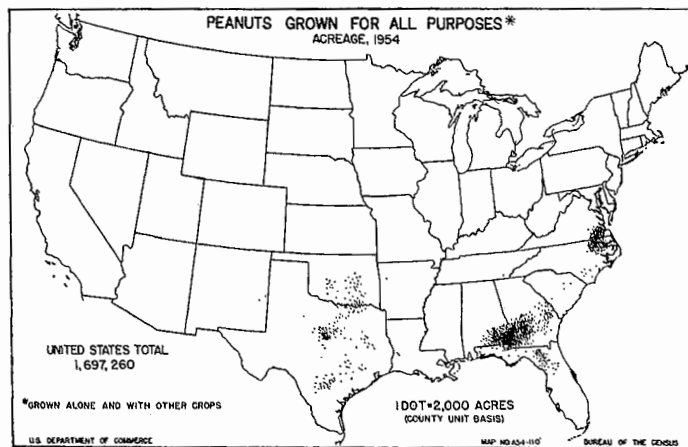


FIGURE 3

FARMERS AND FARM PRODUCTION

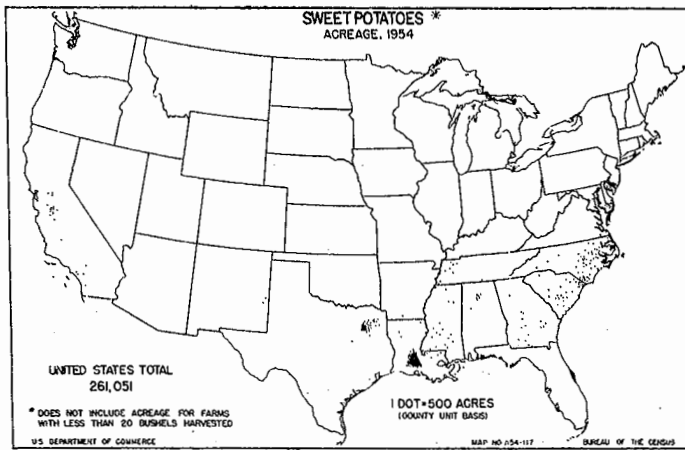


FIGURE 4

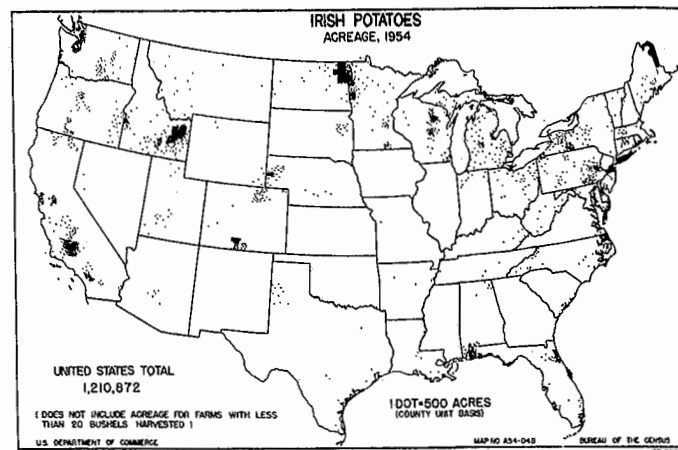


FIGURE 6



FIGURE 5

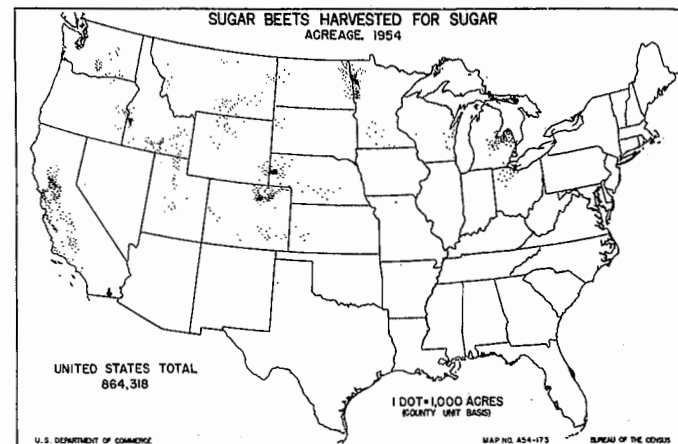


FIGURE 7

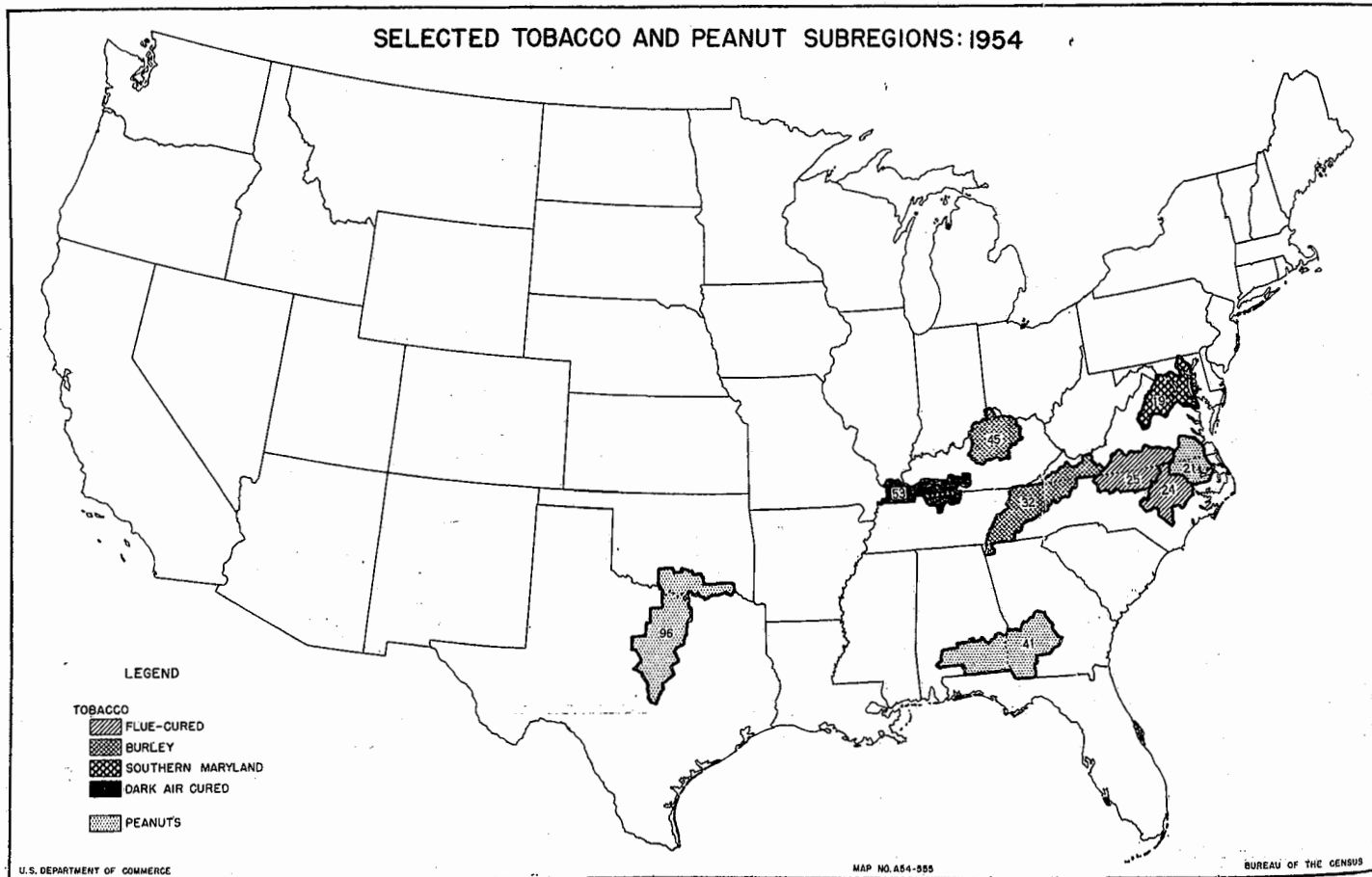


FIGURE 8

ESTIMATING NUMBER OF TOBACCO AND PEANUT FARMS

Data for other field-crop farms do not show the number of farms of each of the specialty type included in the total for the group. One way to obtain data for farms of a given type is to select subregions in which the crop is of major importance. This procedure was followed in this report. Figure 8 shows the subregions selected for studying tobacco and peanut farms. Subregions for tobacco were subgrouped in order to compare tobacco farms by types of tobacco.

The grouping of subregions according to areas where tobacco or peanuts are of major importance makes it possible only to approximate the number of farms in each group. This is true because of the overlapping of production areas. For example, subregion 21 was designated as a peanut area, but tobacco is important in counties in North Carolina that are a part of the North Carolina tobacco area. Subregion 38 was summarized with the flue-cured tobacco subregions but peanuts are a main crop on a number of farms in parts of this area. In many cases the farms will produce both tobacco and peanuts. Some subregions were not included because several crops included in the other field-crop group were grown there. Some tobacco or peanut farms were not included because data for the subregions where there were comparatively few of these farms were not summarized.

In presenting data in this report, the number of farms in the subregions included were assumed to be a rough approximation of the number of specialized tobacco or peanut farms in the United States in 1954. In each case, the number of farms growing tobacco or peanuts is less than the total number of other field-crop farms because of the overlapping of crops included in the other field-crop classification.

When considering the data in this report, it is necessary to keep in mind the Census definition of a farm. If a landlord has croppers or other tenants, the land assigned each cropper or tenant is enumerated as a separate farm even though the landlord may operate the entire holding essentially as one farm with respect to supervision, equipment, rotation practices, purchase of supplies, or sale of products. Croppers are very numerous in both tobacco and peanut areas (see Figure 9). For some items the amount reported for the landlord's part of the farm may have applied to cropper and tenant farms comprising part of the landholding.

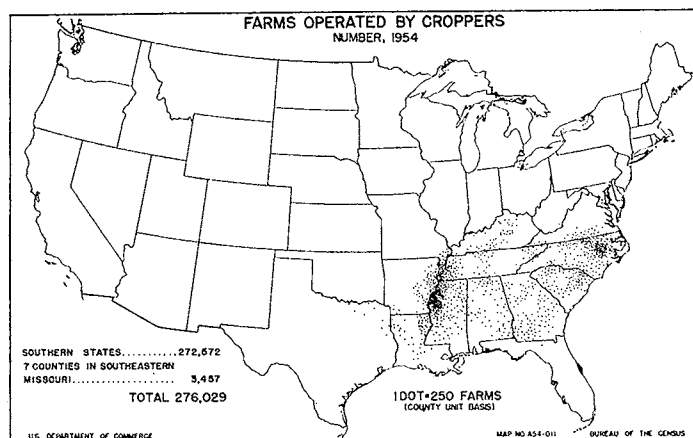


FIGURE 9

TOBACCO FARMS

Tobacco is a native American crop. It was being grown in this country by the Indians when Columbus discovered America. It was introduced to the white race who rapidly spread its growth to many distant lands. Tobacco was a prized export crop between the Colonies and the mother country and became a valuable article of trade between the Colonies and the Indians.

The history of the early struggles in the production of tobacco in this country with recurring periods of surpluses, low prices, and attempted restrictions on production, and the slow evolution of marketing methods, are among the most interesting chapters of the agricultural history of America.

Contrary to popular opinion, the tobacco in common use today is not that which the settlers found growing in the Indian villages in the Tidewater part of Virginia. The tobacco grown by the Indians was coarse and strong; it belonged to the species *Nicotiana rustica* L. believed to have originated in Mexico. The English colonists brought in and adopted the milder more aromatic varieties of *N. tabacum* then grown in tropical countries, which is believed to have originated in Brazil. Seed of both species seems to have been introduced into Europe by early Spanish explorers.¹

The production of tobacco is highly localized, primarily because of the influence of climate and soil on the properties of the leaf. States with the largest acreage are North Carolina, Kentucky, Tennessee, Virginia, South Carolina, and Georgia (see Figure 2). Other States with important sections in tobacco are Maryland, Pennsylvania, Ohio, Connecticut, Wisconsin, and Florida. The percentage of cropland in tobacco, harvested in 1954, is shown in Figure 10.

CLASSES AND TYPES OF AMERICAN-GROWN TOBACCO

Tobacco grown in one area possesses characteristics that distinguishes it from tobacco grown in another area. These characteristics result from the combination of soil and climatic conditions, variety of seed, methods of cultivation and fertilization, and methods of harvesting and curing. In recognition of distinct differences in tobacco which affect demand and uses, tobacco in the several producing areas has been grouped into classes and types as follows:

- I. Cigarette, smoking, and chewing types.
 - A. Class 1, Flue-cured types.
 1. Type 11-a, Old Belt flue-cured.
 2. Type 11-b, Middle Belt flue-cured.
 3. Type 12, Eastern North Carolina flue-cured.
 4. Type 13, South Carolina flue-cured.
 5. Type 14, Georgia flue-cured.
 - B. Class 2, Fire-cured types.
 1. Type 21, Virginia fire-cured.
 2. Type 22, Eastern fire-cured. (Clarksville and Hopkinsville).
 3. Type 23, Western fire-cured. (Paducah and Mayfield).
 - C. Class 3-A, Light air-cured types.
 1. Type 31, Burley.
 2. Type 32, Southern Maryland.
 - D. Class 3-B, Dark air-cured types.
 1. Type 35, One-Sucker.
 2. Type 36, Green River.
 3. Type 37, Virginia sun-cured.

¹ For a more detailed description of classes and types of tobacco and production areas, see United States Department of Agriculture Circular 249, American Tobacco Types, Uses and Markets, by Charles E. Gage, June 1942.

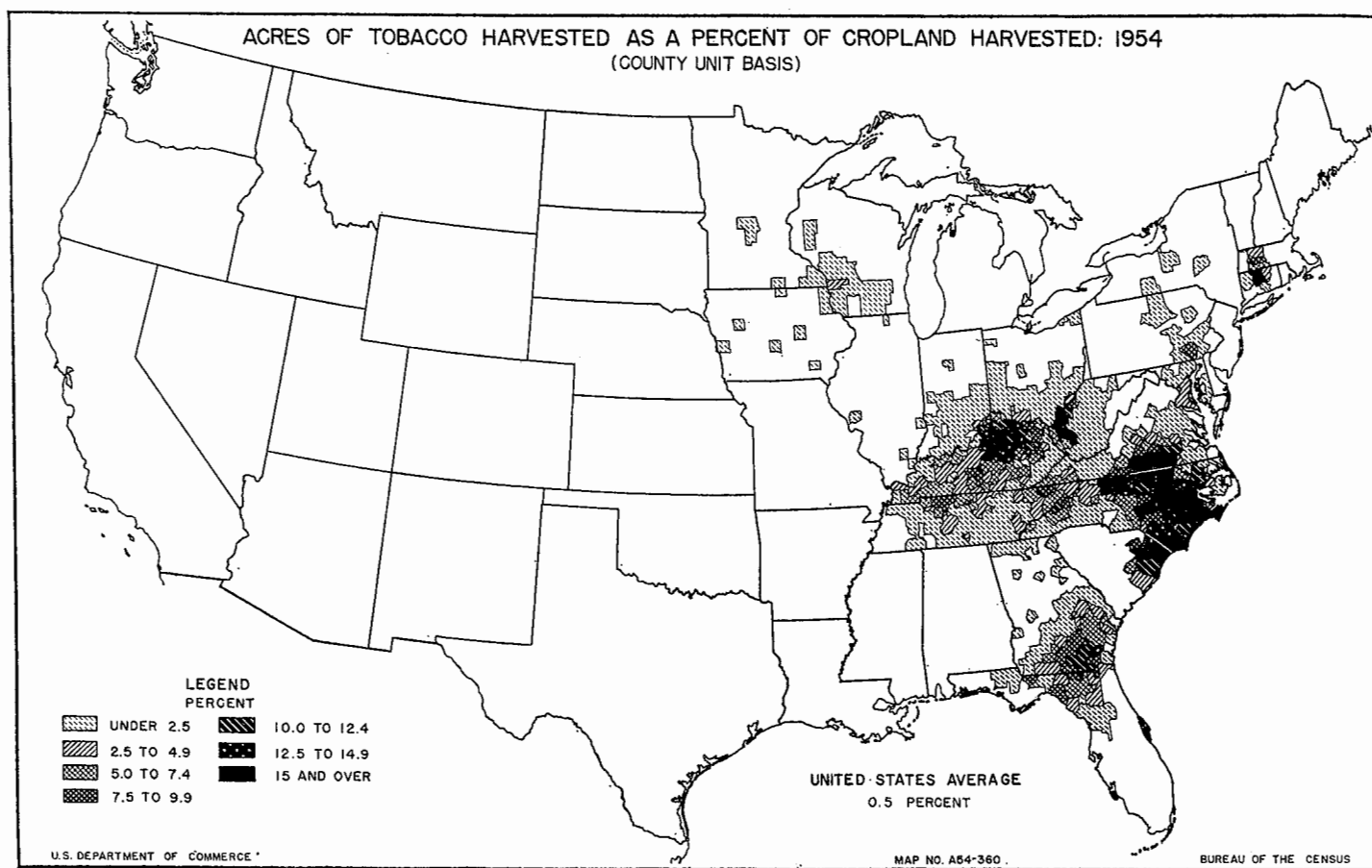


FIGURE 10

II. Cigar types.

A. Class 4, Cigar-filler types.

1. Type 41, Pennsylvania seedleaf.
2. Type 42, Gebhardt.
3. Type 43, Zimmer or Spanish.
4. Type 44, Dutch.

B. Class 5, Cigar-binder types.

1. Type 51, Connecticut Broadleaf.
2. Type 52, Connecticut Havana seed.
3. Type 53, New York and Pennsylvania Havana seed.
4. Type 54, Southern Wisconsin.
5. Type 55, Northern Wisconsin.

C. Class 6, Cigar-wrapper types.

1. Type 61, Connecticut Valley shade grown.
2. Type 62, Georgia and Florida shade grown.

III. Miscellaneous.

A. Class 7, Type 72, Louisiana Perique.

Classes of tobacco differ from each other in notable respects. Types within a class differ in minor respects. For example, the contrast between the large, heavy, gummy, dark-brown leaves of fire-cured tobacco and the thinner brighter colored leaves of flue-cured tobacco are very marked. The flue-cured tobacco, instead of being heavy and gummy, is of light body, is fine textured and oily, but is relatively free from gum—to achieve these characteristics this tobacco is raised on the light, sandy soils of the southeastern seaboard. The same varieties, if raised on heavier soils, such as those of limestone origin, would yield heavier-bodied tobacco that would not make the same response to flue-curing techniques and would not be suited to the uses for which flue-cured tobacco is demanded.

Tobacco grown in certain areas has been selected and handled to produce the qualities of leaf that best meet the requirements of manufacturers. Variations between types, comparing any

given class of tobacco, may consist of differences in color, body, quality in a general sense, or in the response to fermentation and aging, during the storage period. These differences, which are important from a manufacturer's standpoint, come mainly from differences in soil and climate, since within a class the varieties of seed, and cultural and curing methods are, in general, the same.

RELATIVE IMPORTANCE OF TOBACCO IN THE UNITED STATES

Tobacco is an important crop in the agricultural economy of this country. According to estimates of the U. S. Department of Agriculture in 1954, the proportion of the total cropland harvested in tobacco in the United States was small, only 0.5 percent. (See Table 1.) As it is a crop with a high value per acre it accounted for a larger proportion of the total cash income than the acreage would indicate. In 1954, cash income from tobacco was 8.6 percent of the total cash income from all crops and 3.8 percent of the total cash farm income. Significantly, in 6 States tobacco contributed 15 percent or more of the cash farm income. They were Connecticut, 15 percent; Tennessee, 17 percent; Virginia, 18 percent; South Carolina, 23 percent; Kentucky, 45 percent; and North Carolina, 54 percent.

The proportion that acres in tobacco is of cropland harvested in the United States has been about the same each Census period since 1919 (see Table 1). The number of farmers growing tobacco in 1954 was a fifth more than the number in 1934. The proportion that tobacco makes up of total cash income from crops or total cash farm income in the United States has been fairly constant in each of the Census years since 1934.

VARIATION IN ACRES AND PRODUCTION OF TOBACCO PER FARM

Production of tobacco requires a large amount of labor, most of which is hand labor. The quantity of tobacco grown depends partly on the acres a family can harvest. This, together with the

TABLE 1.—NUMBER AND PERCENTAGE OF FARMS REPORTING TOBACCO, PERCENTAGE OF CROPLAND HARVESTED IN TOBACCO, AND PERCENTAGE CASH INCOME FROM TOBACCO IS OF TOTAL CASH INCOME FROM CROPS AND TOTAL CASH FARM INCOME, BY CENSUS PERIODS, UNITED STATES: 1919 TO 1954

Year	Farms reporting tobacco		Percent of cropland harvested in tobacco	Percent cash income from tobacco is of—	
	Number	Percent of all farms		Cash income from crops ¹	Total cash farm income ¹
1954	513,346	10.7	0.5	8.6	3.8
1949	531,022	9.9	.4	7.2	3.2
1944	490,585	8.4	.5	7.6	3.4
1939	498,348	8.2	.6	8.2	3.5
1934	422,166	6.2	.4	7.9	3.7
1929	432,975	6.9	.5	5.4	2.5
1924	390,352	6.2	.4	4.8	2.5
1919	448,572	7.0	.5	6.5	3.4

NA Not available.

¹ Does not include governmental payments. Estimates of the U. S. Department of Agriculture.

allotment program, results in a small acreage and production per farm. In 1954, the majority of farmers who grew flue-cured tobacco reported from 2.5 to 4.9 acres and only 34 percent grew more than 5 acres (see Table 2). Of the farmers growing Burley tobacco, 47 percent reported less than 1 acre and only 17 percent reported more than 2.5 acres. Growers of dark fire-cured tobacco had larger acreages than growers of dark air-cured tobacco. Growers of Southern Maryland tobacco and growers of cigar types tended to have slightly larger acreages than growers of flue-cured tobacco. Pounds of tobacco produced per farm varied about the same way that acreage was distributed (see Table 3). But with the exception of Southern Maryland and cigar types of tobacco, less than 10 percent of the growers in each type produced as much as 10,000 pounds of tobacco per farm.

PRODUCING AREAS*

Production of various types of tobacco is highly localized, for no crop is more susceptible to slight changes in soils and subsoils. The chief determining and limiting factor is soil. There are only a few places where two or more types can be grown interchangeably. There are even very limited transition zones wherein types can be alternated or shifted. The major classes and types of tobacco grown in this country are given on pages 7 and 8. Figure 11 shows the location of tobacco-growing districts in the United States, which are found mainly in the States on the Atlantic seaboard and in Kentucky and Tennessee.

Flue-cured tobacco.—About three-fifths of the production of tobacco in this country is flue-cured. The demand for it both domestic and foreign, arises primarily from the use in cigarette manufacture. The production of flue-cured tobacco has been under some kind of control program since 1933. However, with a guaranteed market and support price, it is probable that more farmers grow the crop than would do so under free production and market conditions. Acreage controls extending over many years have fostered an intensive type of cultivation which has considerably increased the yields per acre. More intensive practices and higher yields have raised the labor inputs per acre.

Flue-cured tobacco is produced in Virginia, North Carolina, South Carolina, Georgia, Florida, and to a small extent in Alabama. The territory is divided into two general districts commonly referred to as Old Belt and New Belt. They correspond roughly to the physiographic provinces known as the Piedmont and the Atlantic Coastal Plain. The New Belt group, types 12 to 14, differs markedly from the Old Belt tobacco, type 11, the latter being generally heavier in body and darker in color. Differences between types within the New Belt group may be traced primarily to variations in soil.

TABLE 2.—NUMBER OF FARMS REPORTING TOBACCO HARVESTED AND PROPORTION OF FARMS HARVESTING VARIOUS ACREAGES, BY TYPES OF TOBACCO AND STATES, UNITED STATES: 1954

State	Number of farms reporting tobacco harvested	Percent of farms harvesting—						
		Under 0.5 acres	0.5 to 0.9 acres	1.0 to 2.4 acres	2.5 to 4.9 acres	5.0 to 9.9 acres	10.0 to 19.9 acres	20.0 acres and over
Flue-cured tobacco								
All farms	226,020	0.9	2.1	20.6	42.0	30.0	4.1	0.3
North Carolina	134,695	.5	1.3	15.4	40.9	36.2	5.4	.3
South Carolina	34,372	2.1	4.8	28.2	44.3	19.1	1.4	.1
Georgia	27,972	.7	2.0	31.7	45.7	18.0	1.7	.2
Virginia	23,045	.9	2.1	22.4	42.4	28.7	3.3	.2
Florida	5,733	.8	3.7	35.6	37.0	16.9	4.4	1.6
Alabama	203	89.2	7.4	2.9	.5			
Burley tobacco								
All farms	238,458	10.9	36.6	34.9	13.1	3.9	0.5	0.1
Kentucky	115,620	5.8	27.3	38.9	20.2	6.9	.8	.1
Tennessee	70,082	15.0	48.3	30.9	5.1	.6	.1	(Z)
Virginia ¹	19,051	12.1	38.9	38.4	9.0	1.5	.1	
North Carolina	13,913	25.8	44.7	26.6	2.4	.4	.1	(Z)
Ohio ²	8,478	8.3	37.2	31.0	17.1	5.5	.8	.1
Indiana	6,902	9.5	45.1	33.3	9.8	2.1	.2	(Z)
West Virginia	3,407	23.1	53.9	21.2	1.8			
Kansas and Missouri	1,005	73.9	21.2	4.8	.1			
Southern Maryland tobacco								
Maryland	5,601	0.3	1.1	11.8	17.7	33.3	27.8	8.0
Dark fire-cured tobacco								
All farms	13,865	3.7	7.1	40.1	35.8	12.3	1.0	(Z)
Kentucky	6,682	4.8	7.0	43.5	34.5	9.5	.6	.1
Tennessee	7,183	2.6	7.2	37.0	37.0	14.8	1.4	(Z)
Dark air-cured tobacco								
All farms	16,717	24.8	30.6	35.6	8.0	1.0	(Z)	
Kentucky	13,151	21.3	30.7	38.0	9.0	1.0	(Z)	
Tennessee	3,566	38.0	30.1	26.4	4.6	.9		
Cigar-filler tobacco								
Pennsylvania ³	4,886	0.4	0.0	16.3	26.7	40.4	14.6	0.7
Cigar-binder tobacco								
All farms	5,029	1.7	4.6	32.1	38.2	16.4	4.7	2.3
Connecticut	660	.8		9.1	22.7	23.5	26.5	17.4
Iowa, Minnesota, and Wisconsin	4,369	1.8	5.3	35.6	40.5	15.3	1.5	
Cigar-wrapper tobacco								
All farms	243	0.4		20.6	28.8	21.0	12.3	16.0
Connecticut	79			6.3	31.6	19.0	12.7	30.4
Massachusetts and Vermont	164	.6		27.4	27.4	22.0	12.2	10.4

Z Less than 0.05 percent.

¹ Also includes dark air-cured tobacco grown in Virginia.

² Also includes cigar-filler tobacco grown in Ohio.

³ Also includes cigar-binder tobacco grown in Pennsylvania.

Old Belt tobacco, type 11, is grown on the loam and sandy loam soils of the Piedmont derived from underlying granite, gneiss, slate, etc., and underlain usually with heavy clay subsoils. This area embraces the Piedmont country of southern Virginia and northern North Carolina. Its terrain varies from undulating to hilly with mountainous portions on the west. About four-fifths of the land is in farms. The average size of the commercial tobacco farm is about 78 acres, of which 4 to 5 acres will be in tobacco each year. Production of the crop is rather equally divided at present between tenant- and owner-operated farms. Tobacco is the main enterprise on most farms, but livestock, especially dairying, is definitely increasing. This area is also the center of the cigarette manufacturing industry. Winston-Salem is the leading

*The discussion in this section is based partly on a preliminary manuscript being prepared on the "System of Economic Areas" by Donald J. Bogue and C. L. Beale.

FARMERS AND FARM PRODUCTION

TABLE 3.—NUMBER OF FARMS REPORTING TOBACCO HARVESTED AND PROPORTION OF FARMS HARVESTING VARIOUS NUMBER OF POUNDS, BY TYPES OF TOBACCO AND STATES, UNITED STATES: 1954

State	Number of farms reporting tobacco harvested	Percent of farms harvesting—							
		Under 500 pounds	500 to 999 pounds	1,000 to 1,499 pounds	1,500 to 1,999 pounds	2,000 to 2,999 pounds	3,000 to 4,999 pounds	5,000 to 9,999 pounds	10,000 pounds or more
Flue-cured tobacco									
All farms.....	226,020	1.6	4.1	5.7	6.0	13.4	27.9	32.3	9.0
North Carolina.....	134,695	.7	2.5	4.0	4.5	10.7	27.4	38.3	11.9
South Carolina.....	34,372	4.4	8.4	8.8	8.3	17.0	28.8	20.7	3.6
Georgia.....	27,972	2.5	6.8	9.8	9.3	20.0	27.4	20.3	3.9
Virginia.....	23,045	1.1	3.6	5.5	6.9	14.3	30.5	31.4	6.7
Florida.....	5,733	1.2	5.4	8.5	9.8	18.5	25.5	21.8	9.3
Alabama.....	203	7.4	13.8	12.3	13.8	25.6	18.2	8.4	.5
Burley tobacco									
All farms.....	238,458	8.0	17.2	20.0	14.7	14.5	14.5	8.8	2.3
Kentucky.....	115,620	3.9	11.6	16.7	13.8	15.3	19.7	14.8	4.2
Tennessee.....	70,082	13.5	25.2	23.9	14.8	12.3	8.3	1.8	.2
Virginia ¹	19,051	9.3	17.3	20.6	18.9	18.1	12.5	3.0	.3
North Carolina.....	13,913	13.1	21.4	22.7	17.0	14.9	8.8	1.9	.2
Ohio ²	8,478	5.5	14.6	21.1	13.6	14.0	15.8	12.0	3.4
Indiana.....	6,902	7.2	18.9	24.9	15.8	14.7	12.3	5.4	.8
West Virginia.....	3,407	17.0	28.6	27.8	12.2	10.1	3.9	.4	---
Kansas and Missouri.....	1,005	5.5	11.4	14.6	8.4	10.9	18.8	21.0	9.4
Southern Maryland tobacco									
Maryland.....	5,601	0.9	4.5	3.7	5.3	10.5	18.5	33.6	23.0

State	Number of farms reporting tobacco harvested	Percent of farms harvesting—							
		Under 500 pounds	500 to 999 pounds	1,000 to 1,499 pounds	1,500 to 1,999 pounds	2,000 to 2,999 pounds	3,000 to 4,999 pounds	5,000 to 9,999 pounds	10,000 pounds or more
Dark fire-cured tobacco									
All farms.....	13,865	3.4	7.3	10.4	10.8	19.3	26.6	18.3	3.0
Kentucky.....	6,682	4.6	7.5	11.4	11.8	21.9	26.1	14.3	2.4
Tennessee.....	7,183	2.2	7.1	9.4	9.8	10.9	27.1	22.1	5.4
Dark air-cured tobacco									
All farms.....	16,717	19.3	24.2	20.2	12.3	11.8	8.9	3.0	0.3
Kentucky.....	13,151	17.1	23.3	20.6	13.1	12.5	9.6	3.4	.4
Tennessee.....	3,566	27.3	27.3	18.4	9.3	9.3	6.3	1.8	.3
Cigar-filler tobacco									
Pennsylvania ³	4,886	0.6	1.2	3.0	3.8	6.5	19.4	33.0	32.5
Cigar-binder tobacco									
All farms.....	5,029	1.2	2.6	6.0	8.0	13.2	28.0	26.8	14.2
Iowa, Minnesota, and Wisconsin.....	4,369	1.3	2.9	7.0	8.9	15.1	30.1	27.2	7.6
Connecticut.....	660	.8	---	---	2.3	.8	14.4	24.2	57.5
Cigar-wrapper tobacco									
All farms.....	243	0.4	---	---	2.0	4.1	26.8	28.8	37.9
Connecticut.....	79	---	---	---	---	---	19.0	25.3	55.7
Massachusetts and Vermont.....	164	.6	---	---	3.1	6.1	30.5	30.5	29.2

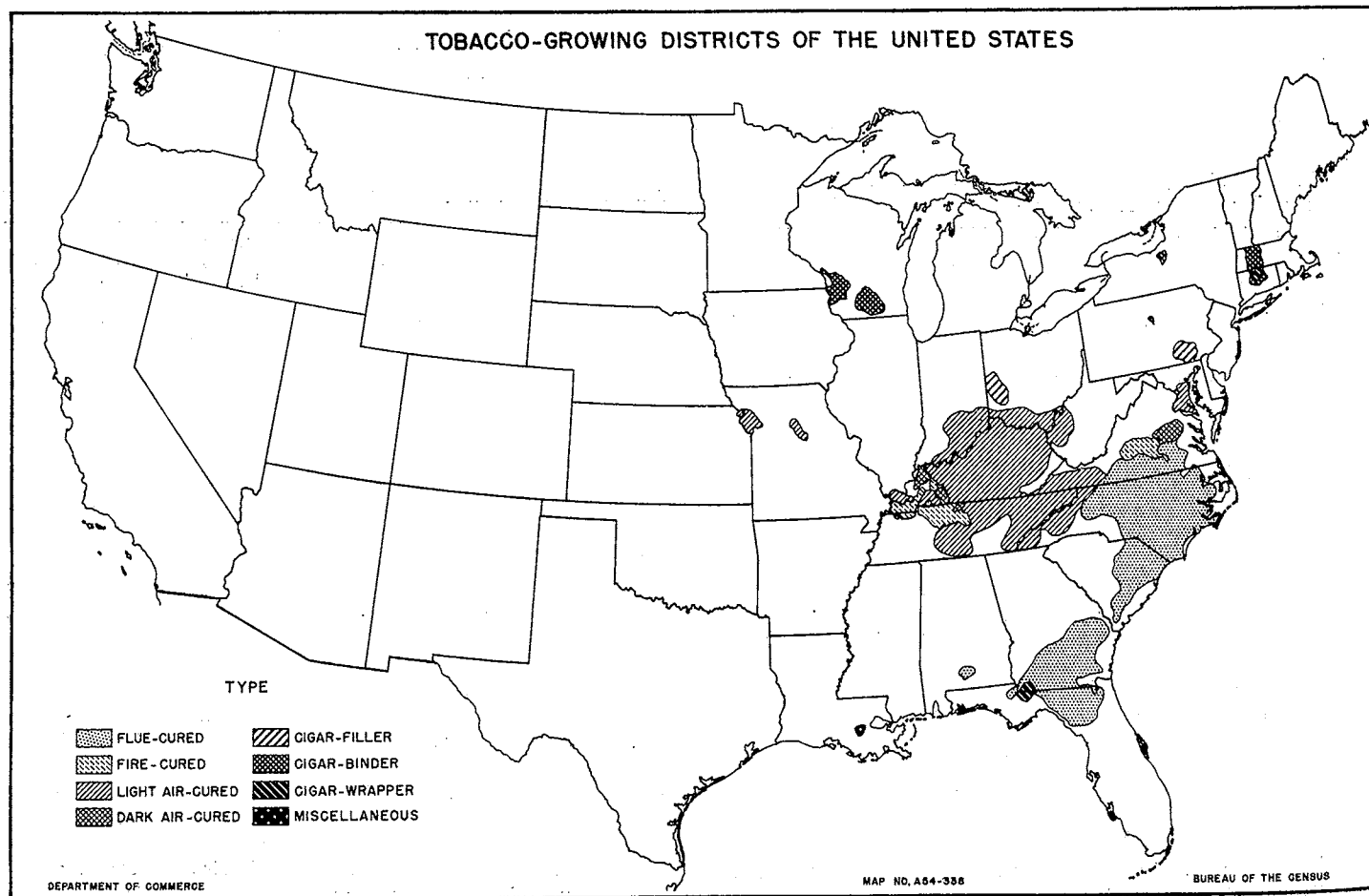
¹ Also includes dark air-cured tobacco grown in Virginia.² Also includes cigar-filler tobacco grown in Ohio.³ Also includes cigar-binder tobacco grown in Pennsylvania.

FIGURE 11

industrial city of North Carolina and the largest center for tobacco products in the Nation. The area also has extensive textile and furniture interests. Greensboro has large textile mills and is the principal distribution center in this area. Other major cities are Durham, cigarette manufacture; High Point, furniture and hosiery; and Danville and Burlington, textiles. The Virginia part of the subregion is more rural than the part in North Carolina.

Types 12, 13, and 14, comprising the New Belt group, are grown on the more sandy, gravelly soils of marine origin in the Coastal Plain. Type 12, Eastern Carolina tobacco, is produced in a part of North Carolina lying east of the fall line belonging to the Coastal Plain. The most intensive area of production is in the area that makes up subregion 24. It constitutes an intensive agricultural section and the density of farm population is greater in this subregion than in any other part of the United States of comparable size. This is true, whether considered per square mile of farmland or of total land area. Most of the farms have less than 50 acres of cropland. Tenant farmers outnumber owners. Although most farmers specialize in tobacco, cotton is grown on many of the farms. Corn is the leading crop from the standpoint of acreage but only minor quantities are sold. Livestock products are a relatively small element in the farm cash economy. Most of the farmers do not engage in off-farm work, and those who do, work only for relatively short periods.

Type 12 tobacco is also important in subregion 22, which has a wider variety of soils than subregion 24. Soil types range from white sands to black loams. The well-drained, light sandy loams are best for tobacco, cotton, peanuts, sweetpotatoes, and early truck crops. The dark, heavy, imperfectly drained loams are used more for corn, soybeans, Irish potatoes, and late truck crops. In general, the northern counties derive more income from soybeans and Irish potatoes, while tobacco is much more important in the southern counties. In contrast to subregion 24, the majority of the farmers own their farms and the percentage of Negro farmers is much lower.

Type 13, South Carolina tobacco, is grown in the northern part of South Carolina and a small adjoining district of southern North Carolina. The agriculture here has made a partial transition from cotton to tobacco so that tobacco is now the leading cash crop. The agricultural land is interspersed with large acreages of swamp or other poorly drained land. In the best parts the density of farm population per square mile of farmland reaches a level of from 60 to 70 persons, comparable with that in subregion 24. Tenant farmers outnumber owners among commercial operators by a 3 to 2 margin. Corn is the leading crop from the standpoint only of acreage. The livestock industry is not highly developed and there is a deficit in the production of dairy products. With the large number of work animals, there is also a shortage of feed grains, despite the large acreage of corn.

Type 14 tobacco is produced mostly in the southern part of Georgia, although a few million pounds are produced in northern Florida and a small quantity in Alabama. The local traditional cotton economy of the early part of this century was very hard hit by the boll weevil. The majority of the cotton was of the Sea Island variety, which proved particularly susceptible to the weevil and was wiped out within a few years. Farmers adjusted to the decrease in cotton production by introducing flue-cured tobacco and by expanding the production of peanuts, livestock, and watermelons. Cotton, still grown on some farms, provides less than 10 percent of the total value of farm products sold.

The Georgia-Florida flue-cured tobacco belt is the youngest in the country. It had about 11,000 acres of tobacco in 1919, and more than 125,000 acres in 1954. Tobacco is the chief money crop. Peanuts, depended upon considerably in parts of the belt, are raised both for sale as nuts and for use in feeding livestock, especially hogs. Naval stores, gum, and truck crops, particularly watermelons, are other major sources of farm income. This belt, which corresponds mostly to subregion 38, is one of the most di-

versified agricultural sections in the South, but the average level of farm income cannot be considered high. Many farms in the Georgia part of the belt are small. The farmers are noticeably younger than in most other parts of Georgia and Florida. Much of the agricultural development is of fairly recent origin. In a reasonably typical Georgia county, it has been estimated that one-third of the land well-suited for farming has not yet been cultivated.

Burley tobacco.—Burley is classed as a light air-cured type. It is the second most important type of tobacco grown in the United States. Earlier, the great requirement for Burley tobacco was for the manufacture of chewing and smoking tobacco. With the increase in cigarette production, larger and larger quantities have been used for this purpose. At present, more than 85 percent of the domestic use of Burley is in the manufacture of cigarettes.

The outstanding States for the production of Burley are Kentucky, Tennessee, Virginia, and North Carolina. But some is grown in Ohio, Indiana, West Virginia, Kansas, and Missouri. The most intensive districts of Burley tobacco production are subregion 44, the Kentucky Bluegrass subregion; subregion 45, the eastern and western Highland Rim subregion of Kentucky and Tennessee; and subregion 32, the Southern Appalachian Ridge subregion.

The slopes of the Kentucky Bluegrass subregion are less steep than the more hilly areas to the southeast. The subregion contains excellent pastureland, so livestock farming is an important part of the economy. But more than three-fifths of the farms are cash-crop farms. Livestock is also an important enterprise on many of the farms that grow tobacco. The level of living is high in comparison with the other Burley tobacco areas.

The eastern and western Highland Rim subregion borders the Nashville Basin on the east and west. The land is steep and eroded. Many of the farms are self-sufficient. This is the most thoroughly rural subregion in the United States, with more than 90 percent of the people living in the open country or in villages of less than 2,500 inhabitants. However, a little less than half of the working force is engaged primarily in farming. About one-fifth is in manufacturing and construction, the remainder in trades and services. About 92 percent of the population is white. Tobacco is produced mostly in the northern two-thirds of the subregion. The production is from relatively small plots and a minimum of power machinery is used. The mean size of tobacco farms is about 75 acres with an average of about 1.6 acres in tobacco. Most of the tobacco farms sell some livestock. In addition, most of the farmers supplement their income with the sale of milk, eggs, and chickens.

The Southern Appalachian Ridge and Valley subregion consists of the central part of the Appalachian Great Valley and the Ridge and Valley area. The chief cities are Chattanooga and Knoxville. There are several smaller industrial cities. The industrial development of the subregion has been greatly stimulated through the establishment of the Tennessee Valley Authority. The manufacture of textiles, machinery, chemicals, aluminum, and paper are among the important industries.

Despite the prevalence of adverse topography, about two-thirds of the land is in farms. A little more than half the farms are classified as residential or part-time. Farms average about 70 acres. The amount of land in farms has been decreasing because of the abandonment of hilly land and the removal of farmland for use as dams or reservoirs. About 90 percent of the commercial farms are tobacco, dairy, livestock, or general livestock farms. The acreage of tobacco per farm is small so most tobacco farmers supplement their income with the sale of livestock or livestock products.

Maryland tobacco.—Maryland tobacco is classed with Burley as light air-cured and some strains resemble the stand-up varieties of that type in appearance and habit of growth. However, much Maryland tobacco is known as broadleaf; the leaves are broad, and

they droop instead of standing erect. Like Burley, Maryland tobacco is almost free of gum. The major use of this type is in cigarette blends to improve burning quality.

Maryland tobacco is produced in five counties in Southern Maryland which lie in a peninsula between the Potomac River and Chesapeake Bay. It is all coastal plain, but of a mature, dissected stage, having many more slopes and low hills than are typical of the Atlantic Coastal Plains as a whole.

For more than 300 years the culture and economy of these counties has been based on tobacco. The crop has been cultivated here longer than in any other part of the United States except the Connecticut River Valley. Leaching and three centuries of row-crop cultivation have made the soils of Southern Maryland acid, eroded, and severely deficient in organic matter. This causes serious problems in the maintenance of crop quality and yields. Cattle and hogs are the only important source of farm income other than tobacco. Although this area is adjacent to Washington, D. C., it is completely rural, the largest settlement has only 1,000 people. It is becoming a rural residential district for people who work in the metropolitan area and a resort district of the summer-cottage type as it has a long frontage of water and is in easy driving distance of both Baltimore and Washington. Some outside work within the counties is being furnished by the Naval Powder Plant at Indian Head and the large Naval Air Base at Patuxent River.

Dark-fired and air-cured types.—For the purpose of this report all types of dark tobacco have been grouped together. Tobacco that is cured in heat and smoke of open fires is called fire-cured or dark-fired. Its principal domestic use is in the manufacture of snuff. Some is used in manufacturing tobacco byproducts such as nicotine sulphate and tobacco extracts. Small quantities are used in making Tosconi-type cigars, and chewing and smoking tobacco.

The dark air-cured tobaccos are One-sucker, Green River, and Virginia sun-cured. They contain no cigarette grades, and are used in manufacturing chewing tobacco and to a smaller extent in smoking tobacco and snuff. One-sucker tobacco and some of the dark-fired types 22 and 23 are used by the "rehandling trade" for processing and exporting to the west coast of Africa.

Dark types of tobacco are grown in Virginia along the upper James and lower Appomattox Rivers and in Kentucky and Tennessee. In the latter States production is found east of the Tennessee River around Hopkinsville, Ky., and Clarksville and Springfield, Tenn.; west of the Tennessee River from Paducah, Ky., southward to Henry and Weakley Counties, Tenn.; and in several counties lying near the Ohio River to the south and west of Henderson, Ky.

The dark tobacco district in Virginia is in a zone of transition. The economy is one of important but highly localized manufacturing, lumbering, and small-scale farming. Richmond, the largest city, is a manufacturing center. Other centers of industry are Petersburg and Lynchburg. Settlement outside the areas of these cities is rather sparse. Many of the counties have only 20 to 25 persons per square mile. The agriculture is rather diversified, and is conducted mostly on a small-scale; less than half the farms are considered commercial.

Tobacco has long been the main cash crop but production has declined with the decrease in demand for dark tobacco. The largest crops are corn and hay, and livestock products form the bulk of farm sales. Dairying, poultry, and beef cattle are of almost equal importance. Farms primarily devoted to the sale of livestock products are likely to be more prosperous than those that specialize in tobacco production. The soils are not inherently highly productive, but respond well to good management. Through the years many farms have been abandoned. Nevertheless, this country appears to have considerable in the way of agriculture potentials. Differences in present productivity of farms appear to be due more to proper management and avail-

ability of capital than to natural resources.

That part of Kentucky and Tennessee that produces fire-cured and dark air-cured tobacco is located mainly in the Pennyroyal and Jackson Purchase subregion. It has been known for generations as the Black Patch. It consists of two distinctively different types of land. The Jackson Purchase area, which lies west of the Tennessee River, is below the fall line and consists of fall-line hills and coastal plains. The Pennyroyal area is above the fall line and is a somewhat broken and hilly country. Here, as in the Virginia area, tobacco has lost much ground due to the decrease in demand for dark tobacco, but the crop still dominates the agriculture. Many of the farms that grow tobacco also receive a part of their income from livestock and livestock products.

Cigar-tobacco types.—Cigar tobaccos are classified as cigar-filler types, cigar-binder types, and cigar-wrapper types. The most important filler type of American grown tobacco is Pennsylvania broadleaf, type 41, grown in the Pennsylvania counties of Lancaster, York, Chester, Lebanon, Berks, and Dauphin. Other types of cigar-filler tobacco are grown in the Miami Valley in southwestern Ohio, mostly in Darke, Preble, Butler, Miami, Montgomery, and Warren Counties.

The tobacco in Pennsylvania is grown in subregion 16. This county is semimountainous for it lies on the eastern edge of the Appalachian Mountains. Manufacturing is the principal source of livelihood with apparel textile-mill products, food products, primary metals, and machinery, the leading kinds. Agriculture is the second largest source of employment. About two-thirds of the land is in farms and more than half of the farmland is in crops. Tobacco is grown as a special crop in the Lancaster part. For the subregion as a whole, the agriculture is of a general and diversified type. Dairying is the principal type of farming, but it is supplemented with income from poultry, livestock, and cash crops. Fruit is the leading cash crop, with vegetables a minor supplement.

Cigar-binder types are grown in the valley of the Connecticut River from near the Massachusetts State line to Glastonbury, Conn. Scattering acreages are found in northern Pennsylvania and southern and central New York, and in Wisconsin, Georgia, and Florida. Wrapper types of cigar tobacco are grown in the Connecticut Valley and in Georgia and Florida.

The Connecticut Valley is the most important area for both binder and wrapper types. The economy of the area is centered around manufacturing which provided 43 percent of the total State employment in 1950. The industry is diversified with specialties in textiles, machinery, pulp and paper, and rubber products. Tobacco provided about 20 percent of the total farm income in 1954. Dairy and poultry production are the other main types of agriculture.

TRENDS IN ACRES, YIELD, AND PRODUCTION

The form in which tobacco is used—smoking, chewing, and snuff—is the same today as it was when the white man discovered this country. Nevertheless, over the years there have been marked shifts as between kinds and forms of use. The general direction has been from "strong" tobacco to "mild," from cigars to cigarettes, from chewing to pipe smoking. Changes in mode of consumption and preference of consumers for the lighter rather than the heavier-bodied tobaccos have had marked effects on trends in production in the various tobacco areas. A knowledge of these trends contributes to an understanding of some of the agricultural problems of the areas and growers.

Acreage.—The total acres in tobacco in the United States has not shown much change from the acreage reached during World War I. During the 1915-19 period, the average acreage was 1,639,300 compared with 1,690,140 acres during 1950-54. There have been pronounced shifts in acres in certain types of tobacco.

ACREAGE, YIELD PER ACRE, AND PRODUCTION OF TOBACCO, BY TYPES, UNITED STATES, 1920-1955

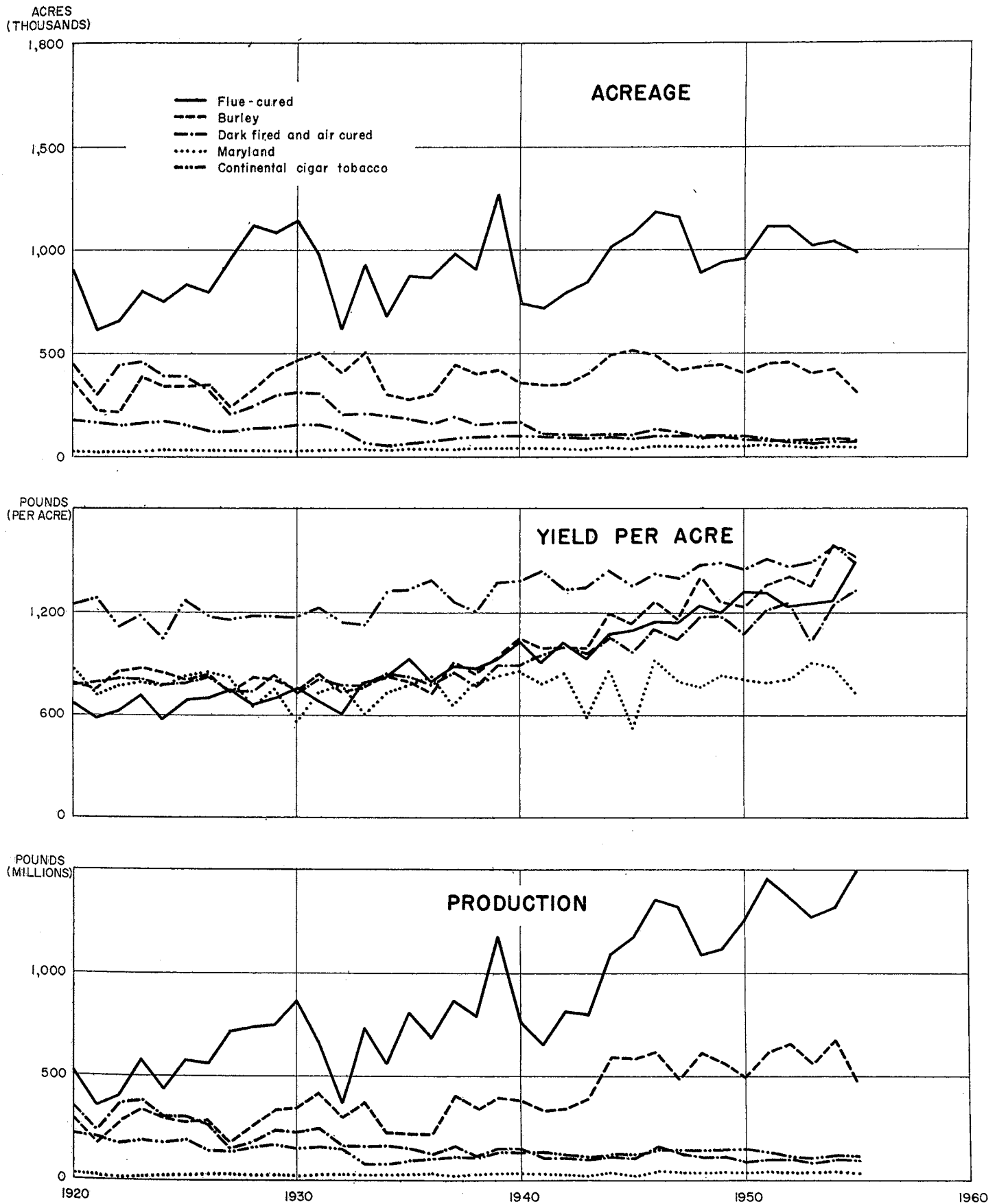


FIGURE 12

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Acres in flue-cured and Burley tobaccos have increased only moderately since 1920 (see Figure 12). Acres in Maryland tobacco, although small, were about two-thirds greater in 1954 than in 1920. The big shifts have been in dark-fired and air-cured types. Comparing 1920-24 with 1950-54, the average acres in dark-fired and air-cured types declined from 412,000 acres to 77,000 acres, or 81 percent. During this same period acres in cigar types decreased from 167,000 to 81,000 acres.

Of the total acres in tobacco in the 1920-24 period, 44 percent was in flue-cured, 20 percent in Burley, 2 percent in Southern Maryland, 24 percent in dark-fired and air-cured, and 10 percent in cigar types. Total acres in tobacco were almost the same in the 1950-54 period as in the 1920-24 period, but in the latter, as a result of shifts in types, 62 percent was in flue-cured tobacco, 26 percent in Burley, 3 percent in Southern Maryland, 4 percent in dark-fired and air-cured types, and 5 percent in cigar types.

Yield.—Since the passage of the Agricultural Adjustment Act of 1933, major control programs have affected the production and marketing of most types of tobacco. Advances in technology, coupled with more intensive practices of farmers who wanted to grow more pounds on the "allotted" number of acres, have resulted in significant increases in yields per acre for most types of tobacco.

The average yield of all tobacco increased from 819 pounds in the 1910-14 period to 1,292 pounds in the 1950-54 period, or 58 percent. Most of the increase in yield has come since control programs were adopted, with the largest increase in pounds during the 1945-49 period. Yield per acre of flue-cured and Burley tobaccos almost doubled from 1920 to 1954 (see Figure 12). Unlike most types, yield per acre in Southern Maryland tobacco increased only slightly during the last 35 years: 786 pounds in the 1920-24 period and 836 pounds in the 1950-54 period. Yield per acre of dark-fired and air-cured types increased about 58 percent from 1920 to 1954. Yield per acre of the cigar type increased from an average of 1,176 pounds in the 1920-24 period to 1,498 pounds in the 1950-54 period.

Production.—Although there has not been a large change in acres of tobacco, higher yields per acre have brought a noteworthy increase in production. Average production of all tobacco in 1950-54 was 2,184 million pounds compared with 1,046 million pounds in 1910-14. Between 1920 and 1954, production of both flue-cured and Burley more than doubled. Production of Maryland tobacco increased the same as the increase in acres, or 62 percent. Production of dark-fired and air-cured types in 1954 was only one-fourth of the production in 1920. Production of cigar types declined from 224 million pounds in 1920 to 75 million pounds in 1934. Production increased again during the latter part of the 1930's and during the war years but was fairly constant from 1946 to 1950. It has declined again since that time—in 1954 it was 100 million pounds less than in 1920.

Since yield per acre has changed more for some types than for others, the change in the proportion that various types makes up of total production has been different from that of acreages. Of the total pounds of tobacco grown in the United States during the 1920-24 period, 37 percent was flue-cured, 21 percent Burley, 2 percent Maryland, 25 percent dark-fired and air-cured, and 15 percent cigar types. In the 1950-54 period, of the total pounds, 61 percent was flue-cured, 27 percent Burley, 2 percent Maryland, 4 percent dark-fired and air-cured, and 6 percent cigar types.

DISPOSITION OF SUPPLIES

From 1950 to 1954, of the total disappearance of tobacco each year, about three-fourths was in domestic uses and one-fourth was exported. The use for domestic purposes depends largely on per capita consumption, for only a very small proportion of the crop is used for other purposes.

Trends in per capita consumption.—The big increase in domestic use of tobacco from 1940 to 1953 was due to an increase in per capita consumption of tobacco products and to an increase in the number of people of smoking age. With the exception of the depression years, consumption per person 15 years and over in the United States was fairly constant from 1920 to 1940, varying from 8.75 to 9 pounds (see Figure 13). Consumption per person (including overseas armed forces) increased about 40 percent during the war years and reached a peak of 12.46 pounds in 1945. Consumption declined slightly after 1945 and was approximately 12 pounds per person of 15 years and over, from 1946 to 1950. Consumption was at an all time high in 1952 and 1953. It declined slightly in 1954 and increased slightly in 1955 but still was 5.8 percent below the peak reached in 1952.

TOBACCO PRODUCTS: CONSUMPTION PER CAPITA, 15 YEARS OLD AND OVER, IN THE UNITED STATES AND BY OVERSEAS FORCES: 1920-1955

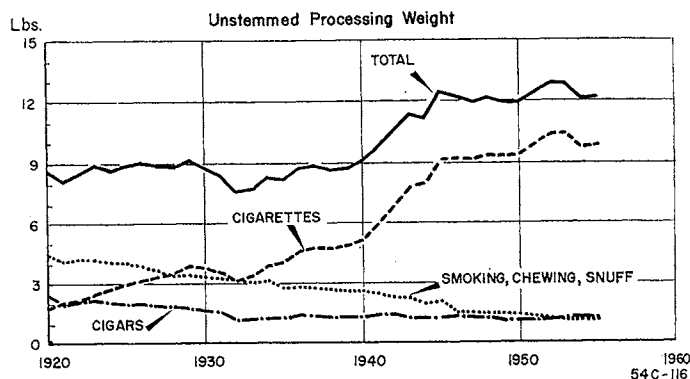


FIGURE 13

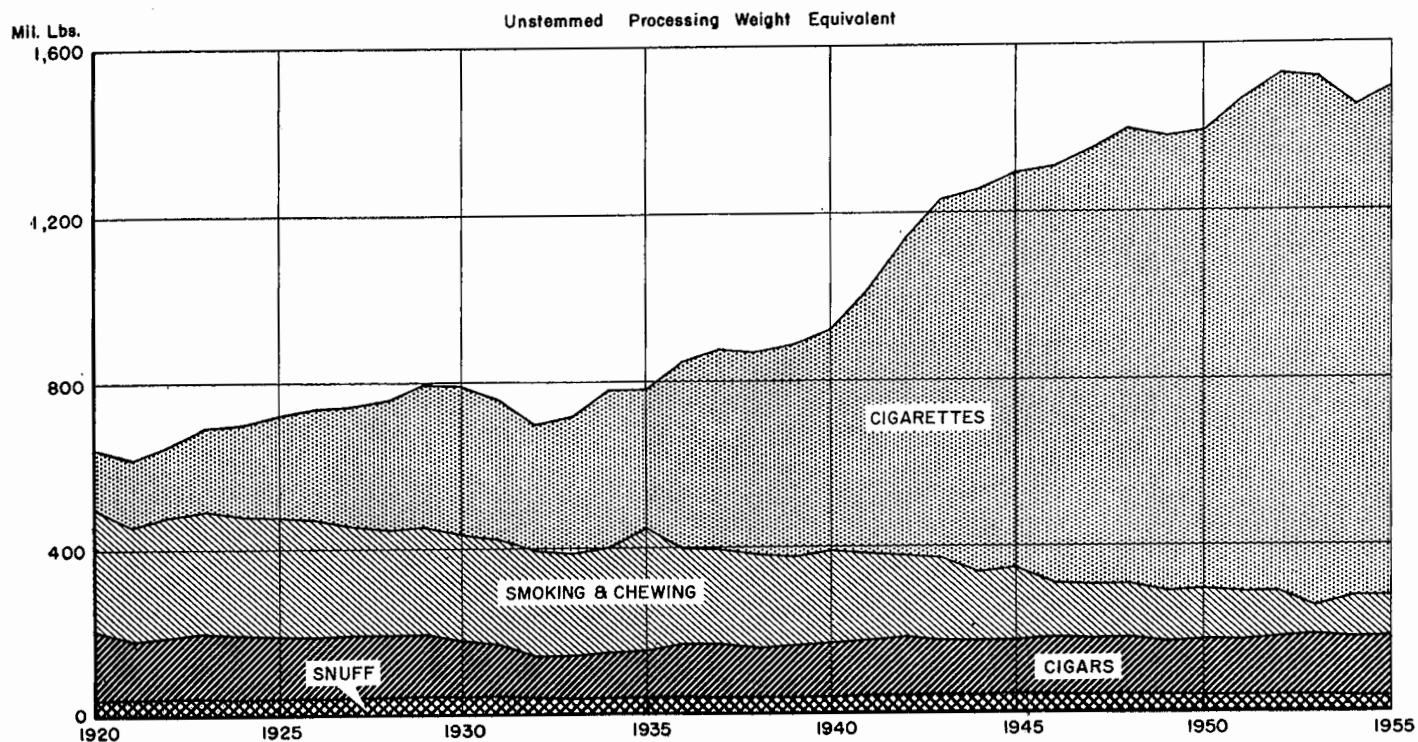
Reflecting the change from "strong" to "mild" tobacco and especially the increase in use of cigarettes, the trend in consumption per person 15 years and over has been different for different products. The consumption of tobacco in the form of cigarettes increased about 5 times from 1920 to 1955 or from 1.89 pounds to 9.83 pounds. Use for smoking, chewing, and snuff declined almost steadily each year, from 4.33 pounds in 1920 to 1.12 pounds in 1955. Average consumption in the form of cigars has declined since 1920 but has remained fairly constant since 1932.

Manufacture of products.—In only 7 years from 1920 to 1955 was there a decrease compared with the preceding year in the amount of tobacco used in the manufacture of tobacco products (see Figure 14). The peak year was in 1952 when 1,526 million pounds were used—an increase of 138 percent over the 640 million pounds in 1920. Total leaf used in tobacco manufacture declined 4.3 percent from 1953 to 1954 but about half of this loss was regained in 1954.

In 1955 cigarettes accounted for a little more than four-fifths of the total leaf used in tobacco manufacture compared with a little more than one-half in 1935-39 and slightly more than one-fifth in 1920-24. The increase in leaf used in cigarette manufacture was a sharp contrast to the amount used in the manufacture of smoking and chewing tobacco which was only one-third as much in 1955 as in 1920. The total quantity of leaf used in the manufacture of both snuff and cigars declined only moderately from 1920 to 1955.

Exports of leaf tobacco.—Exports of leaf have always been a significant factor in the disposition of tobacco crop. In 1955, leaf tobacco was the third ranking agricultural export in dollar value, exceeded only by wheat and cotton. The total value of unmanufactured tobacco exported exceeded \$356 million. Over the years, with the increase in the quantity of tobacco used for domestic purposes, the proportion that exports make up of total disappearance has declined. In the 1925-29 period, exports were 43 percent of disappearance but declined to 26 percent in the 1950-54 period.

TOBACCO, LEAF: USED IN MANUFACTURE OF TOBACCO PRODUCTS, UNITED STATES, 1920-1955



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FIGURE 14

From 1925 to 1955, the peak year in exports was 1929 when 679 million pounds (farm-sales weight) were exported (see Figure 15). Exports declined sharply during the war and reached a low of 189 million pounds in 1940. After the cessation of hostilities they increased rapidly; 657 million pounds were exported in 1946. Since

1948 exports have amounted to 500 million pounds or more each year.

Flue-cured leaf accounts for slightly more than four-fifths of the total exports. Gradually exports of dark type tobacco have decreased. Since the war, exports of both Burley and cigar types

EXPORTS OF TOBACCO FROM THE UNITED STATES, BY CROP YEARS: 1925-55

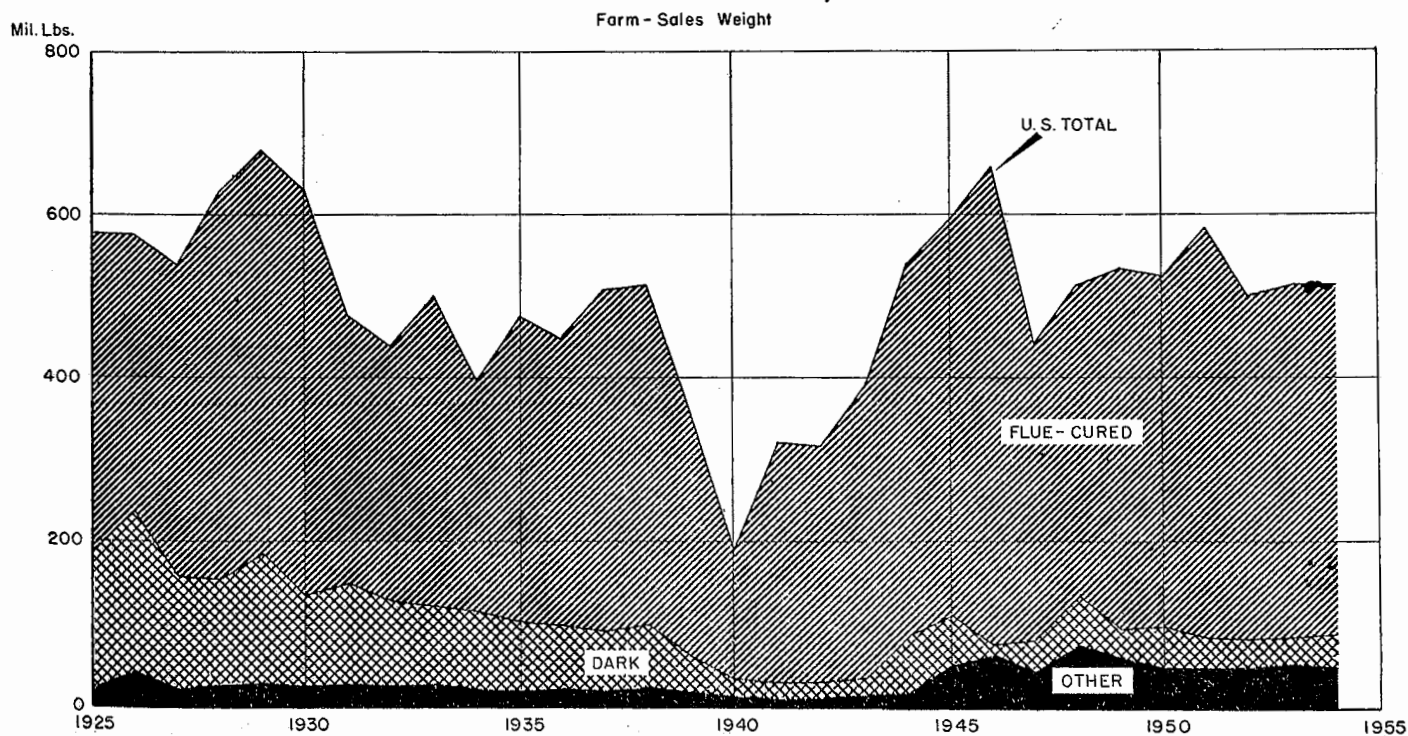


FIGURE 15

have increased. Shifts in consumer demand in foreign countries, as in the United States, for various kinds of tobacco products, mostly account for the increases in exports of certain types of leaf and the decline in others.

The United Kingdom has long been the principal export outlet for tobacco. Exports to China, the second most important prewar export outlet for United States leaf, have about disappeared. On the other hand, exports to the Netherlands, Germany, Ireland, the Philippines, and several other countries are now above prewar levels.

Favorable factors contributing to the export of tobacco in the last few years have been an improvement in economic conditions in many importing countries and the large United States imports from abroad which enable other countries to buy from this country. A very significant factor in the quantity exported in the postwar years has been the assistance to foreign countries under the various programs sponsored by the United States Government.

Stocks.—The general practice of tobacco manufacturers is to carry on hand enough tobacco for more than a year of operation. This is done in order that the leaf may "age." Then too, by blending the leaf of two or more years' growth, it is possible to smooth out variations that may come from differences in the effects of seasonal weather conditions on the crops.

Although the major types of tobacco have been grown under marketing quotas and acreage allotments most of the years since 1938, production during the last 10 years has tended to exceed the quantity used and exported. This has resulted in a progressive increase in stocks of tobacco on hand at the end of the crop year in relation to the disappearance of tobacco during the year. During the 1925-29 period the ratio of stocks to disappearance was 1.3 to 1. During the 1950-54 period the ratio was 1.7 to 1.

Of the total production of tobacco, flue-cured accounts for about three-fifths of the total and Burley, one-fourth. The change in the stocks of these two types accounts for most of the change in total stocks. At the beginning of the war stocks of

flue-cured were high but were reduced during the war and postwar years (see Figure 16). Stocks have been increasing since then. The ratio of stocks to disappearance during the 1950-54 period was 1.4 to 1. Stocks of Burley tobacco were decreased only slightly during the war and have continued to increase since that time (see Figure 17). The ratio of Burley stocks to disappearance in the 1950-54 period was 2 to 1.

TOBACCO PROGRAMS AND POLICIES, 1935-55

Since the depression of the early thirties, various control programs have been carried on in an effort to regulate the production of tobacco from year to year in line with requirements of domestic manufacturers and for export. The first legislative basis for control programs was provided by the Agricultural Adjustment Act of 1933.

The production-adjustment program for tobacco was terminated as a result of the Supreme Court decision in January 1936, which invalidated the production control program carried out through contracts between the Federal Government and individual farmer and financed by processing taxes. However, tobacco programs were continued in 1936 and 1937 under the Soil Conservation and Domestic Allotment Act. This Act was designed to increase agricultural income primarily through payments for reducing soil-depleting acreages and the adoption of land use and farm practices which would conserve and build up soil fertility. The acreage control features of the new conservation program included the establishment of base acreages of soil-depleting crops of which tobacco was one, and payments to farmers for diversion of land from those base acreages to soil-conserving uses. Under this act production control became a byproduct whereas it was a primary object of the Agricultural Adjustment Act of 1933.

In February 1938, Congress enacted the Agricultural Adjustment Act of 1938 which has provided the legislative basis for the tobacco programs in effect since that time. The purpose of the 1938 act was as follows:

TOBACCO, FLUE CURED: SUPPLY, DISAPPEARANCE AND FARMER'S PRICE, UNITED STATES, 1920-55

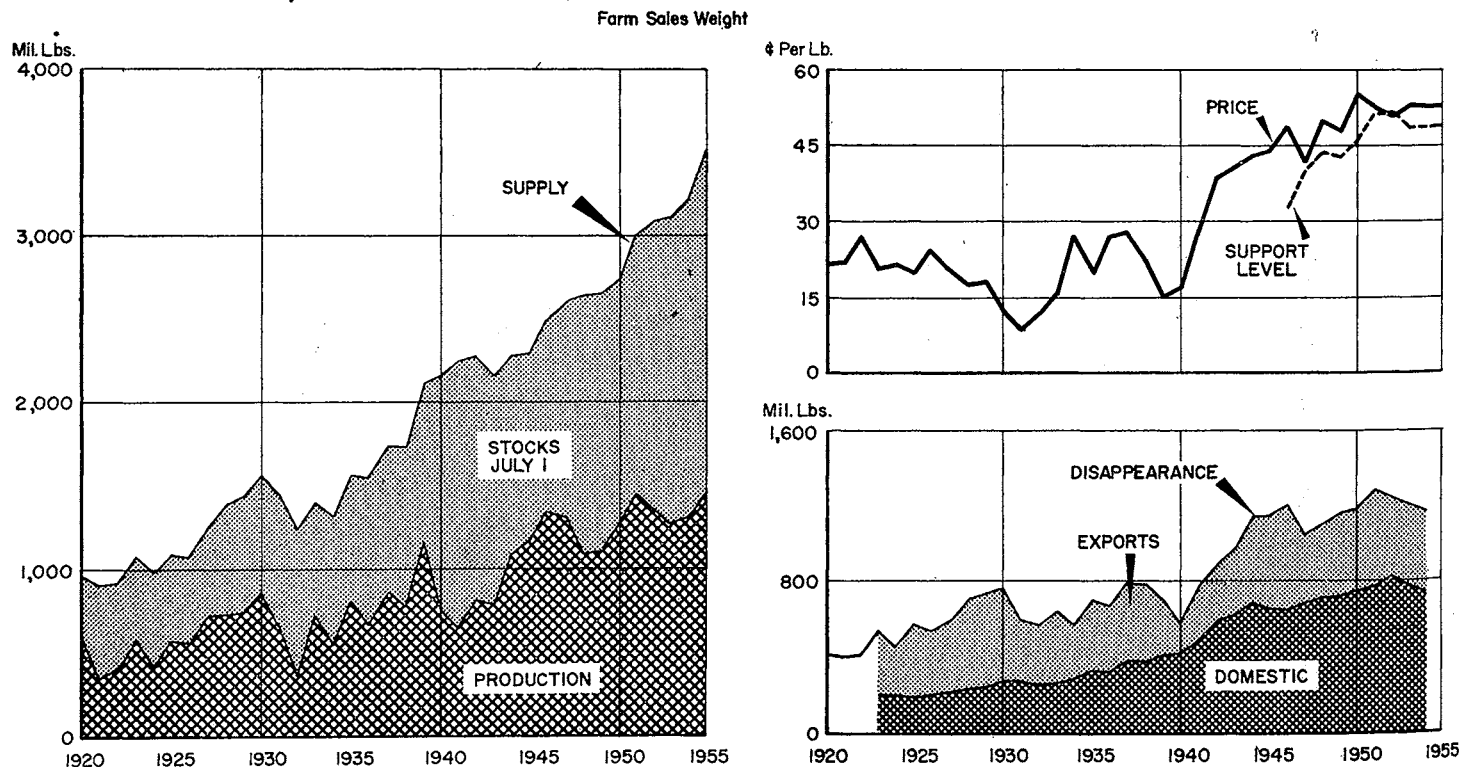


FIGURE 16

TOBACCO, BURLEY: SUPPLY, DISAPPEARANCE AND FARMER'S PRICE UNITED STATES, 1920-55

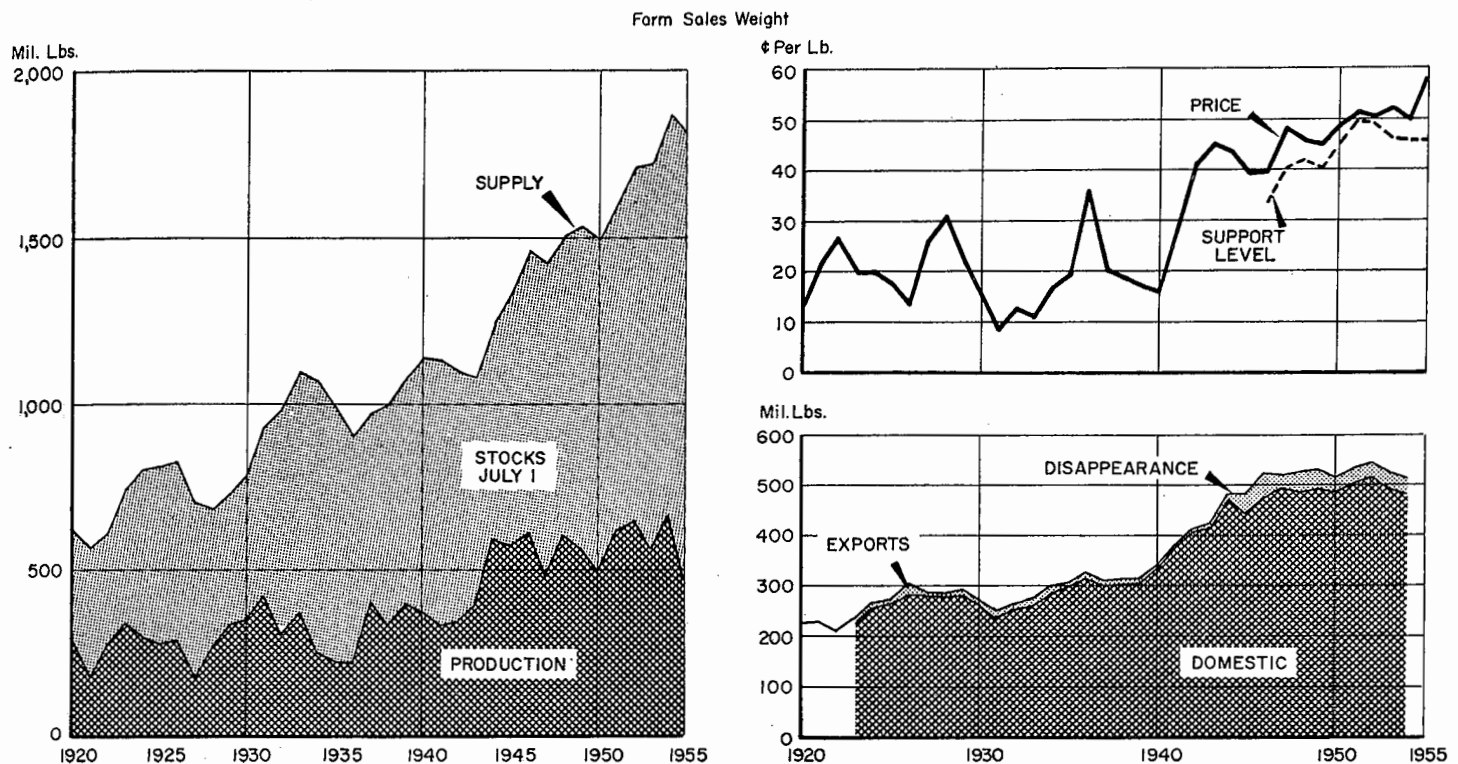


FIGURE 17

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(1) To conserve the Nation's soil resources and use them efficiently.

(2) To assist in the marketing of farm products for domestic consumption and exports.

(3) To regulate interstate and foreign commerce in cotton, wheat, corn, tobacco, and rice so as to—

(a) Minimize violent fluctuations in supplies, marketings, and prices of farm commodities;

(b) Protect consumers by maintaining adequate reserves of food and feed; and

(c) Assist farmers in obtaining a fair share of national income.

To conform with previous decisions of the Supreme Court, the acreage allotment and payment portions of the programs were separate and distinct from the marketing-quota portions. Acreage allotments were set up under the agricultural conservation program but marketing quotas became operative only under specified supply conditions and only if approved in a grower referendum.

Following the rejection of marketing quotas by tobacco growers for the 1939 season, a series of legislative amendments were made in the adjustment program. The most significant change provided that the Secretary of Agriculture could establish farm acreage allotments as a measure of the marketing quotas for farms rather than establishing marketing quotas in pounds. The 1940 program established the basic features of tobacco control programs to be followed in subsequent years. These basic features were (1) the conversion of marketing quotas to acreage allotments subject to specific provisions relating to minimum allotments, (2) permitting actual production on allotted acreage to be marketed penalty free, (3) a loan and purchase program to support prices at predetermined levels of parity, and (4) the adjustment of acreage allot-

ments as the long run technique of adjusting supplies to needs and thereby increasing prices.

Table 4 shows the number of allotted acres for various kinds of tobacco for which marketing quotas were in effect from 1940 to 1956. Tobacco programs were retained throughout the war even though for other commodities production controls were reversed. The wartime program was characterized by two general tendencies: (1) The expansion of acreage allotments for flue-cured and Burley tobacco after 1942 to meet wartime demands with emphasis on expanding production on small farms to meet increased war needs and (2) the inability of farmers to fully plant their expanded allotments due to wartime shortages of labor, fertilizer, barn space, and other facilities.

Policies followed also resulted in, especially for Burley tobacco, a large increase in the total number of allotments and spread of allotted and harvested acreage to sparse producing areas.

In the postwar period, adjustments have been made in national acreage allotments from the expanded levels of World War II in order to bring production more in line with needs. In 1956, the acreage allotted for flue-cured tobacco was 70.6 percent of the peak reached in 1946 and the allotment for Burley tobacco was only 50.7 percent of the peak acreage in 1945. This reduction in acreage has resulted in very small allotments for many tobacco growers. In 1956, on flue-cured tobacco farms, 52 percent of the growers had allotments of less than 3 acres; 79 percent of the Burley producers had allotments of less than 1 acre (see Table 5).

To support the price of tobacco, the Government has continued the loan and purchase program. Table 6 shows the average support price, the amount of tobacco pledged to the Commodity Credit Corporation for loans and the amount of stocks held by the Commodity Credit Corporation for flue-cured, Burley, and dark tobaccos for the period 1946-55.

TABLE 4.—TOBACCO: ACREAGES ALLOTTED BY TYPES, UNITED STATES: 1940 TO 1956

Year	Flue-cured	Burley	Southern Maryland ¹	Fire-cured	Dark air-cured ¹	Virginia	Cigar-filler ¹ and binder ²	Total
1940.....	758,210	374,605						1,132,815
1941.....	761,659	374,285		84,317	35,809			1,256,070
1942.....	841,222	378,720		80,935	35,781			1,336,658
1943.....	895,462	470,533		88,682	39,263			1,493,940
1944.....	1,095,127	588,833						1,683,960
1945.....	1,118,488	608,899						1,727,387
1946.....	1,257,225	557,335		117,614	47,908			1,980,082
1947.....	1,246,765	468,641		116,116	43,739			1,875,261
1948.....	908,000	463,192		77,342	33,443			1,481,977
1949.....	959,463	468,338		65,557	30,377			1,523,735
1950.....	968,595	418,250		56,560	26,559	4,350		1,474,314
1951.....	1,119,481	472,176		56,899	26,651	4,349	48,072	1,727,628
1952.....	1,127,371	474,747		56,773	26,673	4,756		1,690,320
1953.....	1,044,543	432,746	55,311	57,096	26,476	4,935	40,383	1,670,400
1954.....	1,053,135	399,451		55,847	23,248	6,111	46,877	1,584,609
1955.....	1,007,023	309,326		50,504	21,005	5,746	46,587	1,440,191
1956.....	887,584	308,707	53,353	50,113	20,730	5,526	38,372	1,364,385

¹ Marketing quotas not in effect in years for which no data were shown.² Includes types 42, 44, 51, 52, 53, 54, and 55.³ Quotas terminated for 1943 prior to harvest.

Source: United States Department of Agriculture.

TABLE 5.—FLUE-CURED AND BURLEY TOBACCO—NUMBER OF ALLOTMENTS AND PERCENTAGE DISTRIBUTION BY ACRE-SIZE GROUPS, UNITED STATES: 1956

Size of allotment	Flue-cured tobacco	Burley tobacco
Total number of allotments.....	212,750	1306,169
	Percent distribution	
0.01 to 0.49 acre.....	(2)	19.5
0.50 to 0.99 acre.....	14.0	59.1
1.00 to 1.99 acres.....	18.9	14.2
2.00 to 2.99 acres.....	17.4	3.5
3.00 to 3.99 acres.....	16.5	1.8
4.00 to 4.99 acres.....	9.5	.7
5.00 to 9.99 acres.....	16.9	.9
10.00 to 19.99 acres.....	5.2	.2
20.00 to 49.99 acres.....	1.4	.1
50.00 acres or more.....	.2	(2)
Total.....	100.0	100.0

Source: United States Department of Agriculture.

Z 0.05 percent or less.

¹ Compiled prior to enactment of Public Law 425 and does not include an estimated 600 "new farms."² Data not available. 14 percent of allotments are less than 1 acre.

Even though the average price received by farmers has often averaged above the support level, a considerable proportion of the crop has been pledged to the Commodity Credit Corporation in various years. This agency now owns sizable stocks of tobacco.

A study of the history of tobacco control programs indicates that they developed out of an attempt to solve a wide variety of problems. Over the years as problems changed the programs were modified. The present situation would indicate that new adjustments may be necessary in tobacco programs.

NUMBER, RESOURCES, AND CHARACTERISTICS OF SPECIALIZED TOBACCO FARMS

Data on other field-crop farms were summarized for the following subregions (see map on p. 5) in estimating the number of specialized tobacco producers and in determining resources used and characteristics of tobacco farms.

Types of tobacco

	Subregion
1. Flue-cured tobacco.....	22, 23, 24, 25, 36, 37, 38
2. Burley tobacco.....	31, 32, 33, 44, 45, 52
3. Southern Maryland tobacco.....	19
4. Dark-fired and air-cured tobacco.....	20, 53

NOTE.—Data were not summarized for cigar types of tobacco.

Number and Use of Resources

Tobacco is an intensive crop requiring a large amount of hand labor. It uses less land and capital resources than many of the other major farm enterprises. Table 7 shows the total amount of agricultural resources and the amount of gross income from various sources for all commercial farms in the United States and for all commercial farms and specialized tobacco farms in the selected areas. (Other field-crop farms in tobacco areas will hereafter be designated as tobacco farms although in some cases peanuts represent the dominant source of income. On a few farms miscellaneous field crops other than peanuts or tobacco represent the primary source of income.) The proportion of total agriculture resources used by specialized tobacco producers are shown in Table 8.

There were 293,566 farms classified as other field-crop farms in these tobacco subregions. This number accounts for approximately 9 percent of the commercial farms shown by the 1954 Census. It includes 57 percent of the total number of farms reporting tobacco harvested in 1954. The production of tobacco on these farms amounted to 72 percent of the total tobacco harvested as reported in 1954, and 76 percent of all tobacco harvested on commercial farms.

In 1954, specialized tobacco farms used 7 percent of all labor resources but only 3 percent of the capital employed in agriculture and 2 percent of the cropland. They produced 4 percent of the gross farm income.

On a per-farm basis, tobacco farms rank below the average of all commercial farms in the United States (see Table 9). They have less cropland per farm, employ less capital and also receive a smaller gross farm income. However, the amount of labor per farm is about the same as the average for other commercial farms in the United States.

There are distinct differences between tobacco farms producing various types of tobacco and also between specialized tobacco farms and other commercial farms in the same area. Producers of Southern Maryland tobacco have the largest farms from the standpoint of average acres in cropland, have a much larger capital investment and a slightly larger gross farm income than producers of other types of tobacco. In each of the tobacco

TABLE 6.—TOBACCO: TOTAL UNITED STATES PRODUCTION, AVERAGE PRICE RECEIVED BY FARMERS, QUANTITIES PLEDGED FOR COMMODITY CREDIT CORPORATION LOANS, TOTAL STOCKS, AND COMMODITY CREDIT CORPORATION HOLDINGS, BY TYPE, BY CROP YEARS: 1946 TO 1955

(Green weight basis)

Crop year	Total production (million pounds)	Price support level (cents per pound)	Average price received by farmers (cents per pound)	Pledged to CCC for loans		Total stocks ¹ (million pounds)	Held by CCC	
				Amount (million pounds)	Percent of crops		Amount (million pounds)	Percent of stocks
Flue-cured tobacco (as of July 1)								
1946.....	1,352.0	32.1	48.3	66.6	4.9	1,147.4	10.0	0.9
1947.....	1,317.5	40.0	41.2	232.3	16.4	1,286.8	62.0	4.8
1948.....	1,089.6	43.9	49.6	106.1	9.7	1,550.2	107.0	6.9
1949.....	1,114.5	42.5	47.2	103.5	9.3	1,538.2	127.0	8.2
1950.....	1,257.3	45.0	54.7	77.6	6.2	1,484.5	86.0	5.8
1951.....	1,452.7	50.7	52.4	142.2	9.8	1,557.5	85.0	5.4
1952.....	1,365.3	50.6	50.3	243.4	17.8	1,730.8	181.0	10.4
1953.....	1,272.7	47.9	52.8	151.4	11.9	1,851.9	238.0	12.8
1954.....	1,314.4	47.9	52.7	130.2	9.9	1,915.1	279.0	14.6
1955.....	1,483.0	48.3	52.7	296.3	20.0	2,056.6	330.0	16.0
Burley tobacco (as of Oct. 1)								
1946.....	614.0	33.6	39.7	147.8	24.1	853.3	16.0	1.9
1947.....	484.7	40.3	48.5	37.7	7.8	940.8	151.0	16.0
1948.....	602.9	42.4	46.0	96.7	16.0	902.3	96.0	10.6
1949.....	560.5	40.3	45.2	39.1	7.0	974.3	132.0	13.5
1950.....	499.0	45.7	49.0	44.2	8.8	1,000.2	111.0	11.1
1951.....	618.1	49.8	51.2	97.3	15.7	981.3	69.0	7.0
1952.....	650.1	49.5	50.3	103.9	16.0	1,061.2	122.9	11.6
1953.....	564.4	46.6	52.5	102.1	18.1	1,163.4	197.5	17.0
1954.....	667.2	46.4	49.8	221.4	33.2	1,198.1	228.0	19.0
1955.....	470.0	46.2	58.6	73.1	15.6	1,346.7	431.0	32.0
Dark tobacco (as of Oct. 1)								
1946.....	158.5	² 24.3	24.9	56.4	35.6	165.5	0.2	0.1
1947.....	123.6	29.2	28.4	45.8	37.0	216.1	53.7	24.8
1948.....	108.1	30.6	30.9	36.2	33.5	239.8	84.2	35.1
1949.....	108.3	29.1	29.3	22.9	21.1	231.3	95.7	41.4
1950.....	86.9	33.0	29.0	16.4	18.8	244.5	101.0	41.3
1951.....	91.2	36.0	38.0	14.8	16.2	219.0	75.7	34.6
1952.....	92.0	35.7	35.4	21.0	22.8	220.1	80.5	36.6
1953.....	75.5	33.6	31.0	15.7	20.8	224.0	92.0	41.1
1954.....	96.3	33.4	36.5	14.2	14.6	209.8	84.7	40.4
1955.....	96.3	33.4	35.3	16.0	16.6	217.9	84.8	38.9
All other ³ (as of Oct. 1)								
1946.....	200.6		41.6	12.8	6.4	351.0		
1947.....	193.8		37.1	11.1	5.7	372.5	0.9	0.2
1948.....	190.7		35.9	20.3	10.6	373.5	15.6	4.2
1949.....	194.3		33.1	15.9	8.2	362.4	15.8	4.4
1950.....	196.2		33.7	13.3	6.8	389.8	18.5	4.7
1951.....	182.5		32.0	10.8	5.9	412.0	23.4	5.7
1952.....	165.6		36.5	1.4	.8	410.1	26.9	6.6
1953.....	166.3		39.3	13.6	8.2	388.8	19.4	5.0
1954.....	182.2		34.4	12.6	6.9	374.9	24.7	6.6
1955.....	160.7		33.0	20.2	12.6	396.8	23.1	5.8

¹ Dealers, manufacturers, and CCC holdings.² Price support level for types 21-23 and 35-37 weighted on basis of total production.³ Shade grown wrapper and Perique not included.

TABLE 7.—NUMBER OF FARMS AND RESOURCES FOR ALL COMMERCIAL FARMS AND OTHER FIELD-CROP FARMS IN THE UNITED STATES, AND IN SELECTED TOBACCO AREAS: 1954

Item	United States		Total, four areas		Tobacco areas							
					Flue-cured		Burley		Southern Maryland		Dark-fired and air-cured	
	All commercial farms	Other field-crop farms	All commercial farms	Other field-crop farms	All commercial farms	Other field-crop farms	All commercial farms	Other field-crop farms	All commercial farms	Other field-crop farms	All commercial farms	Other field-crop farms
Total farms.....number.....	3,327,889	367,733	478,810	293,566	238,218	166,232	189,794	104,645	12,967	4,546	37,831	18,143
All land in farms.....thousand acres.....	1,032,493	33,685	54,881	21,467	25,216	11,114	21,977	8,315	2,496	467	5,192	1,571
Total cropland.....thousand acres.....	431,585	17,693	25,510	10,558	10,495	5,097	10,942	4,316	1,175	233	2,898	912
Production of tobacco.....million pounds.....	1,822	1,538	1,570	1,888	1,019	943	404	334	39	37	108	74
Tobacco sold.....million dollars.....	923	787	699	537	497	184	154	16	15	48	33	33
Other crops sold.....million dollars.....	11,033	677	464	125	285	89	186	29	17	2	26	5
All livestock and livestock products sold.....million dollars.....	12,223	129	528	77	131	26	278	42	56	2	63	7
Forestry products sold.....million dollars.....	120	4	25	3	16	2	6	1	1	(Z)	2	(Z)
All farm products sold.....million dollars.....	24,209	1,597	1,802	903	919	614	654	226	90	18	139	45
Total capital.....million dollars.....	110,545	4,986	6,917	3,073	3,089	1,778	2,710	1,017	515	109	603	169
Man-equivalent of labor.....number.....	4,801,935	556,898	555,720	392,774	279,969	250,456	209,614	116,600	21,453	5,828	44,684	19,890

Z 0.5 or less.

FARMERS AND FARM PRODUCTION

TABLE 8.—PROPORTION THAT NUMBER OF FARMS, RESOURCES USED, AND GROSS SALES ON COMMERCIAL FARMS IN SPECIFIC TOBACCO AREAS WERE OF THE TOTAL FOR ALL COMMERCIAL FARMS IN THE UNITED STATES: 1954

Item	Number of farms	All land in farms (thousand acres)	Acres of cropland (thousands)	Total capital invested (million dollars)	Man-equivalent of labor (number)	All farm products sold (million dollars)	Tobacco sold (million dollars)	Production of tobacco (million pounds)
United States.....	3,327,889	1,032,493	431,585	110,545	4,891,935	24,299	923	1,822
Percent of United States total								
United States:								
All commercial farms.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Other field-crop farms.....	11.1	3.3	4.1	4.5	11.4	6.6	85.3	84.4
Other commercial farms.....	88.9	96.7	95.9	95.5	88.6	93.4	14.7	15.6
Total, four areas:								
All commercial farms.....	14.4	5.2	5.9	6.3	11.3	7.5	85.0	86.1
Other field-crop farms.....	8.7	2.1	2.5	2.8	8.0	3.7	75.7	76.2
Other commercial farms.....	6.7	3.1	3.4	3.5	3.3	3.8	9.3	9.9
Flue-cured tobacco:								
All commercial farms.....	7.2	2.4	2.4	2.8	5.7	3.8	58.2	55.9
Other field-crop farms.....	5.0	1.1	1.2	1.6	5.1	2.5	53.8	51.8
Other commercial farms.....	2.2	1.3	1.2	1.2	.6	1.3	4.4	4.1
Burley tobacco:								
All commercial farms.....	5.7	2.1	2.5	2.5	4.3	2.7	19.9	22.2
Other field-crop farms.....	3.1	.8	1.0	.9	2.4	.9	16.7	18.3
Other commercial farms.....	2.6	1.3	1.5	1.6	1.9	1.8	3.2	3.9
Southern Maryland tobacco:								
All commercial farms.....	.4	.2	.3	.5	.4	.4	1.7	2.1
Other field-crop farms.....	.1	(Z)	.1	.1	.1	.1	1.6	2.0
Other commercial farms.....	.3	.2	.2	.4	.3	.3	.1	.1
Dark-fired and air-cured tobacco:								
All commercial farms.....	1.1	.5	.7	.5	.9	.6	5.2	5.9
Other field-crop farms.....	.5	.2	.2	.2	.4	.2	3.6	4.1
Other commercial farms.....	.6	.3	.5	.3	.5	.4	1.6	1.8

Z 0.05 percent or less.

TABLE 9.—NUMBER OF COMMERCIAL FARMS AND SPECIFIED CHARACTERISTICS PER FARM FOR THE UNITED STATES AND FOR SELECTED TOBACCO REGIONS: 1954

Item	United States	Flue-cured		Burley		Southern Maryland		Dark-fired air-cured	
		All commercial farms	Other field-crop farms	All commercial farms	Other field-crop farms	All commercial farms	Other field-crop farms	All commercial farms	Other field-crop farms
Number of farms.....	3,327,889	238,218	166,232	189,794	104,645	12,967	4,546	37,831	18,143
Average per farm									
Land in farms.....acres..	310	106	67	116	79	193	103	137	87
Total cropland.....acres..	130	44	31	58	41	91	51	77	50
All farm products sold.....dollars..	7,302	3,859	3,697	3,446	2,160	6,883	4,018	3,680	2,480
Tobacco sold.....dollars..	277	2,254	2,992	968	1,468	1,218	3,293	1,265	1,816
Man-equivalent of labor.....number..	1.47	1.18	1.51	1.13	1.11	1.65	1.28	1.18	1.10
Investment in:									
Land and buildings.....dollars..	25,437	10,267	8,505	10,687	7,317	33,149	19,479	11,281	6,474
Livestock.....dollars..	3,154	679	438	1,268	698	2,944	709	1,488	688
Machinery.....dollars..	4,291	2,019	1,757	2,324	1,705	4,506	3,529	3,184	2,141
Total.....dollars..	32,882	12,965	10,700	14,279	9,720	40,599	23,717	15,953	9,303

areas, the specialized tobacco farms had less cropland, a smaller capital investment and lower gross income than other commercial farms in the area.

Distribution of Farms and Selected Resources, by Economic Class of Farm

A smaller proportion of tobacco farms than all commercial farms fall in the higher income groups in the United States. Of

the total tobacco farms in the areas summarized, only 1.8 percent were in Economic Classes I and II as compared to 17.5 percent of all commercial farms in these two groups for the United States (see Table 10). Seventy-two percent of all Burley producers were in Economic Classes V and VI as compared to 37 percent in these two classes for all commercial farms.

Table 10 shows how selected resources of specialized tobacco farms are distributed among various economic classes of farms.

Farms in Economic Classes I, II, and III are the larger farms. On the basis of the number of farms, Classes I, II, and III farms operate a much larger proportion of the farmland, have more capital, produce a larger share of the tobacco, and receive a larger proportion of the gross farm income. However, the proportion of the man-equivalents of labor used on these farms is not much greater than the proportion that the number of these farms comprise of all commercial farms.

Class I, II, and III farms comprise 17 percent of the farms, but produce 34 percent of the tobacco in the flue-cured area; in the Burley area, they comprise 8 percent of the farm, but produce 27 percent of the tobacco; in the Southern Maryland area, they represent 30 percent of the farms, but produce 54 percent of the tobacco; and in the dark-fired and air-cured tobacco areas they represent 6 percent of the farms, but produce 17 percent of the tobacco (see Table 11).

Variation in Types of Farming in Specified Tobacco Areas

The production of tobacco is highly specialized, and, in the various production areas, the proportion of farmers receiving a

TABLE 10.—NUMBER OF COMMERCIAL FARMS IN THE UNITED STATES AND DISTRIBUTION OF OTHER FIELD-CROP FARMS IN SELECTED TOBACCO AREAS, BY ECONOMIC CLASS OF FARM: 1954

Area	Number of farms	Percent distribution of farms by economic class					
		I	II	III	IV	V	VI
United States, all commercial farms.....	3,327,889	4.0	13.5	21.2	24.4	22.9	14.0
Other field-crop farms:							
Flue-cured tobacco.....	166,232	.2	1.7	14.8	41.6	32.5	9.2
Burley tobacco.....	104,645	.1	1.2	6.7	20.3	36.1	35.6
Southern Maryland tobacco.....	4,546	.8	7.1	22.0	35.8	27.6	6.7
Dark-fired and air-cured tobacco.....	18,143	.1	.6	5.4	26.0	43.1	24.8
Total, four tobacco areas.....	203,566	.2	1.6	11.4	32.9	34.3	19.6

major portion of their income from tobacco is often quite high. For the four major types of tobacco, the proportion of commercial farms classified as other field-crop farms varied from a high of 70 percent in the flue-cured areas to a low of 35 percent in Southern Maryland (see Table 12). The second most important type of farm in the flue-cured area was cotton farms. Livestock farms, other than dairy or poultry, were the second most important type of farm in each of the other areas.

Tenure of Operator

The tobacco farms are characterized by a high percentage of tenancy and a large number of nonwhite operators in some of the areas. In 1954, nonwhite operators operated 36 percent of the subregion flue-cured tobacco farms, 26 percent of the Southern Maryland tobacco farms, but only 2 percent of the Burley tobacco farms (see Table 13). Tenants operated 56 percent of the flue-cured farms, 28 percent of the Burley farms, 38 percent of the Southern Maryland farms, and 36 percent of the dark-fired and air-cured farms.

TABLE 11.—SELECTED RESOURCES ON OTHER FIELD-CROP FARMS IN SELECTED TOBACCO AREAS AND DISTRIBUTION AMONG VARIOUS ECONOMIC CLASSES OF FARMS: 1954

Item	All farms		Percent distribution by economic class of farm					
	Unit	Total	I	II	III	IV	V	VI
Flue-cured tobacco								
Number of farms.....	Number.....	166,232	0.2	1.7	14.8	41.6	32.5	9.2
All land in farms.....	Thousand acres.....	11,114	2.2	5.7	22.3	39.6	24.7	5.5
Total cropland.....	Thousand acres.....	5,097	1.9	6.0	24.0	41.5	22.4	4.3
Production of tobacco.....	Million pounds.....	943	1.4	5.5	27.1	43.9	19.6	2.5
Gross sales.....	Million dollars.....	614	2.0	6.4	27.9	43.2	18.4	2.3
Total capital invested.....	Million dollars.....	1,778	1.6	5.8	24.9	41.6	21.8	4.3
Man-equivalent of labor.....	Number.....	250,456	1.4	3.2	19.1	42.3	27.1	6.9
Burley tobacco								
Number of farms.....	Number.....	104,645	0.1	1.2	6.7	20.3	36.1	35.6
All land in farms.....	Thousand acres.....	8,315	.9	3.2	11.2	25.3	34.8	24.6
Total cropland.....	Thousand acres.....	4,316	1.3	4.2	14.1	27.0	33.0	20.2
Production of tobacco.....	Million pounds.....	334	1.2	6.5	19.4	31.6	28.3	13.0
Gross sales.....	Million dollars.....	226	1.8	7.1	19.5	31.0	28.3	12.4
Total capital invested.....	Million dollars.....	1,017	2.0	6.8	17.0	26.7	30.0	17.5
Man-equivalent of labor.....	Number.....	116,600	.5	2.2	8.7	22.4	34.1	32.0
Southern Maryland tobacco								
Number of farms.....	Number.....	4,546	0.8	7.1	22.0	35.8	27.6	6.7
All land in farms.....	Thousand acres.....	467	2.6	15.2	33.4	29.5	16.1	3.2
Total cropland.....	Thousand acres.....	233	3.0	16.7	33.9	28.8	14.6	3.0
Production of tobacco.....	Million pounds.....	37	4.2	19.6	32.4	29.7	12.5	1.5
Gross sales.....	Million dollars.....	18	5.6	22.2	33.3	27.8	11.1	(Z)
Total capital invested.....	Million dollars.....	109	.9	16.5	31.2	30.3	18.3	2.8
Man-equivalent of labor.....	Number.....	5,828	1.9	14.3	27.9	34.0	17.7	4.3
Dark-fired and air-cured tobacco								
Number of farms.....	Number.....	18,143	0.1	0.6	5.4	26.0	43.1	24.8
All land in farms.....	Thousand acres.....	1,571	.4	3.1	11.6	31.1	37.7	16.2
Total cropland.....	Thousand acres.....	912	.5	3.4	11.7	33.0	37.2	14.1
Production of tobacco.....	Million pounds.....	74	1.9	2.6	13.6	37.3	35.1	9.5
Gross sales.....	Million dollars.....	45	2.2	2.2	15.6	37.8	33.3	8.9
Total capital invested.....	Million dollars.....	169	.6	4.1	13.0	32.5	37.3	12.4
Man-equivalent of labor.....	Number.....	19,890	.2	1.5	7.2	29.7	39.8	21.7

Z 0.05 percent or less.

TABLE 12.—NUMBER AND PERCENT DISTRIBUTION OF COMMERCIAL FARMS, BY TYPE OF FARM IN SELECTED TOBACCO AREAS: 1954

Item	Flue-cured tobacco area	Burley tobacco area	Southern Maryland tobacco area	Dark-fired and air-cured tobacco area	Total, four areas
Number of commercial farms.....	238,218	189,794	12,907	37,831	478,810
Percent of commercial farms classified as—					
All farms.....	100.0	100.0	100.0	100.0	100.0
Field-crop farms other than vegetable and fruit-and-nut, total.....	85.3	59.5	39.1	53.9	71.4
Other field-crop.....	69.8	55.1	35.0	48.0	61.4
Cash-grain.....	1.6	3.0	4.1	4.8	2.4
Cotton.....	13.9	1.4	.....	1.1	7.6
Vegetable farms.....	.4	.6	2.1	.1	.5
Fruit-and-nut farms.....	.2	.7	1.6	.9	.5
Dairy farms.....	1.2	9.2	15.1	9.7	5.4
Poultry farms.....	1.4	4.0	7.8	3.0	2.7
Livestock farms other than dairy or poultry.....	4.6	14.6	25.0	13.3	9.8
General farms, total.....	6.0	10.3	7.1	18.3	8.8
Primarily crop.....	4.0	2.1	1.1	5.1	3.3
Primarily livestock.....	.1	1.1	1.8	1.0	.6
Crop and livestock.....	1.9	7.1	4.2	12.2	4.9
Miscellaneous.....	.9	1.1	2.2	.8	1.0

TABLE 13.—COLOR AND TENURE OF FARM OPERATORS ON OTHER FIELD-CROP FARMS IN SPECIFIED TOBACCO AREAS, BY ECONOMIC CLASS OF FARM: 1954

Item	All farms	Economic class of farm					
		I	II	III	IV	V	VI
Flue-cured tobacco							
Total number of operators.....	166,232	326	2,875	24,557	69,131	53,976	15,367
Percent of operators:							
White.....	64	89	87	74	65	61	48
Nonwhite.....	36	11	13	26	35	39	52
Owners, part owners, or managers.....	44	81	56	39	38	48	59
Croppers.....	30	6	18	30	33	28	24
Other tenants.....	27	12	26	31	29	24	18
Burley tobacco							
Total number of operators.....	104,645	118	1,240	7,001	21,223	37,770	37,293
Percent of operators:							
White.....	98	100	99	98	98	98	98
Nonwhite.....	2		1	2	2	2	2
Owners, part owners, or managers.....	72	79	55	52	62	72	82
Croppers.....	13		10	12	17	15	8
Other tenants.....	15	21	34	36	21	13	10
Southern Maryland tobacco							
Total number of operators.....	4,546	37	321	1,001	1,626	1,255	306
Percent of operators:							
White.....	74	86	98	83	74	67	51
Nonwhite.....	26	14	2	17	26	33	49
Owners, part owners, or managers.....	62	59	72	60	57	68	64
Croppers.....	16	14	3	14	17	20	20
Other tenants.....	22	27	25	26	26	12	16
Dark-fired and air-cured tobacco							
Total number of operators.....	18,143	26	113	978	4,703	7,823	4,500
Percent of operators:							
White.....	81	100	91	92	85	82	74
Nonwhite.....	19		9	8	15	18	26
Owners, part owners, or managers.....	64	42	82	67	54	62	75
Croppers.....	22	19	9	19	28	24	15
Other tenants.....	14	39	9	14	18	14	10

In each subregion, the percentage of operators that were nonwhite increased as the size of operation decreased. There was no consistent relationship between size of farm and the percentage of operators classified as owners, part owners, managers, or tenants.

PRODUCTION CONDITIONS BY ECONOMIC CLASS OF FARM PRODUCING VARIOUS TYPES OF TOBACCO

Types of farms are likely to differ from each other in several factors such as size, use of resources, and production efficiency. Farms that grow the same product or similar products vary from one area to another or one region to another. The typical farm in the United States, however, is the "family-size" farm—a size of unit that can be worked by the operator and his family with only moderate hired help.

Data are presented on a per-farm basis for some of the main characteristics of farms that produce various types of tobacco. These data show variations between tobacco farms producing various types of tobacco and make it possible to compare tobacco farms with farms of other types. Subregion or subregions were selected as representative of the various types of tobacco. Data are given for subregions 24 and 25 for flue-cured tobacco, subregions 32 and 45 for Burley tobacco, subregion 19 for Southern Maryland tobacco, and subregion 53 for dark-fired and air-cured tobacco.

In each case the data are given by economic class of farm to show variations between size of operation. In analyzing these

TABLE 14.—NUMBER AND SIZE OF OTHER FIELD-CROP FARMS IN SELECTED AREAS IN SPECIFIED TOBACCO SUBREGIONS, BY ECONOMIC CLASS OF FARM: 1954

Item	All farms	Economic class of farm					
		I	II	III	IV	V	VI
Flue-cured tobacco (subregion 24)							
Number of farms.....	49,070	48	1,196	10,969	23,039	11,243	2,575
Total acres per farm.....	51	392	140	69	45	38	31
Total crop acres per farm.....	27	195	73	40	25	17	11
Percent of total acres in crop-land.....	53	50	52	58	56	45	35
Flue-cured tobacco (subregion 25)							
Number of farms.....	43,975	30	167	2,300	14,264	20,464	6,750
Total acres per farm.....	72	244	275	149	88	58	45
Total crop acres per farm.....	27	128	114	58	34	22	15
Percent of total acres in crop-land.....	37	52	41	39	38	37	33
Burley tobacco (subregion 45)							
Number of farms.....	29,442	97	1,103	5,725	11,471	8,201	2,845
Total acres per farm.....	85	611	199	121	82	58	38
Total crop acres per farm.....	52	469	144	82	49	31	19
Percent of total acres in crop-land.....	62	77	72	68	60	53	50
Burley tobacco (subregion 32)							
Number of farms.....	22,150	5	45	257	1,926	8,306	11,611
Total acres per farm.....	61	528	207	174	102	66	48
Total crop acres per farm.....	29	216	88	98	52	32	20
Percent of total acres in crop-land.....	47	41	43	57	52	49	42
Southern Maryland tobacco (subregion 19)							
Number of farms.....	4,546	37	321	1,001	1,626	1,255	306
Total acres per farm.....	103	338	223	156	85	60	48
Total crop acres per farm.....	51	194	122	79	41	27	22
Percent of total acres in crop-land.....	50	57	55	51	49	45	45
Dark-fired and air-cured tobacco (subregion 53)							
Number of farms.....	13,829	26	97	755	3,681	6,090	3,180
Total acres per farm.....	83	298	411	179	96	73	51
Total crop acres per farm.....	56	216	297	121	70	47	31
Percent of total acres in crop-land.....	67	72	72	68	73	65	61

data, it should be kept in mind that classifications of farms by amount of gross sales were based on data for 1 year—1954. In areas of specialized crop production, gross sales are determined largely by the yield of the specialized crop produced. A low yield may result in farms falling in one class in a given year although they would normally fall in a different class in another year. In some cases, the number of farms in a group, especially Class I, may be too small to provide reliable averages.

Size of farm.—Specialized tobacco farms are not usually very large from the standpoint of area. Such farms in Southern Maryland averaged 103 acres, and this was twice the average size of flue-cured tobacco farms in subregion 24 (see Table 14). The size of farm decreased with the decrease in gross sales. About half of the farms in Burley area, subregion 32, were in Economic Class VI and these Class VI farms averaged only 48 acres and 20 acres of cropland per farm. Normally the acres of cropland on Class I farms were 10 to 20 times as large as the acres of cropland on Class VI farms.

About one-third or more of the tobacco farms in each of the selected subregions were less than 30 acres in size (see Table 15). Less than 10 percent of the farms in each area had 260 acres or more. Only a very small percentage of the farms in Class V or VI in any of the subregions had more than 140 acres.

TABLE 15.—PERCENT DISTRIBUTION, BY SIZE OF FARM OF OTHER FIELD-CROP FARMS IN SPECIFIED TOBACCO SUBREGIONS, BY ECONOMIC CLASS OF FARM: 1954

Size of farm (acres per farm)	Percent distribution for each economic class of farm						
	All farms	I	II	III	IV	V	VI
Flue-cured tobacco (subregion 24)							
Under 10 acres.....	6			(Z)	2	13	38
10 to 29 acres.....	38		1	18	45	48	28
30 to 69 acres.....	36	21	29	51	36	25	22
70 to 139 acres.....	15	10	37	23	13	10	8
140 to 259 acres.....	4	21	22	6	3	3	3
260 to 499 acres.....	1	31	8	2	1	1	1
500 acres and over.....	(Z)	17	3	(Z)	(Z)	(Z)	
Flue-cured tobacco (subregion 25)							
Under 10 acres.....	13			(Z)	3	15	32
10 to 29 acres.....	25		6	9	24	28	22
30 to 69 acres.....	24	33	12	15	23	26	26
70 to 139 acres.....	24	33	21	33	31	22	14
140 to 259 acres.....	11	17	30	29	15	7	4
260 to 499 acres.....	3		15	12	4	1	1
500 acres and over.....	(Z)	17	16	2	(Z)	(Z)	(Z)
Burley tobacco (subregion 45)							
Under 10 acres.....	19		1	9	16	25	34
10 to 29 acres.....	15		16	14	15	13	21
30 to 69 acres.....	19		5	12	17	27	28
70 to 139 acres.....	29	5	16	28	35	28	13
140 to 259 acres.....	14	21	35	28	15	6	3
260 to 499 acres.....	4	36	22	8	2	1	1
500 acres and over.....	1	38	5	1	(Z)	(Z)	
Burley tobacco (subregion 32)							
Under 10 acres.....	14			2	4	12	16
10 to 29 acres.....	22			2	17	21	25
30 to 69 acres.....	33		22	21	26	30	36
70 to 139 acres.....	22		33	37	28	27	18
140 to 259 acres.....	7		22	18	18	9	4
260 to 499 acres.....	2		11	16	6	1	1
500 acres and over.....	(Z)	100	11	5	1	(Z)	(Z)
Southern Maryland tobacco (subregion 19)							
Under 10 acres.....	10			(Z)	6	18	38
10 to 29 acres.....	18		5	5	21	28	16
30 to 69 acres.....	21	27	9	14	26	24	25
70 to 139 acres.....	26	14	20	37	30	18	10
140 to 259 acres.....	17	27	30	30	14	10	11
260 to 499 acres.....	6		31	10	3	2	
500 acres and over.....	2	32	5	3	1	(Z)	(Z)
Dark-fired and air-cured tobacco (subregion 53)							
Under 10 acres.....	10		5	1	5	10	19
10 to 29 acres.....	20			7	21	21	20
30 to 69 acres.....	24	38		11	17	25	34
70 to 139 acres.....	29			20	34	32	23
140 to 259 acres.....	12		21	40	18	9	4
260 to 499 acres.....	4	58	36	19	5	2	
500 acres and over.....	1	4	38	3	(Z)	(Z)	(Z)

Z 0.5 percent or less.

Color, tenure, and age of operator.—The proportion of operators, white and nonwhite, varies considerably for farms growing different types of tobacco. Nonwhite operators are important only in the flue-cured subregions and in Southern Maryland (see Table 16). In 1954, nonwhite operators operated 38 percent of the farms in flue-cured subregion 24, and 26 percent in the Southern Maryland area. There were no nonwhite operators of Class I farms in either of the flue-cured areas. In both the flue-cured and Southern Maryland areas nonwhite operators increased as the size of farm decreased.

In all of the tobacco areas the proportion of operators that are tenants is high, but it is highest on the flue-cured farms. In subregion 24, only 40 percent of the white and 17 percent of the nonwhite operators were either owners, part owners, or managers; in subregion 25, the corresponding percents were 56 and 32, respec-

tively. In both subregions generally the percentage of tenancy decreased as size of farm decreased, especially for the nonwhite operators. In both subregions, a larger proportion of the nonwhite operators than white operators were croppers.

In the other tobacco areas, the proportion of white operators classified as owners, part owners, or managers was 57 and 76 percent in Burley subregions 45 and 32, respectively, 71 percent in the Southern Maryland subregion, and 65 percent in the dark-fired and air-cured area. There was no consistent relation between size of farm and percentage of tenancy in any area. Croppers were less frequent in these than in the flue-cured tobacco subregions.

Table 17 shows the proportion of operators in various age groups. There are distinct differences among the subregions in the age distribution of operators. In the flue-cured subregions and Burley subregion 45, the proportion of operators under 35 is much higher than in the other subregions. In the latter subregions (32, 19, and 53) about two-fifths of the operators were more than 55 years old. This would indicate the necessity of combining units as the older operators retire from farming.

There was some relation between size of farm and age of operator. Generally in all areas except subregion 24, a larger proportion of the operators of Class VI farms are in the older age groups, and a high percentage of the operators are more than 65 years of age.

Land use.—The land use on other field-crop farms in 1954 in the specialized tobacco areas is shown in Table 18. With the exception of Burley subregion 45 and the dark-fired and air-cured tobacco subregion, about half of the total land in farms was in cropland. Generally, farms in Class I have the highest percentage of total land in cropland and farms in Class VI, the lowest.

There was very little pastureland on farms in the flue-cured subregions. With the exception of woodland pastured, this was true even for Classes I and II farms. About three-fifths of the total cropland in Burley subregion 45 and one-third in subregion 32 was in cropland pasture. In addition, about 17 percent of the farmland in the 2 subregions was in nonwoodland pastureland; only a very small percentage of this was reported as improved pasture.

Generally the type of crops grown on specialized tobacco farms were definitely different in the various tobacco areas. In both of the flue-cured tobacco subregions, corn is the largest crop from the standpoint of acreage (see Table 19). Cotton is important on a number of farms in subregion 24 but very little is grown on farms in subregion 25. Small grains are more important on farms in subregion 25 than in subregion 24. The cropping system also varies by economic class of farm. In subregion 24, peanuts, small grains for grain, or soybeans are grown mainly on Classes I and II farms. Small grains are more important on the larger than on the smaller farms in subregion 25.

Corn is the largest crop from the standpoint of acreage on farms in the Burley subregions. No cotton or peanuts are grown on these farms. Some small grains are grown mainly on the larger farms. Hay is much more important on farms in the Burley subregion than in the flue-cured areas.

In the Southern Maryland subregion, the average acreage in tobacco is slightly greater than that in corn for grain. The cropping system does not vary much by economic class of farm, except that the larger farms grow more small grains and soybeans. In the dark-fired and air-cured subregion, about half of the cropland harvested is in corn for grain. Slightly more than 10 percent of the cropland harvested is in tobacco and about one-fifth of the cropland is in hay.

The variation by subregion in acres of tobacco per farm is shown in Table 20. In flue-cured subregion 24, the largest percent of the farms had 5 to 9.9 acres in tobacco; in subregion 25, the

FARMERS AND FARM PRODUCTION

TABLE 16.—COLOR AND TENURE OF OPERATOR OF OTHER FIELD-CROP FARMS IN SELECTED TOBACCO SUBREGIONS, BY ECONOMIC CLASS OF FARM: 1954

Item	All farms	Economic class of farm					
		I	II	III	IV	V	VI
Flue-cured tobacco (subregion 24)							
Number of operators.....	49,070	48	1,196	10,969	23,039	11,243	2,575
Percent of operators:							
White.....	62	100	82	68	63	57	47
Nonwhite.....	38		18	32	37	43	53
Percent of white operators:							
Owners, part owners, or managers.....	40	90	43	34	38	47	51
Croppers.....	26		22	30	26	21	27
Other tenants.....	34	10	35	36	36	32	22
Percent of nonwhite operators:							
Owners, part owners, or managers.....	17		12	8	12	26	41
Croppers.....	61		69	71	68	50	36
Other tenants.....	22		19	21	20	24	23
Flue-cured tobacco (subregion 25)							
Number of operators.....	43,975	30	167	2,300	14,264	20,464	6,750
Percent of operators:							
White.....	68	100	88	85	72	67	53
Nonwhite.....	32		12	15	28	33	47
Percent of white operators:							
Owners, part owners, or managers.....	56	67	86	63	55	54	61
Croppers.....	20	33	14	12	19	22	18
Other tenants.....	24			25	26	24	21
Percent of nonwhite operators:							
Owners, part owners, or managers.....	32		50	28	25	30	46
Croppers.....	47		50	66	52	48	37
Other tenants.....	21			6	23	22	17
Burley tobacco (subregion 45)							
Number of operators.....	20,442	97	1,103	5,725	11,471	8,201	2,845
Percent of operators:							
White.....	96	100	99	98	96	96	93
Nonwhite.....	4		1	2	4	4	7
Percent of white operators:							
Owners, part owners, or managers.....	57	74	51	47	54	62	76
Croppers.....	16		12	13	18	18	11
Other tenants.....	27	26	37	40	28	20	13
Percent of nonwhite operators:							
Owners, part owners, or managers.....	48		50	32	39	45	79
Croppers.....	30		50	20	41	31	14
Other tenants.....	22			48	20	24	7
Burley tobacco (subregion 32)							
Number of operators.....	22,150	5	45	257	1,926	8,306	11,611
Percent of operators:							
White.....	99	100	100	98	100	99	99
Nonwhite.....	1			2		1	1
Percent of white operators:							
Owners, part owners, or managers.....	76	100	100	78	70	71	81
Croppers.....	15			10	20	19	11
Other tenants.....	9			12	10	10	8
Percent of nonwhite operators:							
Owners, part owners, or managers.....	60			100		22	72
Croppers.....	23					67	8
Other tenants.....	17					11	20

TABLE 16.—COLOR AND TENURE OF OPERATOR OF OTHER FIELD-CROP FARMS IN SELECTED TOBACCO SUBREGIONS, BY ECONOMIC CLASS OF FARM: 1954—Continued

Item	All farms	Economic class of farm					
		I	II	III	IV	V	VI
Southern Maryland tobacco (subregion 19)							
Number of operators.....	4,546	37	321	1,001	1,626	1,255	306
Percent of operators:							
White.....	74	86	98	83	74	67	51
Nonwhite.....	26	14	2	17	26	33	49
Percent of white operators:							
Owners, part owners, or managers.....	71	69	73	70	68	75	65
Croppers.....	9	---	3	9	8	13	19
Other tenants.....	20	31	24	21	24	12	16
Percent of nonwhite operators:							
Owners, part owners, or managers.....	38	---	---	12	25	54	63
Croppers.....	36	100	---	38	44	33	20
Other tenants.....	26	---	100	50	31	13	17
Dark-fired and air-cured tobacco (subregion 53)							
Number of operators.....	13,829	26	97	755	3,681	6,090	3,180
Percent of operators:							
White.....	89	100	90	93	90	88	89
Nonwhite.....	11	---	10	7	10	12	11
Percent of white operators:							
Owners, part owners, or managers.....	65	42	78	71	56	66	72
Croppers.....	21	19	11	18	25	21	17
Other tenants.....	14	39	11	11	19	13	11
Percent of nonwhite operators:							
Owners, part owners, or managers.....	35	---	100	27	14	31	62
Croppers.....	55	---	---	46	76	59	31
Other tenants.....	10	---	---	27	10	10	7

TABLE 17.—DISTRIBUTION OF FARM OPERATORS BY AGE ON OTHER FIELD-CROP FARMS IN SELECTED TOBACCO SUBREGIONS, BY ECONOMIC CLASS OF FARM: 1954

Age group	All farms	Economic class of farm					
		I	II	III	IV	V	VI
Flue-cured tobacco (subregion 24)							
Number of operators reporting age.....	47, 514	48	1, 136	10, 594	22, 443	10, 833	2, 460
Percent reporting:							
Under 25 years.....	5	-----	2	2	5	8	12
25 to 34 years.....	22	10	17	18	24	22	20
35 to 44 years.....	31	23	36	36	32	26	17
45 to 54 years.....	24	21	26	20	23	21	19
55 to 64 years.....	12	31	13	12	10	14	16
65 years and over.....	6	15	6	3	5	9	17
Total.....	100	100	100	100	100	100	100
Flue-cured tobacco (subregion 25)							
Number of operators reporting age.....	42, 878	30	162	2, 229	14, 038	19, 884	6, 535
Percent reporting:							
Under 25 years.....	5	17	-----	2	2	5	10
25 to 34 years.....	17	-----	7	9	14	20	15
35 to 44 years.....	26	50	37	28	32	26	14
45 to 54 years.....	25	-----	35	37	29	22	18
55 to 64 years.....	17	-----	14	17	16	18	19
65 years and over.....	11	33	7	7	7	10	23
Total.....	100	100	100	100	100	100	100

TABLE 17.—DISTRIBUTION OF FARM OPERATORS BY AGE ON OTHER FIELD-CROP FARMS IN SELECTED TOBACCO SUBREGIONS, BY ECONOMIC CLASS OF FARM: 1954—Continued

Age group	All farms	Economic class of farm					
		I	II	III	IV	V	VI
Burley tobacco (subregion 45)							
Number of operators reporting age.....	28,441	96	1,063	5,600	11,111	7,866	2,705
Percent reporting:							
Under 25 years.....	5	1	3	4	6	5	8
25 to 34 years.....	17	14	19	20	15	12	16
35 to 44 years.....	25	22	35	27	19	12	16
45 to 54 years.....	22	34	25	25	24	20	20
55 to 64 years.....	17	19	16	13	16	20	20
65 years and over.....	14	11	10	6	9	19	39
Total.....	100	100	100	100	100	100	100
Burley tobacco (subregion 32)							
Number of operators reporting age.....	21,505	5	45	252	1,821	8,131	11,251
Percent reporting:							
Under 25 years.....	3			2	2	3	9
25 to 34 years.....	11		14	9	14	9	16
35 to 44 years.....	21	100	33	36	33	26	16
45 to 54 years.....	25		22	22	33	27	22
55 to 64 years.....	22		22	16	13	19	25
65 years and over.....	19		22	12	9	12	26
Total.....	100	100	100	100	100	100	100
Southern Maryland tobacco (subregion 19)							
Number of operators reporting age.....	4,491	32	321	996	1,611	1,235	296
Percent reporting:							
Under 25 years.....	2		2	2	2	3	5
25 to 34 years.....	12	31	5	15	14	13	5
35 to 44 years.....	21	19	15	18	22	24	15
45 to 54 years.....	27	34	36	20	20	22	14
55 to 64 years.....	21		22	24	21	20	15
65 years and over.....	17	16	20	13	11	19	48
Total.....	100	100	100	100	100	100	100
Dark-fired and air-cured tobacco (subregion 53)							
Number of operators reporting age.....	13,154	26	97	735	3,536	5,760	3,000
Percent reporting:							
Under 25 years.....	4		5	3	4	4	4
25 to 34 years.....	11		2	12	17	11	5
35 to 44 years.....	22	38	26	29	27	23	14
45 to 54 years.....	25	19	15	36	26	25	20
55 to 64 years.....	22	19	31	12	17	22	29
65 years and over.....	16	23	21	8	9	15	28
Total.....	100	100	100	100	100	100	100

TABLE 18.—AVERAGE ACREAGE PER FARM FOR SPECIFIED USES OF LAND ON OTHER FIELD-CROP FARMS IN SELECTED TOBACCO SUBREGIONS, BY ECONOMIC CLASS OF FARM: 1954

Use of land	Average acres per farm by economic class of farm						
	All farms	I	II	III	IV	V	VI
Flue-cured tobacco (subregion 24)							
Cropland harvested.....	24.6	178.8	67.0	36.8	22.9	14.7	9.0
Cropland pastured.....	.9	7.4	3.4	1.4	.8	.6	.5
Cropland not harvested and not pastured.....	1.3	8.8	3.0	1.3	1.2	1.4	1.4
Total cropland.....	26.8	195.0	73.4	39.5	24.9	16.7	10.9
Woodland pastured.....	2.2	19.5	7.3	2.5	1.7	2.2	1.9
Woodland not pastured.....	18.6	164.6	52.2	23.6	15.9	15.8	16.2
Improved pasture.....	.3	6.8	1.0	.4	.3	.2	.2
Not improved pasture.....	.8	.5	2.4	.8	.6	.8	.5
Other land.....	1.9	5.5	4.2	2.2	1.7	1.8	1.3
Total.....	60.6	391.9	140.5	69.0	45.1	37.5	31.0

TABLE 18.—AVERAGE ACREAGE PER FARM FOR SPECIFIED USES OF LAND ON OTHER FIELD-CROP FARMS IN SELECTED TOBACCO SUBREGIONS, BY ECONOMIC CLASS OF FARM: 1954—Continued

Use of land	Average acres per farm by economic class of farm						
	All farms	I	II	III	IV	V	VI
Flue-cured tobacco (subregion 25)							
Cropland harvested.....	18.1	103.8	77.1	40.7	23.4	14.4	8.5
Cropland pastured.....	3.0	1.7	18.9	7.1	3.5	2.3	2.1
Cropland not harvested and not pastured.....	5.8	22.8	17.9	10.4	6.8	5.0	4.3
Total cropland.....	26.9	128.3	113.9	58.2	33.7	21.7	14.9
Woodland pastured.....	5.3	28.7	28.4	10.9	6.7	4.2	3.4
Woodland not pastured.....	31.9	80.0	99.6	63.3	38.6	26.5	21.7
Improved pasture.....	1.2	.8	11.2	4.4	1.5	.8	.4
Not improved pasture.....	2.9	1.7	12.6	6.9	3.7	2.2	1.8
Other land.....	3.5	5.0	9.2	5.4	4.1	3.1	2.7
Total.....	71.7	244.5	274.9	149.1	88.3	58.5	44.9
Burley tobacco (subregion 45)							
Cropland harvested.....	19.9	182.7	56.9	32.3	18.6	11.0	5.6
Cropland pastured.....	30.3	284.0	83.3	46.9	28.0	18.2	11.5
Cropland not harvested and not pastured.....	2.3	2.7	3.6	2.7	2.6	1.8	1.8
Total cropland.....	52.5	469.4	143.8	81.9	49.2	31.0	18.9
Woodland pastured.....	9.2	26.2	12.2	9.6	10.2	8.5	4.3
Woodland not pastured.....	4.5	11.6	2.8	4.0	4.8	4.3	5.3
Improved pasture.....	1.1	12.3	1.8	2.5	1.0	.4	.1
Not improved pasture.....	13.2	68.6	28.5	17.4	12.9	10.2	6.5
Other land.....	4.3	23.1	9.8	5.6	4.2	3.2	2.7
Total.....	84.8	611.2	198.9	121.0	82.3	57.6	37.8
Burley tobacco (subregion 32)							
Cropland harvested.....	15.8	201.0	48.0	52.7	31.8	18.5	10.2
Cropland pastured.....	10.4	10.0	28.8	41.3	17.4	11.9	7.5
Cropland not harvested and not pastured.....	2.3	5.0	11.3	4.5	3.2	1.8	2.4
Total cropland.....	28.5	216.0	88.1	98.5	52.4	32.2	20.1
Woodland pastured.....	6.7		34.1	16.3	9.6	7.4	5.4
Woodland not pastured.....	13.8	45.0	42.3	29.5	17.0	13.7	12.9
Improved pasture.....	.7	36.0	5.2	2.6	1.3	.9	.5
Not improved pasture.....	9.0	195.0	34.9	20.4	18.4	9.1	7.0
Other land.....	2.2	36.0	1.9	6.6	2.8	2.4	1.8
Total.....	60.9	528.0	206.5	173.9	101.5	65.7	47.7
Southern Maryland tobacco (subregion 19)							
Cropland harvested.....	29.9	126.1	80.2	45.9	24.6	13.9	7.2
Cropland pastured.....	10.5	38.9	25.0	17.5	8.4	4.6	4.9
Cropland not harvested and not pastured.....	10.8	29.2	16.7	15.9	8.3	8.3	9.5
Total cropland.....	51.2	194.2	121.9	79.3	41.3	26.8	21.6
Woodland pastured.....	5.7	15.1	12.9	8.9	4.4	3.5	2.1
Woodland not pastured.....	37.1	69.5	72.8	52.8	31.8	25.2	20.6
Improved pasture.....	.4	3.4	2.2	.8	.1	.1	.1
Not improved pasture.....	2.3	6.7	3.7	3.9	2.3	.7	1.6
Other land.....	6.0	49.0	9.1	10.2	4.7	3.3	2.3
Total.....	102.7	337.9	222.6	155.9	84.6	59.6	48.2
Dark-fired and air-cured tobacco (subregion 53)							
Cropland harvested.....	28.3	172.8	173.0	66.6	37.4	23.0	13.0
Cropland pastured.....	19.7	38.3	91.1	43.3	23.8	17.1	11.9
Cropland not harvested and not pastured.....	7.6	4.5	32.6	11.6	8.3	7.2	6.2
Total cropland.....	55.6	215.6	296.7	121.5	69.5	47.3	31.1
Woodland pastured.....	6.0	3.9	16.0	16.8	5.6	5.7	4.3
Woodland not pastured.....	10.3	22.9	44.6	22.8	9.9	9.6	8.2
Improved pasture.....	.6	4.8	4.3	2.4	.7	.4	.4
Not improved pasture.....	4.5	45.4	11.9	5.7	4.6	4.3	3.7
Other land.....	5.5	5.2	37.4	9.7	5.6	5.5	3.4
Total.....	82.5	297.8	410.9	178.9	95.8	72.8	51.1

TABLE 19.—AVERAGE ACREAGE OF CROPS GROWN ON OTHER FIELD-CROP FARMS IN SELECTED TOBACCO SUBREGIONS, BY ECONOMIC CLASS OF FARM: 1954

Crop	Average acres per farm by economic class of farm						
	All farms	I	II	III	IV	V	VI
Flue-cured tobacco (subregion 24)							
Total cropland harvested.....	24.6	178.9	67.0	36.8	22.9	14.7	9.0
Selected crops:							
Peanuts grown for all purposes.....	.5	6.8	1.8	1.1	.4	.1	.1
Corn for grain.....	11.5	82.5	31.9	17.4	10.9	6.3	3.6
Cotton.....	2.7	11.4	6.2	3.9	2.6	1.7	.7
Tobacco.....	5.7	37.5	14.2	8.2	5.3	3.7	2.3
Small grain for grain.....	.9	24.0	3.7	1.4	.8	.5	.4
Soybeans for beans.....	.5	11.7	3.2	.8	.4	.1	(Z)
All hay.....	1.3	8.3	2.6	1.7	1.2	1.1	1.0
Flue-cured tobacco (subregion 25)							
Total cropland harvested.....	18.1	103.8	77.1	40.7	23.4	14.4	8.5
Selected crops:							
Peanuts grown for all purposes.....	(Z)				(Z)	(Z)	(Z)
Corn for grain.....	5.4	29.5	15.2	9.8	6.9	4.7	2.9
Cotton.....	.1	.2	.9	.3	.2	.1	.1
Tobacco.....	4.8	34.5	17.5	9.8	6.3	4.0	2.3
Small grain for grain.....	2.8	24.2	18.1	7.9	3.9	1.9	.9
Soybeans for beans.....	(Z)		.2	.1	(Z)	(Z)	(Z)
All hay.....	4.4	27.7	24.2	11.6	5.8	3.3	1.9
Burley tobacco (subregion 45)							
Total cropland harvested.....	19.9	182.7	56.9	32.3	18.6	11.0	5.6
Selected crops:							
Peanuts grown for all purposes.....	5.7	27.6	11.6	9.2	5.7	3.4	2.2
Corn for grain.....	3.7	25.8	10.9	5.9	3.6	2.1	1.1
Cotton.....	1.3	33.9	6.8	2.5	.8	.3	.1
Tobacco.....	(Z)			(Z)	(Z)	(Z)	(Z)
Small grain for grain.....	7.9	56.7	21.6	12.8	7.6	4.6	2.0
Soybeans for beans.....	7.9	56.7	21.6	12.8	7.6	4.6	2.0
All hay.....	7.9	56.7	21.6	12.8	7.6	4.6	2.0
Burley tobacco (subregion 32)							
Total cropland harvested.....	15.8	201.0	48.0	52.7	31.8	18.5	10.2
Selected crops:							
Peanuts grown for all purposes.....	4.6	15.0	2.8	11.8	7.5	5.4	3.4
Corn for grain.....	(Z)	20.0	3.0	2.9	2.4	1.5	.8
Cotton.....	1.2	28.0	11.6	11.5	5.4	2.4	.8
Tobacco.....	2.0	28.0	11.6	11.5	5.4	2.4	.8
Small grain for grain.....	(Z)	7.4	135.0	18.7	15.4	8.6	4.7
Soybeans for beans.....	7.4	135.0	18.7	24.9	15.4	8.6	4.7
All hay.....	7.4	135.0	18.7	24.9	15.4	8.6	4.7
Southern Maryland tobacco (subregion 19)							
Total cropland harvested.....	29.9	126.1	80.2	45.9	24.6	13.9	7.2
Selected crops:							
Peanuts grown for all purposes.....	9.7	24.8	26.4	14.3	8.5	4.5	2.5
Corn for grain.....	10.0	48.1	25.2	14.2	9.0	5.2	3.5
Cotton.....	3.7	19.3	11.0	6.5	2.8	1.2	.1
Tobacco.....	1.2	2.4	2.8	2.0	.7	1.0	.4
Small grain for grain.....	4.3	24.6	10.4	8.0	3.3	1.4	.8
Soybeans for beans.....	4.3	24.6	10.4	8.0	3.3	1.4	.8
All hay.....	4.3	24.6	10.4	8.0	3.3	1.4	.8
Dark-fired and air-cured tobacco (subregion 53)							
Total cropland harvested.....	28.3	172.8	173.0	66.6	37.4	23.0	13.0
Selected crops:							
Peanuts grown for all purposes.....	15.1	46.9	54.9	30.3	19.6	13.5	7.9
Corn for grain.....	(Z)	10.1	7.9	4.4	(Z)	(Z)	(Z)
Cotton.....	2.0	18.6	3.7	2.5	1.6	1.1	.7
Dark-fired and air-cured tobacco.....	1.2	41.6	51.2	11.7	4.6	1.5	.4
Burley tobacco.....	3.0	41.6	51.2	11.7	4.6	1.5	.4
Small grain for grain.....	.1	3.4	.3	(Z)	(Z)	(Z)	(Z)
Soybeans for beans.....	5.3	39.4	33.9	13.6	7.0	4.1	2.5
All hay.....	5.3	39.4	33.9	13.6	7.0	4.1	2.5

Z 0.05 acre or less.

largest percent of the farms were in the 2.5 to 4.9 acre group. Forty-three percent of the farmers in Burley subregion 45 had 2.5 to 4.9 acres in tobacco but 93 percent of the farmers in subregion 32 grew less than 2.5 acres in tobacco. Only 19 percent of the growers of Southern Maryland tobacco grew less than 5 acres of tobacco in 1954 and one-third of the producers grew from 10 to 19.9 acres. About one-third dark fire-cured tobacco farms had less than 2.5 acres in 1954 and 89 percent of the growers of dark air-cured tobacco, grew less than 2.5 acres in 1954. On some farms both dark-fired and dark air-cured tobacco were grown.

For all types of tobacco, the acres of tobacco per farm increased as the gross farm income increased. No Class I flue-cured tobacco farms had less than 20 acres in tobacco.

Livestock.—The livestock kept on specialized tobacco farms varies somewhat in the different types of tobacco areas (see Table 21). In the flue-cured regions, it is kept mainly to supply products for home consumption. In subregion 24, milk cows were reported on 24 percent of the farms as compared with 66 percent in subregion 25.

Farms in the Burley subregions and the dark-fired and air-cured have more livestock than farms in the other subregions. Livestock is used to supplement the income from tobacco on many of the farms.

In all subregions the amount of livestock increased with the increase in gross income, especially for beef cattle and hogs. Many of the larger farmers found the adding of livestock enterprises profitable as the resources were used to better advantage and the income from tobacco was supplemented.

Labor used.—Except on the larger farms, the farm organization of tobacco farms is planned around the farm family. Hired labor was relatively unimportant except on the Classes I and II farms. Family labor made up a larger proportion of the labor force on flue-cured farms than for any of the other types of tobacco (see Table 22). The average crop acres per man was smallest in the flue-cured and highest in the dark-fired and air-cured subregions.

As to be expected, the average man-equivalents of labor increased as the size of farm operations increased. However, the amount of labor on large farms was only 3 to 4 times the amount on small farms.

The majority of the operators of tobacco farms spend full time on the farm business. In each subregion except Southern Maryland, two-thirds or more of the operators reported no days of work off farm (see Table 23). For the operators who did work off farm, the days worked were less than 100. Size of farm apparently had little to do with whether operators work off farm or the time spent at nonfarm work. In most cases, a slightly higher proportion of the operators of large farms, than of smaller farms, reported off-farm work, but the difference was not great.

Farm mechanization and home conveniences.—Tobacco production requires a great deal of hand labor especially during the harvest season. The number of crop acres per farm is usually small. Operators have been slow to mechanize, partly because of the small size of the unit and partly because of the fact that machinery has not been developed to completely mechanize the harvesting operations. If enough labor is available to harvest tobacco, it usually means a surplus for preharvest work.

With the exception of the Southern Maryland area, tractors were reported on slightly less than half of the farms, averaging about 0.5 tractor per farm (see Table 24). The number of motor-trucks was even smaller, averaging only about 0.3 truck per farm. The percentage of operators reporting motortrucks varied from 80 percent in Southern Maryland to 40 percent in Burley subregion 32.

TABLE 20.—DISTRIBUTION OF FARMS REPORTING BY ACRES OF TOBACCO HARVESTED, FOR OTHER FIELD-CROP FARMS IN SELECTED TOBACCO SUBREGIONS, BY ECONOMIC CLASS OF FARM: 1954

Acres of tobacco harvested	All farms	Economic class of farm					
		I	II	III	IV	V	VI
Flue-cured tobacco (subregion 24)							
Farms reporting tobacco harvested.....number.....	48,920	48	1,193	10,943	23,039	11,188	2,515
Percent distribution by acres harvested:							
Under 2.5 acres.....	7			(Z)	1	14	70
2.5 to 4.9 acres.....	37		2	6	40	68	23
5.0 to 9.9 acres.....	47		12	67	58	18	6
10.0 to 19.9 acres.....	9		73	27	1	(Z)	1
20.0 acres and over.....	(Z)	100	12	(Z)			
Total.....	100	100	100	100	100	100	100
Flue-cured tobacco (subregion 25)							
Farms reporting tobacco harvested.....number.....	43,445	30	167	2,280	14,154	20,249	6,565
Percent distribution by acres harvested:							
Under 2.5 acres.....	14				1	7	66
2.5 to 4.9 acres.....	44			2	22	70	31
5.0 to 9.9 acres.....	38		12	52	73	23	3
10.0 to 19.9 acres.....	4		40	46	4	(Z)	
20.0 acres and over.....	(Z)	100	48	(Z)			
Total.....	100	100	100	100	100	100	100
Burley tobacco (subregion 45)							
Farms reporting tobacco harvested.....number.....	29,367	97	1,098	5,725	11,421	8,181	2,845
Percent distribution by acres harvested:							
Under 2.5 acres.....	34			(Z)	12	72	99
2.5 to 4.9 acres.....	43		2	28	75	28	1
5.0 to 9.9 acres.....	20	10	42	68	13	(Z)	
10.0 to 19.9 acres.....	3	29	52	4			
20.0 acres and over.....	(Z)	61	4				
Total.....	100	100	100	100	100	100	100
Burley tobacco (subregion 32)							
Farms reporting tobacco harvested.....number.....	22,095	5	45	257	1,926	8,306	11,556
Percent distribution by acres harvested:							
Under 2.5 acres.....	93			4	56	95	100
2.5 to 4.9 acres.....	7		11	84	44	5	(Z)
5.0 to 9.9 acres.....	(Z)		78	12	(Z)		
10.0 to 19.9 acres.....	(Z)	100	11				
20.0 acres and over.....							
Total.....	100	100	100	100	100	100	100
Southern Maryland tobacco (subregion 19)							
Farms reporting tobacco harvested.....number.....	4,526	32	311	996	1,626	1,255	306
Percent distribution by acres harvested:							
Under 2.5 acres.....	4				1	4	43
2.5 to 4.9 acres.....	15				2	40	52
5.0 to 9.9 acres.....	39		3	12	57	54	5
10.0 to 19.9 acres.....	33		23	75	38	2	
20.0 acres and over.....	9	100	74	13	2		
Total.....	100	100	100	100	100	100	100
Dark-fired tobacco (subregion 53)							
Farms reporting tobacco harvested.....number.....	6,504	21	72	465	2,066	2,800	1,080
Percent distribution by acres harvested:							
Under 2.5 acres.....	35			4	14	39	82
2.5 to 4.9 acres.....	46		28	30	53	55	17
5.0 to 9.9 acres.....	18	48	21	57	33	6	1
10.0 to 19.9 acres.....	1	48	51	9			
20.0 acres and over.....	(Z)	4					
Total.....	100	100	100	100	100	100	100

TABLE 20.—DISTRIBUTION OF FARMS REPORTING BY ACRES OF TOBACCO HARVESTED, FOR OTHER FIELD-CROP FARMS IN SELECTED TOBACCO SUBREGIONS, BY ECONOMIC CLASS OF FARM: 1954—Continued

Acres of tobacco harvested	All farms	Economic class of farm					
		I	II	III	IV	V	VI
Dark air-cured tobacco (subregion 53)							
Farms reporting tobacco harvested.....number.....	4, 257	1	36	245	1, 050	1, 995	930
Percent distribution by acres harvested:							
Under 2.5 acres.....	89	100	72	80	84	90	95
2.5 to 4.9 acres.....	9		14	10	13	9	5
5.0 to 9.9 acres.....	2		14	10	3	1	
10.0 to 19.9 acres.....							
20.0 acres and over.....							
Total.....	100	100	100	100	100	100	100

Z 0.05 percent or less.

TABLE 21.—AVERAGE NUMBER OF LIVESTOCK PER FARM ON OTHER FIELD-CROP FARMS IN SELECTED TOBACCO SUBREGIONS, BY ECONOMIC CLASS OF FARM: 1954

Kind of livestock	All farms		Average number per farm by economic class of farm					
	Percent of farms reporting	Average number per farm	I	II	III	IV	V	VI
Flue-cured tobacco (subregion 24)								
Horses and mules.....	60	1.1	1.8	2.1	1.4	1.0	0.9	0.7
Milk cows.....	28	.4	5.3	.8	.5	.4	.4	.4
Other cattle.....	NA	.7	7.7	3.6	1.2	.6	.3	.4
All hogs and pigs.....	69	6.1	17.7	15.2	9.4	5.8	3.4	2.5
Chickens.....	76	25.6	29.1	49.6	33.3	25.0	19.0	15.5
Flue-cured tobacco (subregion 25)								
Horses and mules.....	66	1.1	3.0	3.1	2.1	1.4	1.0	0.8
Milk cows.....	66	1.2	2.0	6.2	2.6	1.5	1.0	.7
Other cattle.....	NA	1.4	11.5	13.9	5.6	1.8	.9	.5
All hogs and pigs.....	75	2.7	8.7	9.0	6.2	3.4	2.2	1.4
Chickens.....	71	21.6	15.0	72.3	41.9	26.1	18.7	13.0
Burley tobacco (subregion 45)								
Horses and mules.....	56	1.2	4.1	1.6	1.3	1.2	1.1	0.9
Milk cows.....	69	3.3	6.4	5.8	4.7	3.6	2.3	1.3
Other cattle.....	NA	5.4	93.1	24.3	9.8	4.0	2.2	1.1
All hogs and pigs.....	43	3.9	32.2	13.1	6.9	3.4	1.9	1.3
Chickens.....	76	33.6	44.0	42.7	41.8	35.6	27.1	24.3
Burley tobacco (subregion 32)								
Horses and mules.....	60	1.0	5.0	1.1	1.3	1.3	1.1	0.9
Milk cows.....	80	2.7	12.0	8.8	9.4	5.3	3.3	1.7
Other cattle.....	NA	3.3	208.0	22.8	17.0	7.6	3.9	1.6
All hogs and pigs.....	66	2.2		5.1	4.3	3.5	2.7	1.5
Chickens.....	82	33.5	180.0	34.9	68.4	48.6	37.7	27.2
Southern Maryland tobacco (subregion 19)								
Horses and mules.....	43	0.8	0.7	1.1	1.1	0.8	0.5	0.5
Milk cows.....	46	1.4	4.2	2.6	2.1	1.5	.7	.5
Other cattle.....	NA	4.0	15.5	14.0	8.3	2.2	1.0	.4
All hogs and pigs.....	59	4.6	11.5	11.7	7.5	4.1	1.9	1.4
Chickens.....	69	39.6	68.9	50.2	61.6	38.1	26.0	17.5
Dark-fired and air-cured tobacco (subregion 53)								
Horses and mules.....	54	1.1	1.7	1.9	1.4	1.0	1.1	1.0
Milk cows.....	62	2.6	9.3	10.3	5.8	3.3	2.2	1.3
Other cattle.....	NA	4.0	28.0	47.6	12.2	5.0	2.8	1.5
All hogs and pigs.....	56	4.8	12.3	28.8	12.5	6.7	3.8	2.1
Chickens.....	81	35.5	52.4	84.9	49.2	40.1	33.6	29.1

NA Not available.

TABLE 22.—SOURCE OF LABOR ON OTHER FIELD-CROP FARMS IN SELECTED TOBACCO SUBREGIONS, BY ECONOMIC CLASS OF FARM: 1954

Item	All farms	Economic class of farm					
		I	II	III	IV	V	VI
Flue-cured tobacco (subregion 24)							
Man-equivalent per farm, total.....	1.73	4.94	3.17	2.17	1.67	1.39	1.20
Operator.....	.90	.90	1.00	.94	.91	.85	.88
Unpaid family labor.....	.49	.54	.71	.67	.47	.38	.23
Hired labor.....	.34	3.50	1.46	.56	.29	.16	.09
Flue-cured tobacco (subregion 25)							
Man-equivalent per farm, total.....	1.46	1.70	2.42	2.03	1.66	1.34	1.17
Operator.....	.87	.63	.85	.90	.90	.84	.85
Unpaid family labor.....	.50	.40	.62	.85	.65	.43	.29
Hired labor.....	.09	.67	.95	.28	.11	.07	.03
Burley tobacco (subregion 45)							
Man-equivalent per farm, total.....	1.20	4.67	2.10	1.45	1.20	0.97	0.92
Operator.....	.83	.83	.89	.90	.87	.75	.77
Unpaid family labor.....	.21	.15	.28	.26	.21	.17	.13
Unpaid labor.....	.16	3.69	.93	.29	.12	.05	.02
Burley tobacco (subregion 32)							
Man-equivalent per farm, total.....	1.05	7.60	1.67	1.42	1.25	1.06	0.99
Operator.....	.81	.80	.69	.80	.83	.79	.83
Unpaid family labor.....	.21	.18	.39	.36	.24	.15	.15
Hired labor.....	.03	6.80	.80	.23	.06	.03	.01
Southern Maryland tobacco (subregion 19)							
Man-equivalent per farm, total.....	1.28	3.00	2.60	1.62	1.22	0.82	0.82
Operator.....	.70	.86	.76	.78	.76	.56	.70
Unpaid family labor.....	.26	.17	.40	.36	.26	.17	.09
Hired labor.....	.32	1.97	1.44	.48	.20	.09	.03
Dark-fired and air-cured tobacco (subregion 53)							
Man-equivalent per farm, total.....	1.06	1.73	2.62	1.39	1.19	0.98	0.94
Operator.....	.84	.85	.79	.89	.89	.81	.83
Unpaid family labor.....	.15	.15	.35	.23	.22	.13	.09
Hired labor.....	.07	.73	1.48	.27	.08	.04	.02

TABLE 23.—WORK OFF FARM BY FARM OPERATORS OF OTHER FIELD-CROP FARMS IN SELECTED TOBACCO SUBREGIONS, BY ECONOMIC CLASS OF FARM: 1954

Item	Percent of operators reporting for each economic class of farm						
	All farms	I	II	III	IV	V	VI
Flue-cured tobacco (subregion 24)							
Days of work off farm:							
None.....	74	90	82	80	75	67	71
1 to 99 days.....	21	10	14	18	21	23	29
100 to 199 days.....	2		2	1	2	4	-----
200 days or more.....	3		2	1	2	6	-----
Not reporting.....							
Total.....	100	100	100	100	100	100	100
Flue-cured tobacco (subregion 25)							
Days of work off farm:							
None.....	77	67	73	82	79	73	82
1 to 99 days.....	15	17	16	13	15	15	18
100 to 199 days.....	3		1	2	2	4	-----
200 days or more.....	5			3	4	8	-----
Not reporting.....		16	10				-----
Total.....	100	100	100	100	100	100	100
Burley tobacco (subregion 45)							
Days of work off farm:							
None.....	66	53	72	68	68	60	70
1 to 99 days.....	25	37	23	27	25	22	30
100 to 199 days.....	4	5	4	3	3	8	-----
200 days or more.....	5	5	1	2	4	10	-----
Not reporting.....	(Z)			(Z)			
Total.....	100	100	100	100	100	100	100

TABLE 23.—WORK OFF FARM BY FARM OPERATORS OF OTHER FIELD-CROP FARMS IN SELECTED TOBACCO SUBREGIONS, BY ECONOMIC CLASS OF FARM: 1954—Continued

Item	Percent of operators reporting for each economic class of farm						
	All farms	I	II	III	IV	V	VI
Burley tobacco (subregion 32)							
Days of work off farm:							
None.....	68	-----	67	63	67	62	72
1 to 99 days.....	24	100	11	23	19	21	27
100 to 199 days.....	3	-----	-----	2	6	6	-----
200 days or more.....	4	-----	22	12	7	10	-----
Not reporting.....	1	-----	-----	-----	1	1	1
Total.....	100	100	100	100	100	100	100
Southern Maryland tobacco (subregion 19)							
Days of work off farm:							
None.....	50	84	75	63	56	43	67
1 to 99 days.....	20	14	9	21	23	14	29
100 to 199 days.....	7	-----	2	3	7	12	-----
200 days or more.....	15	2	14	9	10	30	-----
Not reporting.....	2	-----	-----	4	4	1	4
Total.....	100	100	100	100	100	100	100
Dark-fired and air-cured tobacco (subregion 53)							
Days of work off farm:							
None.....	71	81	64	77	72	67	77
1 to 99 days.....	21	19	26	18	21	21	23
100 to 199 days.....	4	-----	5	-----	4	5	-----
200 days or more.....	4	-----	5	5	3	6	-----
Not reporting.....	(Z)	-----	-----	-----	-----	1	-----
Total.....	100	100	100	100	100	100	100

Z 0.5 percent or less.

TABLE 24.—SPECIFIED FACILITIES AND EQUIPMENT FOR FARM AND HOME ON OTHER FIELD-CROP FARMS IN SELECTED TOBACCO SUBREGIONS, BY ECONOMIC CLASS OF FARM: 1954

Item	All farms	Economic class of farm					
		I	II	III	IV	V	VI
Flue-cured tobacco (subregion 24)							
Average number per farm:							
Automobiles.....	0.7	1.8	1.2	0.9	0.7	0.6	0.5
Motortrucks.....	0.3	1.2	0.6	0.3	0.2	0.2	0.2
Tractors.....	0.6	1.5	1.2	0.7	0.5	0.3	0.2
Grain combines.....	(Z)	0.1	0.1	(Z)	(Z)	(Z)	(Z)
Percent of farms reporting:							
Automobiles.....	68	90	84	78	69	60	48
Motortrucks.....	25	79	54	32	23	20	18
Tractors.....	44	77	76	60	44	30	23
Grain combines.....	3	10	12	4	2	1	1
Telephone.....	8	25	22	10	7	8	8
Electricity.....	96	90	98	98	97	93	84
Television.....	22	44	52	32	20	13	12
Piped running water.....	37	69	69	47	36	29	23
Home freezer.....	25	46	49	34	23	18	13
Flue-cured tobacco (subregion 25)							
Average number per farm:							
Automobiles.....	0.7	2.5	1.4	1.1	0.8	0.6	0.4
Motortrucks.....	0.3	0.5	1.0	0.6	0.4	0.3	0.2
Tractors.....	0.4	1.0	1.6	0.9	0.6	0.4	0.2
Grain combines.....	(Z)	0.3	0.3	0.2	0.1	(Z)	(Z)
Percent of farms reporting:							
Automobiles.....	60	83	75	76	66	59	41
Motortrucks.....	31	33	73	56	36	28	19
Tractors.....	40	50	85	71	51	35	22
Grain combines.....	4	33	29	16	6	2	—
Telephone.....	11	17	53	23	12	11	6
Electricity.....	93	100	97	98	96	92	84
Television.....	23	33	47	40	27	22	15
Piped running water.....	34	50	75	61	40	31	20
Home freezer.....	13	33	47	37	16	11	7
Burley tobacco (subregion 45)							
Average number per farm:							
Automobiles.....	0.9	3.2	1.4	0.1	0.9	0.7	0.5
Motortrucks.....	0.4	2.6	1.0	0.6	0.4	0.3	0.1
Tractors.....	0.6	2.9	1.5	0.9	0.5	0.3	0.1
Grain combines.....	(Z)	0.2	0.2	0.1	(Z)	(Z)	(Z)

TABLE 24.—SPECIFIED FACILITIES AND EQUIPMENT FOR FARM AND HOME ON OTHER FIELD-CROP FARMS IN SELECTED TOBACCO SUBREGIONS, BY ECONOMIC CLASS OF FARM: 1954—Continued

Item	All farms	Economic class of farm					
		I	II	III	IV	V	VI
Burley tobacco (subregion 45)—Continued							
Percent of farms reporting:							
Automobiles.....	75	99	90	85	79	69	50
Motortrucks.....	34	84	77	50	33	26	13
Tractors.....	46	95	90	73	49	28	12
Grain combines.....	2	22	17	5	1	1	(Z)
Telephone.....	38	85	75	52	37	31	21
Electricity.....	94	100	98	98	97	91	83
Television.....	37	76	62	40	37	31	19
Piped running water.....	28	72	61	42	25	21	19
Home freezer.....	18	60	37	27	18	14	8
Burley tobacco (subregion 32)							
Average number per farm:							
Automobiles.....	0.4	9.0	1.1	1.0	0.7	0.5	0.3
Motortrucks.....	0.3	3.0	0.8	0.6	0.5	0.4	0.2
Tractors.....	0.3	5.0	1.2	1.0	0.6	0.3	0.1
Grain combines.....	(Z)	2.0	0.2	0.1	0.1	(Z)	(Z)
Percent of farms reporting:							
Automobiles.....	40	100	78	77	60	47	31
Motortrucks.....	31	100	44	46	46	36	23
Tractors.....	24	100	67	69	47	32	14
Grain combines.....	2	100	11	6	7	1	1
Telephone.....	12	100	33	28	15	14	9
Electricity.....	89	100	100	98	96	93	85
Television.....	12	100	33	26	14	15	9
Piped running water.....	31	100	67	67	41	37	24
Home freezer.....	11	100	67	43	20	13	8
Southern Maryland tobacco (subregion 19)							
Average number per farm:							
Automobiles.....	1.1	2.4	2.1	1.4	1.0	0.9	0.4
Motortrucks.....	0.5	0.9	1.1	0.6	0.4	0.3	0.1
Tractors.....	1.1	2.3	2.5	1.6	0.9	0.8	0.4
Grain combines.....	0.1	0.4	0.3	0.2	0.9	0.1	---
Percent of farms reporting:							
Automobiles.....	80	86	89	92	80	77	38
Motortrucks.....	39	59	75	54	34	30	11
Tractors.....	74	86	95	93	72	68	31
Grain combines.....	10	43	25	17	9	4	---
Telephone.....	52	86	80	68	48	43	25
Electricity.....	83	100	97	88	85	77	59
Television.....	62	86	83	68	62	57	33
Piped running water.....	53	97	78	66	53	44	17
Home freezer.....	34	86	63	51	29	25	10
Dark-fired and air-cured tobacco (subregion 53)							
Average number per farm:							
Automobiles.....	0.6	2.2	2.0	1.0	0.8	0.6	0.5
Motortrucks.....	0.3	1.2	1.2	0.6	0.4	0.3	0.2
Tractors.....	0.5	1.9	2.5	1.0	0.7	0.5	0.3
Grain combines.....	0.1	0.6	0.9	0.2	0.1	(Z)	(Z)
Percent of farms reporting:							
Automobiles.....	58	100	95	74	67	56	47
Motortrucks.....	29	62	85	56	35	28	17
Tractors.....	46	81	95	73	60	45	25
Grain combines.....	6	62	79	23	8	4	1
Telephone.....	22	62	59	50	26	21	16
Electricity.....	91	100	100	98	96	90	85
Television.....	21	38	74	44	28	18	10
Piped running water.....	23	62	69	44	27	21	15
Home freezer.....	12	19	54	26	16	10	8

Z Less than half of smallest unit shown (0.05 or 0.5 percent).

Farms in Classes I, II, and III were much more highly mechanized than the farms in Classes IV, V, and VI. However, a sizable percentage of the farms of higher income did not have tractors or motortrucks.

In the case of home conveniences, electricity was the only item reported on the majority of tobacco farms. It was reported as available on 80 percent or more of all the farms in each economic class in each subregion, with the exception of Southern Maryland. For home conveniences as a whole, however, Southern Maryland had the highest level of living of any subregion; a larger percentage had telephones, television sets, running water, and home freezers. As measured by home conveniences, the level of living was low on the majority of farms in other subregions. In most areas less than 20 percent of the farms had telephones, television sets, or home freezers, and less than one-third had running water.

In all subregions the proportion of farms with various home conveniences increased as the amount of gross sales increased. In the flue-cured tobacco subregions, even in the high-income group, less than one-fourth of the farms reported telephones, less than one-half television sets, and only about two-thirds reported running water.

Capital investment.—The capital investment for tobacco farms is low in comparison to many types of commercial agriculture. The Southern Maryland region, with an average investment of \$23,717 per farm, was the highest for any of the tobacco areas (see Table 25). The area with the second highest investment was Burley subregion 45. Capital investments averaged only \$8,806 per farm in the flue-cured subregion 25. This was the lowest investment of any of the areas.

In each of the tobacco areas, except the dark-fired and air-cured, land and buildings amounted to three-fourths or more of the total

TABLE 25.—CAPITAL INVESTMENT ON OTHER FIELD-CROP FARMS IN SELECTED TOBACCO SUBREGIONS, BY ECONOMIC CLASS OF FARM: 1954

Item	All farms	Economic class of farm					
		I	II	III	IV	V	VI
Investment per farm (dollars): Land and buildings... Livestock... Machinery... Total.....	Flue-cured tobacco (subregion 24)						
	9,893	32,071	27,563	15,555	9,255	5,606	3,894
	364	1,511	919	519	336	243	202
	1,851	6,074	4,055	2,396	1,819	1,328	997
	12,108	39,656	32,537	18,470	11,410	7,177	5,093
	Flue-cured tobacco (subregion 25)						
	6,681	8,600	28,474	14,910	8,344	5,517	3,614
	395	1,746	2,015	988	486	310	210
	1,730	5,798	5,556	3,206	2,139	1,499	917
	8,806	16,144	36,045	19,194	10,969	7,326	4,741
Investment per farm (dollars): Land and buildings... Livestock... Machinery... Total.....	Burley tobacco (subregion 45)						
	11,864	112,802	46,046	19,489	10,554	6,382	3,913
	964	10,073	3,253	1,594	842	511	294
	2,598	13,916	6,291	3,717	2,565	1,790	989
	15,426	136,791	55,590	24,800	13,961	8,683	5,196
	Burley tobacco (subregion 32)						
	11,924	500,000	16,722	23,187	7,804	20,125	7,534
	578	16,407	2,409	2,209	1,131	686	359
	1,362	30,697	5,130	3,794	2,569	1,647	877
	13,864	547,104	24,261	29,190	11,504	22,458	8,770
Investment per farm (dollars): Land and buildings... Livestock... Machinery... Total.....	Southern Maryland tobacco (subregion 19)						
	19,479	53,314	47,489	26,961	15,737	12,894	10,511
	709	2,187	1,917	1,262	533	273	177
	3,529	8,326	7,794	4,821	3,021	2,539	1,011
	23,717	63,827	57,200	33,044	19,291	15,706	11,699
	Dark-fired and air-cured tobacco (subregion 53)						
	6,372	23,590	45,613	16,436	7,641	5,330	3,429
	715	3,209	5,603	1,821	890	569	348
	2,193	9,510	10,623	4,188	2,798	1,929	1,206
	9,280	36,309	61,839	22,445	11,338	7,828	4,983

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investment. In the dark-fired and air-cured area, 24 percent of the investment was in machinery, and 8 percent in livestock. These proportions were higher than for any of the other areas. In flue-cured subregion 24 only 3 percent of the total investment was in livestock.

In all of the tobacco areas, the average capital investment increased as gross farm sales increased. The average investment on Class II farms was 5 to 10 times the investment on Class VI farms. The average investment for farms in the same income group varied widely by types of tobacco.

Production expense.—Table 26 shows some of the major cost items in operating specialized tobacco farms. In each case fertilizer was the largest or almost the largest item of expense, for tobacco is heavily fertilized. In the flue-cured tobacco subregions, the amount expended for gasoline, fuel, and oil is high, as oil burners are used for curing tobacco on many of the farms. The expenditure for hired labor was much greater on farms in the flue-cured subregion 24 and in Southern Maryland than in the other subregions.

There was a considerable variation in average expenditure per crop acre between subregions for the same types of tobacco and for different types of tobacco. The subregion with the highest expenditure per acre was flue-cured 24 with an average of about \$41. This compared with only \$19 per acre for flue-cured in subregion 25. Subregion 53 had the lowest expenditure per acre; here the average was only \$8.

TABLE 26.—SPECIFIED FARM EXPENDITURES ON OTHER FIELD-CROP FARMS IN SELECTED TOBACCO SUBREGIONS, BY ECONOMIC CLASS OF FARM: 1954

Item of expense	All farms	Economic class of farm					
		I	II	III	IV	V	VI
Flue-cured tobacco (subregion 24)							
Amount per farm (dollars):							
Machine hire.....	57	283	145	84	54	32	22
Hired labor.....	412	4,227	1,773	673	347	196	113
Feed for livestock and poultry.....	101	641	360	147	90	62	44
Gasoline and other petroleum fuel and oil.....	224	1,347	733	347	203	122	75
Commercial fertilizer.....	407	2,352	1,127	604	380	246	139
Lime.....	2	64	10	3	2	1	1
Total.....	1,203	8,914	4,148	1,858	1,076	659	394
Amount per crop acre (dollars):							
Machine hire.....	2.10	1.45	1.98	2.14	2.17	1.91	2.01
Hired labor.....	15.31	21.67	24.14	17.05	13.96	11.70	10.38
Gasoline and other petroleum fuel and oil.....	8.33	6.90	9.99	8.79	8.17	7.27	6.87
Fertilizer and lime.....	15.22	12.39	15.48	15.39	15.36	14.72	12.78
Total.....	40.96	42.41	51.59	43.37	39.66	35.60	32.04
Flue-cured tobacco (subregion 25)							
Amount per farm (dollars):							
Machine hire.....	44	115	216	106	55	36	18
Hired labor.....	116	858	1,226	354	143	86	38
Feed for livestock and poultry.....	78	42	694	194	92	62	42
Gasoline and other petroleum fuel and oil.....	112	375	635	294	151	85	38
Commercial fertilizer.....	241	1,083	998	531	308	197	109
Lime.....	3	66	36	10	4	2	1
Total.....	594	2,539	3,805	1,489	753	468	246
Amount per crop acre (dollars):							
Machine hire.....	1.02	0.90	1.89	1.82	1.63	1.64	1.22
Hired labor.....	4.33	6.69	10.77	6.08	4.26	3.97	2.58
Gasoline and other petroleum fuel and oil.....	4.18	2.92	5.57	5.05	4.47	3.92	2.55
Fertilizer and lime.....	9.09	8.96	9.08	9.30	9.29	9.19	7.40
Total.....	19.22	19.47	27.31	22.25	19.65	18.72	13.75

TABLE 26.—SPECIFIED FARM EXPENDITURES ON OTHER FIELD-CROP FARMS IN SELECTED TOBACCO SUBREGIONS, BY ECONOMIC CLASS OF FARM: 1954—Continued

Item of expense	All farms	Economic class of farm					
		I	II	III	IV	V	VI
Burley tobacco (subregion 45)							
Amount per farm (dollars):							
Machine hire.....	64	335	179	111	62	33	16
Hired labor.....	260	5,803	1,458	453	185	82	32
Feed for livestock and poultry.....	176	1,744	503	290	149	95	66
Gasoline and other petroleum fuel and oil.....	109	1,004	430	198	95	43	16
Commercial fertilizer.....	198	1,769	626	319	176	113	54
Lime.....	9	128	49	15	7	3	1
Total.....	814	10,783	3,335	1,392	674	369	185
Amount per crop acre (dollars):							
Machine hire.....	1.23	0.71	1.24	1.35	1.27	1.07	0.87
Hired labor.....	4.95	12.36	10.14	5.53	3.75	2.63	1.71
Gasoline and other petroleum fuel and oil.....	2.07	2.14	2.99	2.42	1.94	1.38	.87
Fertilizer and lime.....	3.91	4.04	4.69	4.08	3.73	3.73	2.88
Total.....	12.16	19.25	19.06	13.38	10.60	8.81	6.33
Burley tobacco (subregion 32)							
Amount per farm (dollars):							
Machine hire.....	31	150	62	141	54	38	19
Hired labor.....	46	10,000	1,179	352	96	49	21
Feed for livestock and poultry.....	87	1,445	481	309	145	102	60
Gasoline and other petroleum fuel and oil.....	44	900	344	287	99	53	21
Commercial fertilizer.....	112	2,250	512	421	222	135	67
Lime.....	2			13	5	3	2
Total.....	322	14,745	2,578	1,523	621	380	190
Amount per crop acre (dollars):							
Machine hire.....	1.08	0.69	0.71	1.43	1.02	1.19	0.95
Hired labor.....	1.63	46.30	13.38	3.57	1.84	1.54	1.03
Gasoline and other petroleum fuel and oil.....	1.54	4.17	3.91	2.92	1.90	1.66	1.05
Fertilizer and lime.....	3.99	10.42	3.29	5.81	4.40	4.26	3.44
Total.....	8.24	61.58	21.29	13.73	9.16	8.65	6.47
Southern Maryland tobacco (subregion 19)							
Amount per farm (dollars):							
Machine hire.....	53	266	151	75	50	17	17
Hired labor.....	595	3,443	2,500	840	356	159	62
Feed for livestock and poultry.....	145	215	310	288	101	67	66
Gasoline and other petroleum fuel and oil.....	199	901	483	309	154	115	36
Commercial fertilizer.....	367	2,246	1,122	499	287	187	77
Lime.....	24	55	51	45	18	10	8
Total.....	1,353	7,126	4,617	2,056	966	555	256
Amount per crop acre (dollars):							
Machine hire.....	1.04	1.37	1.24	0.95	1.21	0.64	0.80
Hired labor.....	11.02	17.73	20.50	10.59	8.63	5.95	2.86
Gasoline and other petroleum fuel and oil.....	3.88	4.64	3.96	3.90	3.73	4.31	1.66
Fertilizer and lime.....	7.62	11.85	9.62	6.85	7.39	7.33	3.93
Total.....	23.56	35.59	35.32	22.29	20.96	18.23	9.25
Dark-fired and air-cured tobacco (subregion 53)							
Amount per farm (dollars):							
Machine hire.....	47	86	255	116	58	35	35
Hired labor.....	87	947	1,936	285	104	53	22
Feed for livestock and poultry.....	115	737	652	233	148	95	66
Gasoline and other petroleum fuel and oil.....	98	1,067	1,082	281	136	69	27
Commercial fertilizer.....	195	721	1,194	545	278	149	69
Lime.....	13	143	114	27	15	11	9
Total.....	555	3,701	5,233	1,487	739	412	228
Amount per crop acre (dollars):							
Machine hire.....	0.85	0.40	0.86	0.96	0.83	0.73	1.13
Hired labor.....	1.56	4.39	6.52	2.35	1.50	1.12	.71
Gasoline and other petroleum fuel and oil.....	1.76	4.95	3.65	2.31	1.96	1.45	.89
Fertilizer and lime.....	3.75	4.00	4.40	4.71	4.22	3.38	2.48
Total.....	7.92	13.74	15.43	10.33	8.51	6.68	5.21

Expenditures per crop-acre declined in all subregions with a decrease in size of business as measured by gross sales. The biggest decrease was usually in hired labor. Some of the larger farms used hired labor rather than croppers. Some items of expense, like machine hire, increased on a per crop-acre basis as size of operations decreased, for these operators custom-hired some work when they did not own suitable equipment.

Practically all specialized tobacco farmers use fertilizer. The average rate of application per acre on tobacco, in 1954, was higher for Burley than for flue-cured producers (see Table 27). Farmers in the dark-fired and air-cured subregion used an average of 1,100 pounds per acre on tobacco. This was the lowest application for any of the areas for which data are available.

TABLE 27.—USE OF COMMERCIAL FERTILIZER ON OTHER FIELD-CROP FARMS IN SELECTED TOBACCO SUBREGIONS, BY ECONOMIC CLASS OF FARM: 1954

Item	All farms	Economic class of farm					
		I	II	III	IV	V	VI
Flue-cured tobacco (subregion 24)							
Percent of all farms using fertilizer.....	99	100	99	99	99	99	97
Acres per farm on which fertilizer was used.....	23	160	62	33	21	13	8
Pounds used per acre fertilized.....	706	572	700	700	700	720	780
Percent of farms growing tobacco, fertilizing tobacco.....	98	100	97	99	99	98	93
Acres of tobacco fertilized per farm.....	6	28	14	8	5	4	3
Pounds used per acre of tobacco.....	1,329	1,139	1,420	1,360	1,306	1,317	1,234
Flue-cured tobacco (subregion 25)							
Percent of all farms using fertilizer.....	98	100	100	97	98	97	97
Acres per farm on which fertilizer was used.....	15	76	65	34	19	12	7
Pounds used per acre fertilized.....	664	810	642	666	659	670	668
Percent of farms growing tobacco, fertilizing tobacco.....	97	100	97	96	98	97	96
Acres of tobacco fertilized per farm.....	5	34	17	10	6	4	2
Pounds used per acre of tobacco.....	1,193	1,212	1,177	1,242	1,189	1,185	1,198
Burley tobacco (subregion 45)							
Percent of all farms using fertilizer.....	92	99	96	96	92	93	80
Acres per farm on which fertilizer was used.....	9	104	28	14	8	4	3
Pounds used per acre fertilized.....	923	663	850	893	960	1,050	917
Percent of farms growing tobacco, fertilizing tobacco.....	92	99	97	97	92	93	79
Acres of tobacco fertilized per farm.....	4	26	11	6	4	2	1
Pounds used per acre of tobacco.....	1,551	1,579	1,540	1,550	1,526	1,626	1,471
Burley tobacco (subregion 32)							
Percent of all farms using fertilizer.....	90	100	100	92	92	90	89
Acres per farm on which fertilizer was used.....	11	242	34	35	19	12	6
Pounds used per acre fertilized.....	480	372	608	506	499	472	469
Percent of farms growing tobacco, fertilizing tobacco.....	84	100	100	92	93	90	77
Acres of tobacco fertilized per farm.....	1	19	10	3	2	1	1
Pounds used per acre of tobacco.....	1,493	758	1,324	1,525	1,628	1,506	1,428
Southern Maryland tobacco ¹ (subregion 19)							
Percent of all farms using fertilizer.....	95	97	97	96	95	98	83
Acres per farm on which fertilizer was used.....	23	112	67	33	18	12	5
Pounds used per acre fertilized.....	640	798	661	606	644	636	675
Dark-fired and air-cured tobacco (subregion 53)							
Percent of all farms using fertilizer.....	91	100	94	100	92	91	87
Acres per farm on which fertilizer was used.....	24	81	125	52	32	20	10
Pounds used per acre fertilized.....	360	410	422	395	382	349	337
Percent of farms growing tobacco, fertilizing tobacco.....	88	100	95	97	91	89	82
Acres of tobacco fertilized per farm.....	3	10	11	6	4	3	1
Pounds used per acre of tobacco.....	1,042	1,063	1,266	1,152	1,086	968	980

¹ Data not available for use of fertilizer on tobacco.

The percentage of the farms using fertilizer, the percentage of farms with tobacco reporting tobacco fertilized, and the average amount of fertilizer applied per acre for all crops and for tobacco were approximately the same for each economic class of farm in all areas.

INCOME AND EFFICIENCY LEVELS

Sources of farm income.—Gross farm income is important in determining income levels on tobacco farms. A high net income requires a relatively high gross income. Gross sales average \$4,530 on farms in flue-cured subregion 24. This was the highest of any of the subregions. In each of the tobacco subregions, tobacco contributed 65 percent or more of the gross income (see Table 28).

On flue-cured tobacco farms some income was received from cotton and peanuts in subregion 24 but average receipts from these enterprises were small in subregion 25. Receipts from livestock or livestock products were not very important on farms in either of the flue-cured areas although the amount of these receipts increased with gross income. On the average the percent that receipts from tobacco was of gross sales decreased slightly as gross income increased but the relationship was not consistent. Gross sales per crop acre increased as amount of gross income increased.

Receipts from livestock made up a larger proportion of gross income on Burley than on flue-cured tobacco farms. But the proportion of gross receipts from livestock was not large on these farms. As in the case of flue-cured tobacco farms, the proportion of gross receipts from tobacco in the Burley area declined as the amount of gross income increased. Average gross receipts per crop-acre were about 50 percent higher in Burley subregion 45 than in subregion 32.

On Southern Maryland tobacco farms, receipts from tobacco contributed on the average 82 percent of the gross receipts. On the larger farms, income from livestock, especially beef cattle, was important. On the Class I farms, gross sales per crop-acre averaged \$136 per farm compared to only \$36 on the Class VI farms.

Total gross sales on the dark-fired and air-cured tobacco farms averaged only \$2,499 per farm; of this amount tobacco contributed 71 percent. There was no consistent relationship between the amount of gross income and the percent that income from tobacco was of gross sales.

Gross income minus specified expenses.—Gross sales minus specified expenses should not be confused with net income. The specified expenditures do not include any fixed costs nor all operating costs. Net income would be much less than the amount indicated by gross sales minus specified expenditures.

On flue-cured tobacco farms, the amount that gross sales exceeded specified expenses averaged \$3,327 for subregion 24 and \$2,306 for subregion 25 (Table 29). In the Burley area, similar figures were \$2,926 for subregion 45 and \$1,011 for subregion 32. Farmers growing dark tobacco had on the average a net of \$1,940 above specified expenses and producers of Southern Maryland tobacco, a net of \$2,665. Obviously, the net above specified expenses increased as amount of gross farm income increased. For the different types of tobacco, there was a considerable variation in the average net income for farms in similar economic classes. Income above expenses was generally lower, for example, on Class IV tobacco farms in the Burley and Southern Maryland areas than in other areas.

Efficiency levels of farm operation.—Census data do not provide all of the information needed to make a complete analysis of the differences in efficiency of farm operations in different tobacco areas. However, the data do afford some comparisons that indicate levels even though the specific figures may not always reflect the precise relationship.

TABLE 28.—SOURCE OF FARM INCOME ON OTHER FIELD-CROP FARMS IN SELECTED TOBACCO SUBREGIONS, BY ECONOMIC CLASS OF FARM: 1954

Source of income	Total	Economic class of farm					
		I	II	III	IV	V	VI
Flue-cured tobacco (subregion 24)							
Sales per farm (dollars):							
Peanuts.....	70	1,150	396	154	47	0	11
Cotton.....	389	1,830	1,007	613	378	198	65
Tobacco.....	3,725	23,945	11,115	6,010	3,415	1,915	844
Other field crops.....	186	2,932	964	352	149	44	23
Vegetables.....	24	344	100	33	22	15	7
Fruits and nuts.....	2	53	6	3	2	2	1
Horticultural specialties.....	(Z)		(Z)	(Z)			
Total crops.....	4,396	30,254	13,588	7,165	4,013	2,183	951
Dairy products.....	4	1,001	52	5	1	1	1
Poultry and poultry products.....	14	12	65	22	13	6	4
Cattle and calves.....	13	167	83	22	9	6	3
Hogs.....	93	360	389	181	76	26	12
Other livestock and livestock products.....	1		2	1	1	1	(Z)
Total livestock.....	125	1,540	591	231	100	40	20
Forest products sold.....	9	104	78	14	6	2	2
Gross sales per farm.....	4,530	31,898	14,257	7,410	4,119	2,225	973
Percent of gross sales from tobacco.....	82	75	78	81	83	86	87
Gross sales per acre of cropland dollars.....	168	164	194	188	166	133	89
Flue-cured tobacco (subregion 25)							
Sales per farm (dollars):							
Peanuts.....	1				1	1	(Z)
Cotton.....	18		127	42	23	14	10
Tobacco.....	2,682	25,774	10,562	6,390	3,671	2,054	934
Other field crops.....	78	1,193	842	318	111	41	12
Vegetables.....	3		6	5	4	3	1
Fruits and nuts.....	6		38	20	7	4	3
Horticultural specialties.....	(Z)				(Z)	1	
Total crops.....	2,788	26,967	11,575	6,775	3,817	2,118	960
Dairy products.....	21		582	115	28	8	3
Poultry and poultry products.....	18	4	215	63	25	11	5
Cattle and calves.....	39	730	503	171	50	22	9
Hogs.....	16	250	130	72	22	8	3
Other livestock and livestock products.....	2	100	1	3	2	2	1
Total livestock.....	96	1,084	1,431	424	127	51	21
Forest products sold.....	16	124	63	70	23	8	4
Gross sales per farm.....	2,900	28,175	13,069	7,269	3,967	2,177	985
Percent of gross sales from tobacco.....	92	92	81	88	92	94	95
Gross sales per acre of cropland dollars.....	108	220	115	125	118	101	60
Burley tobacco (subregion 32)							
Sales per farm (dollars):							
Cotton.....	2				2	2	2
Tobacco.....	975	15,288	10,641	3,914	2,068	1,133	571
Other field crops.....	73		15	405	238	95	26
Vegetables.....	13			78	23	17	6
Fruits and nuts.....	4			4	7	6	3
Horticultural specialties.....							
Total crops.....	1,067	15,288	10,656	4,401	2,336	1,252	608
Dairy products.....	87	2,200	1,296	739	277	106	22
Poultry and poultry products.....	28	80	22	103	55	35	17
Cattle and calves.....	122	11,000	712	642	298	156	51
Hogs.....	16		54	79	33	23	7
Other livestock and livestock products.....	6	755	11	35	11	7	3
Total livestock.....	259	14,035	2,095	1,598	674	327	100
Forest products sold.....	7			41	10	4	5
Gross sales per farm.....	1,333	29,323	12,751	6,040	3,020	1,583	713
Percent of gross sales from tobacco.....	73	52	84	65	68	72	80
Gross sales per acre of cropland dollars.....	47	136	145	61	58	49	30

TABLE 28.—SOURCE OF FARM INCOME ON OTHER FIELD-CROP FARMS IN SELECTED TOBACCO SUBREGIONS, BY ECONOMIC CLASS OF FARM: 1954—Continued

Source of income	Total	Economic class of farm					
		I	II	III	IV	V	VI
Burley tobacco (subregion 45)							
Sales per farm (dollars):							
Peanuts.....							
Cotton.....							
Tobacco.....	2,895	19,847	9,220	4,843	2,736	1,474	685
Other field crops.....	107	1,321	351	215	93	36	13
Vegetables.....	2	55	22	1	2	1	(Z)
Fruit and nuts.....	3	3	4	3	2	4	
Horticultural specialties.....	1		17			(Z)	
Total crops.....	3,008	21,226	9,614	5,062	2,833	1,515	699
Dairy products.....	236	687	750	434	238	93	31
Poultry and poultry products.....	25	39	40	39	26	17	10
Cattle and calves.....	280	5,279	1,252	474	227	114	42
Hogs.....	88	1,209	406	174	60	27	13
Other livestock and livestock products.....	100	1,044	599	192	60	21	6
Total livestock.....	729	9,158	3,047	1,313	626	272	102
Forest products sold.....	3		4	2	3	2	2
Gross sales per farm.....	3,740	30,384	12,665	6,377	3,462	1,789	803
Percent of gross sales from tobacco.....	77	65	73	76	79	82	85
Gross sales per acre of cropland dollars.....	71	65	88	78	70	58	42
Southern Maryland tobacco (subregion 19)							
Sales per farm (dollars):							
Tobacco.....	3,292	17,058	9,159	4,852	2,738	1,486	732
Other field crops.....	320	4,828	902	500	234	79	20
Vegetables.....	20	676	86	9	15	3	
Fruits and nuts.....	3	4	3	1	5	1	
Horticultural specialties.....	37				103		
Total crops.....	3,672	22,566	10,150	5,362	3,095	1,569	752
Dairy products.....	20	147	119	25	11	2	
Poultry and poultry products.....	64	47	133	140	49	20	6
Cattle and calves.....	187	3,315	982	288	65	20	10
Hogs.....	55	250	229	89	42	9	2
Other livestock and livestock products.....	7	1	1	24	3	1	1
Total livestock.....	333	3,760	1,444	566	170	52	19
Forest products sold.....	13		10	39	9	1	1
Gross sales per farm.....	4,018	26,326	11,604	5,967	3,274	1,622	771
Percent of gross sales from tobacco.....	82	65	79	81	84	92	95
Gross sales per acre of cropland dollars.....	78	136	95	75	79	61	36
Dark-fired and air-cured tobacco (subregion 53)							
Sales per farm (dollars):							
Cotton.....	1				2	(Z)	1
Tobacco.....	1,776	25,114	7,004	4,324	2,485	1,416	690
Other field crops.....	289	2,408	1,810	882	441	203	73
Vegetables.....	2			2	2	2	2
Fruits and nuts.....	12	10	13	13	12	12	14
Horticultural specialties.....							
Total crops.....	2,080	27,532	8,836	5,221	2,942	1,633	780
Dairy products.....	145	880	820	447	225	103	38
Poultry and poultry products.....	24	30	75	49	27	22	17
Cattle and calves.....	133	2,286	908	460	106	82	35
Hogs.....	107	2,123	1,172	376	146	69	20
Other livestock and livestock products.....	7		248	22	8	4	2
Total livestock.....	416	5,319	3,313	1,354	602	280	112
Forest products sold.....	3			4	2	3	1
Gross sales per farm.....	2,499	32,851	12,149	6,579	3,546	1,916	803
Percent of gross sales from tobacco.....	71	76	87	65	70	73	77
Gross sales per acre of cropland dollars.....	45	152	41	54	51	40	20

Z \$0.50 or less.

TABLE 29.—GROSS INCOME OF OPERATOR AND FAMILY ABOVE SPECIFIED EXPENSES ON OTHER FIELD-CROP FARMS IN SELECTED TOBACCO SUBREGIONS, BY ECONOMIC CLASS OF FARM: 1954

Item	All farms	Economic class of farm					
		I	II	III	IV	V	VI
Flue-cured tobacco (subregion 24)							
Average per farm (dollars):							
Gross sales.....	4, 530	31, 898	14, 257	7, 410	4, 119	2, 225	973
Specified expenses.....	1, 203	8, 914	4, 148	1, 858	1, 076	659	394
Gross sales minus specified expenses....	3, 327	22, 984	10, 109	5, 552	3, 043	1, 566	570
Flue-cured tobacco (subregion 25)							
Average per farm (dollars):							
Gross sales.....	2, 900	28, 175	13, 069	7, 269	3, 967	2, 177	985
Specified expenses.....	504	2, 539	3, 805	1, 489	753	468	246
Gross sales minus specified expenses....	2, 396	25, 636	9, 264	5, 780	3, 214	1, 709	739
Burley tobacco (subregion 45)							
Average per farm (dollars):							
Gross sales.....	3, 740	30, 384	12, 665	6, 377	3, 462	1, 789	803
Specified expenses.....	814	10, 783	3, 335	1, 392	674	369	185
Gross sales minus specified expenses....	2, 926	19, 601	9, 330	4, 985	2, 788	1, 420	618
Burley tobacco (subregion 32)							
Average per farm (dollars):							
Gross sales.....	1, 333	20, 323	12, 751	6, 040	3, 020	1, 583	713
Specified expenses.....	322	14, 745	2, 578	1, 523	621	380	190
Gross sales minus specified expenses....	1, 011	14, 578	10, 173	4, 517	2, 399	1, 203	523
Southern Maryland tobacco (subregion 19)							
Average per farm (dollars):							
Gross sales.....	4, 018	26, 326	11, 604	5, 967	3, 274	1, 622	771
Specified expenses.....	1, 353	7, 126	4, 617	2, 056	966	555	250
Gross sales minus specified expenses....	2, 665	19, 200	6, 987	3, 911	2, 308	1, 067	515
Dark-fired and air-cured tobacco (subregion 53)							
Average per farm (dollars):							
Gross sales.....	2, 490	32, 851	12, 149	6, 579	3, 546	1, 916	893
Specified expenses.....	555	3, 701	5, 233	1, 487	739	412	228
Gross sales minus specified expenses....	1, 944	29, 150	6, 916	5, 092	2, 807	1, 504	665

There were considerable variations in the various measures of efficiency both between subregions for the same type of tobacco and also among the different tobacco types (see Table 30). For flue-cured tobacco, both gross sales and net sales per man-equivalent were higher in subregion 24 than in subregion 25. In the Burley region, gross and net sales per man-equivalent in subregion 32 was only about 40 percent as much as in subregion 45. Both gross and net sales per man-equivalent was much lower in subregion 32 than in either of the other subregions.

Sales per \$1,000 invested were highest in the flue-cured regions. They averaged \$445 in subregion 24. They were lowest in subregion 32 of the Burley region, averaging only \$196 per \$1,000 investment. The total investment per man-equivalent was lowest in the two flue-cured subregions and highest in the Southern Maryland subregion. However, for subregion 24 the investment per crop-acre was the highest for any subregion and was higher for subregion 25 than any except the Southern Maryland subregion. The investment per crop-acre averaged \$132 in the dark-fired and air-cured subregion 53. However, in each of the other subregions the investment per crop acre was \$234 or more.

Crop acres per man-equivalent averaged only about 17 acres in each of the two flue-cured subregions. In the dark-fired and air-cured subregion, there was an average of 52 crop acres per man-equivalent.

TABLE 30.—SELECTED MEASURES OF EFFICIENCY ON OTHER FIELD-CROP FARMS IN SELECTED SUBREGIONS, BY ECONOMIC CLASS OF FARM: 1954

Item	All farms	Economic class of farm					
		I	II	III	IV	V	VI
Flue-cured tobacco (subregion 24)							
Gross sales per man-equivalent dollars	2, 618	6, 457	4, 497	3, 415	2, 466	1, 601	811
Net sales per man-equivalent dollars	1, 023	4, 653	3, 189	2, 568	1, 822	1, 127	483
Gross sales per \$1,000 invested dollars	445	1, 049	613	493	423	355	230
Investment per \$100 of gross sales dollars	225	95	163	203	236	281	436
Total investment per man-equivalent dollars	5, 887	6, 161	7, 343	6, 937	5, 825	4, 509	3, 537
Investment per crop acre dollars	379	156	317	381	391	374	388
Crop acres per man-equivalent	16	40	23	18	15	12	9
Tobacco per acre pounds	1, 233	1, 205	1, 477	1, 377	1, 211	967	683
Flue-cured tobacco (subregion 25)							
Gross sales per man-equivalent dollars	1, 086	16, 574	5, 400	3, 581	2, 390	1, 625	844
Net sales per man-equivalent dollars	1, 616	14, 899	3, 828	2, 846	1, 936	1, 277	632
Gross sales per \$1,000 investment dollars	393	2, 381	478	487	428	353	250
Investment per \$100 of gross sales dollars	2, 542	420	2, 093	2, 054	2, 334	2, 832	4, 002
Total investment per man-equivalent dollars	1, 987	16, 574	5, 402	3, 582	2, 391	1, 621	840
Investment per crop acre dollars	275	92	240	256	275	285	266
Crop acres per man-equivalent	18	75	47	29	20	16	13
Tobacco per acre pounds	1, 044	1, 411	1, 142	1, 237	1, 109	971	760
Burley tobacco (subregion 45)							
Gross sales per man-equivalent dollars	3, 117	6, 506	6, 031	4, 398	2, 885	1, 844	873
Net sales per man-equivalent dollars	2, 438	4, 197	4, 443	3, 438	2, 323	1, 465	671
Gross sales per \$1,000 invested dollars	303	365	314	328	311	252	188
Investment per \$100 of gross sales dollars	329	281	319	305	321	397	533
Total investment per man-equivalent dollars	10, 213	18, 334	19, 235	13, 418	9, 253	7, 290	4, 680
Investment per crop acre dollars	234	182	281	237	226	229	226
Crop acres per man-equivalent	44	101	69	57	41	32	21
Tobacco per acre pounds	1, 550	1, 540	1, 695	1, 637	1, 531	1, 388	1, 217
Burley tobacco (subregion 32)							
Gross sales per man-equivalent dollars	1, 271	3, 858	7, 650	4, 241	2, 411	1, 491	718
Net sales per man-equivalent dollars	962	1, 918	6, 091	3, 189	1, 918	1, 135	538
Gross sales per \$1,000 invested dollars	196	54	526	241	263	204	154
Investment per \$100 of gross sales dollars	511	1, 866	190	415	381	490	651
Total investment per man-equivalent dollars	6, 487	71, 987	14, 556	17, 583	9, 186	7, 306	4, 672
Investment per crop acre dollars	238	2, 533	276	254	219	241	231
Crop acres per man-equivalent	27	28	53	69	42	30	20
Tobacco per acre pounds	1, 628	1, 642	2, 241	2, 094	1, 762	1, 646	1, 462
Southern Maryland tobacco (subregion 19)							
Gross sales per man-equivalent dollars	3, 134	8, 775	4, 477	3, 678	2, 685	1, 978	937
Net sales per man-equivalent dollars	2, 082	6, 400	2, 698	2, 415	1, 802	1, 301	629
Gross sales per \$1,000 invested dollars	223	646	252	405	229	127	88
Investment per \$100 of gross sales dollars	449	155	396	398	437	785	1, 134
Total investment per man-equivalent dollars	14, 058	13, 591	17, 731	14, 640	11, 723	15, 522	10, 618
Investment per crop acre dollars	352	210	377	300	346	475	405
Crop acres per man-equivalent	40	65	47	49	34	33	26
Tobacco per acre pounds	819	886	908	856	793	712	522
Dark-fired and air-cured tobacco (subregion 53)							
Gross sales per man-equivalent dollars	2, 358	18, 989	4, 637	4, 733	2, 980	1, 950	950
Net sales per man-equivalent dollars	1, 838	16, 849	2, 640	3, 663	2, 358	1, 536	707
Gross sales per \$1,000 invested dollars	341	928	285	380	394	313	221
Investment per \$100 of gross sales dollars	293	108	350	263	254	319	453
Total investment per man-equivalent dollars	6, 911	20, 455	16, 253	12, 472	7, 583	6, 235	4, 315
Investment per crop acre dollars	132	164	143	143	130	129	130
Crop acres per man-equivalent	52	125	113	87	59	48	33
Tobacco per acre pounds	1, 290	1, 876	1, 442	1, 481	1, 347	1, 203	1, 074

The yield per acre of tobacco was highest in the two Burley subregions and lowest in the Southern Maryland subregion. The average yield per acre of 819 pounds in the Southern Maryland subregion was only about half of the average yield of 1,628 pounds reported for Burley subregion 32.

In each of the subregions, as the amount of gross income increased, the gross and net sales per man-equivalent increased. The gross and net sales per man-equivalent on Class II farms were usually 4 to 6 times as much as the amount on Class VI farms.

In each tobacco region the total investment per man-equivalent and the crop acre per man-equivalent increased as the gross farm income increased. This means that on the larger farms more capital was associated with a unit of labor. A unit of labor was also able to handle a larger unit of production. It appears that both capital and labor were used more efficiently on the larger farms. The capital investment per \$100 of gross sales on large farms was less than half that on small farms.

SUMMARY AND PROBLEMS

Specialized tobacco farms are small from the standpoint of land area. Most farms average 50 to 100 acres in size with a third to a half of the total land area in cropland. From the standpoint of value of business about 54 percent are in Economic Classes V and VI. These farms have a total value of products sold of less than \$2,500.

In many of the tobacco areas a fourth to a half of the farm operators are tenants. On tobacco farms in the Southern Maryland and flue-cured areas, a fourth or more of the operators are nonwhite. But, very few nonwhite operators are found on tobacco farms in other areas. In areas with nonwhite operators, tenancy is higher among the nonwhite than among the white operators.

In the flue-cured subregions and some of the Burley subregions, a fifth or more of the operators are under 35 years of age. In some of the subregions two-fifths or more of the operators are 55 years of age or over which would indicate the necessity of combining units as the older operators die or stop farming.

Tobacco farms tend to be operated intensively with a high percentage of the cropland in row crops. But the type of crop grown on individual farms tends to be quite different in the different tobacco areas. From the standpoint of acreage, corn for grain is the most important crop in all areas except on farms in Southern Maryland. Small grains are grown on tobacco farms, but they are grown mainly on the larger farms. The production of hay is less important on flue-cured and Southern Maryland tobacco farms than on other types of tobacco farms.

With the exception of 1939, both flue-cured and Burley producers have operated under some type of control program since 1933. In 1955, marketing quotas were in effect for all types of tobacco except Southern Maryland. Increases in yield per acre and also shifts in demand for certain types of tobacco have resulted in supplies greater than the amount needed to supply current demand. This has resulted in smaller acreage allotments for individual farmers. In 1954, about half of the flue-cured tobacco producers grew less than 5 acres of tobacco; more than two-thirds of the Burley farms grew less than 2.5 acres of tobacco. Only about one-fifth of the producers of Southern Maryland tobacco grew less than 5 acres of tobacco; about one-third of the dark-fired and air-cured producers grew less than 2.5 acres of tobacco.

Livestock is not very important on most tobacco farms. On flue-cured farms livestock is kept mainly to supply products for home consumption, but many of the farmers do not keep livestock even for home use. Livestock is more important on Burley and dark-fired and air-cured tobacco farms than on farms in other

tobacco areas. Livestock is used to supplement income on some of the farms, but as a rule, the proportion of total income received from livestock is not very great.

With the exception of the larger farms, the labor force on tobacco farms is planned around the farm family. The majority of the operators spend full time in the farm business. Operators that work off the farm, normally work for only a short period.

The amount of mechanization on tobacco farms is low. Operators have been slow to mechanize, partly because of the small size of the unit and partly because, if a sufficient labor supply is available to harvest tobacco, a surplus of labor is usually available for production operations. The level of living on tobacco farms, as measured by home conveniences is also low. Electricity is the only home convenience item reported for the majority of tobacco farms. In most tobacco areas, less than 20 percent of the farm homes have telephones, television sets, or home freezers, and less than one-third, running water.

Compared to many types of farming, the capital investment for tobacco farms is relatively low. The majority of the investments is in land and buildings.

On tobacco farms fertilizer is the largest or among the largest item of expense, for tobacco is a crop that is heavily fertilized. Within the same subregion, for those farms on which fertilizer was applied, the average rate of application per acre was about the same on farms in each economic class.

Average gross receipts of tobacco farms are low. Gross sales averaged \$4,530 on farms in flue-cured subregion 24, the highest, compared to only \$1,333 in Burley subregion 32, the lowest. In each of the subregions, tobacco contributed 71 percent or more of the gross receipts from specified items. The amount available for miscellaneous farm expenses, returns to capital and payment for operator and family labor averaged \$3,327 for tobacco farms in flue-cured subregion 24 and only \$1,011 for farms in the Burley subregion 32.

A cross-section view of tobacco farms indicates several definite problems. First, the tobacco farmer faces the problem of acquiring control of sufficient resources to produce efficiently. Constant changes in technology and improvements in labor-saving equipment enable each worker to produce more efficiently. The efficient use of machinery requires more and more acres of cropland per worker.

The average size of tobacco farms has not shown much increase since 1940, nor has the capital investment for tobacco farms increased as much as for some other types of agriculture. Nevertheless, there has been a substantial increase in the average capital investment on tobacco farms. This is due in large part to increased prices. Data from Agricultural Research studies² for Commercial family-operated flue-cured and Burley tobacco farms serve as an example of the capital investment on tobacco farms and also changes in capital requirements (see Table 31). The average capital investment on flue-cured tobacco farms increased more than three times between 1940 and 1955; the investment on Burley tobacco farms more than doubled during the same period. For both types of tobacco farms the largest relative increase was in machinery and equipment.

In view of low levels of income of farm families in tobacco areas, the increase in capital requirements represents a serious problem to beginning farmers. Even though he starts as a sharecropper, it is difficult to acquire enough capital to operate as a tenant or to pay the downpayment on the purchase of a farm. If the young farmer starts with little capital on a relatively small farm, his net income is not large enough to accumulate sufficient capital for the essential operation of a more efficient unit. The majority of his income is likely to be required to pay operating and living expenses

² Farm Costs and Returns—Commercial Family-Operated Farms, Agricultural Information Bulletin 158, ARS—USDA, 1956 and other reports.

TABLE 31.—LAND IN FARMS, CROPLAND HARVESTED, AND CAPITAL INVESTMENT, COMMERCIAL FAMILY-OPERATED, FLUE-CURED AND BURLEY TOBACCO FARMS: 1940, 1945, 1950, AND 1955¹

Item	1940	1945	1950	1955
Flue-cured tobacco-cotton farms ¹				
Land in farms.....acres..	100	100	100	100
Cropland harvested.....do..	40	41	40	40
Farm capital, January 1 (dollars):				
Land and buildings.....	5,500	8,800	14,000	17,700
Machinery and equipment.....	450	820	1,830	2,580
Livestock.....	630	960	890	580
Crops for sale, feed, and seed.....	190	460	600	580
Total.....	6,770	11,040	17,320	21,440
Burley tobacco-livestock farms ²				
Land in farms.....acres..	110	113	113	116
Cropland harvested.....do..	25	20	31	31
Farm capital, January 1 (dollars):				
Land and buildings.....	8,574	11,311	16,900	19,090
Machinery and equipment.....	470	723	1,170	2,040
Livestock.....	866	1,222	1,950	1,610
Crops for sale, feed, and seed.....	263	783	800	850
Total.....	10,173	14,039	20,820	23,590

¹ Data for 1940, 1945, and 1950 from Costs and Returns Tobacco-Cotton and Tobacco Farms, 1940-54, AE Information Series No. 47, Department of Agricultural Economics, North Carolina Agriculture Experiment Station, December 1955; data for 1955 from Farm Costs and Returns Commercial Family-Operated Farms, Agricultural Information Bulletin No. 158, ARS, USDA, 1956.

² Data for 1940 and 1945 from Farming in the Bluegrass Area of Kentucky, Kentucky Agriculture Experiment Station Bulletin 544, December 1949; data for 1950 from Farm Costs and Returns, 1953, with comparison Commercially Family-Operated Tobacco Livestock Farms, Bluegrass area of Kentucky, PERB 2 Production Economic Research Branch USDA; data for 1955 from Farm Costs and Returns—Commercial Family-Operated Farms, Agricultural Information Bulletin 158, ARS, USDA, 1956.

Conservation and improvement of the soil is a very important problem on most tobacco farms. The intensive cultivation of the land and the continued high percent of the cropland in row crops has caused serious depletion of soil fertility and serious erosion of a large proportion of the farmland in areas especially where the slope of the land is rolling to steep. Measures for conservation and improvement of all farmland need to be emphasized. Special attention should be given to the development of a cropping system

that will improve soil fertility and also help hold soil erosion to a minimum.

Making production adjustments, due to changes in economic conditions, advances in technology, and other factors, is a difficult problem for operators of tobacco farms.

For most types of tobacco, the acres that can be grown on an individual farm in a given year depend on the amount of the tobacco base for the farm and size of the national allotment. With a continued increase in yield per acre for tobacco, it has been necessary to reduce the acres that each individual farmer could grow, especially in recent years.

The average tobacco farmer faces a number of problems when he attempts to adjust farm enterprises. The size of the farm is small and this makes it difficult to increase the production of livestock. Tobacco is also a crop that has a high labor requirement per acre. The labor load is distributed over most of the months of the year with peak requirements at the time of setting and harvesting. The tobacco farmer must be careful to not add enterprises that compete too much with tobacco for labor, especially at peak periods. The failure to perform such operations as harvesting at the right time would result in the loss of the crop or one with a greatly reduced value.

Much of the tobacco is produced in areas where little outside employment is available. This means, as acres of tobacco are reduced, farmers do not have the opportunity of turning to outside employment as a means of supplementing farm income. Moreover, the nature of the requirements and distribution of labor on tobacco also limits the amount of outside work that a person can do.

The problem of adjusting to modern technology is a continuing one. Modern machines enable one man to operate a larger acreage of land. However, increases in mechanization raise the question as to the adequacy of size of the farm-operating unit. Ultimately, more acreage is likely to be required for many farmers to obtain efficient production. Adjustments in size of farm are often difficult because of the problem of acquiring additional land. Many of the operations in tobacco production do not lend themselves to mechanization, or only to partial mechanization. As a result, many farm operators have not shifted to the use of tractors or other mechanical equipment to save labor.

PEANUT FARMS

Peanuts were first cultivated in this country in eastern Virginia. After the Civil War, peanuts spread rapidly into other Southern States, probably by soldiers who had fought in the Virginia campaigns. The commercial development of the industry actually began with the erection of modern cleaning plants. A factory for cleaning peanuts was established in New York in 1876 and in Norfolk, Va., a short time later. As peanut production extended to other States peanut factories were built throughout the South.

The most rapid growth in production came in the Cotton Belt, notably in Alabama, Georgia, Florida, and Texas. Because of the advance of the boll weevil from Texas eastward, which greatly reduced returns from cotton, farmers sought other crops and enterprises. As peanuts offered a source of income either from the direct sales of nuts or from the sale of hogs fed on peanuts, this crop rapidly became an important enterprise on many of the farms in the Southern States.

At present, there are three distinct regions in which most of the production of peanuts is concentrated. These are: (1) The Virginia-North Carolina area; (2) Southeastern or the Georgia-Alabama-Florida area; and (3) Southwestern or the Oklahoma-Texas area. Some peanuts are grown in several of the other Southern States. Figure 18 shows the percentage of cropland harvested in 1954 that was in peanuts. Figure 19 shows the farms that reported peanuts in 1954 as a percentage of all farms.

Although this crop is a major enterprise on many farms in the three specialized regions, it is one of the minor cash crops for the United States as a whole. In 1954 peanuts were grown on 3.2 percent of all farms (see Table 32). The acreage of peanuts for

all purposes represented 0.5 percent of the acreage of all harvested crops, and income from peanuts was 0.4 percent of the total cash farm income in the United States. This was a decrease from the 0.7 percent of the total cash farm income for each of the years 1944 and 1949. The percentage of farmers reporting peanuts has decreased each Census year since 1934, but the percentage of cropland harvested in peanuts was the same each Census year from 1934 to 1944.

TABLE 32.—NUMBER AND PERCENTAGE OF FARMS REPORTING PEANUTS, PERCENTAGE OF CROPLAND HARVESTED IN PEANUTS, AND PERCENTAGE CASH INCOME FROM PEANUTS IS OF TOTAL CASH INCOME FROM CROPS AND TOTAL CASH FARM INCOME, BY CENSUS PERIODS, UNITED STATES: 1929 TO 1954

Year	Farms reporting peanuts for all purposes		Percent of cropland harvested in peanuts	Percent cash income from peanuts is of—	
	Number	Percent of all farms		Cash income from crops ¹	Total cash farm income ¹
1954.....	151,227	3.2	0.5	0.9	0.4
1949.....	225,191	4.2	.8	1.6	.7
1944 ²	309,021	5.3	1.1	1.7	.7
1939.....	491,365	8.1	1.1	1.1	.6
1934.....	570,985	8.5	1.1	.9	.4
1929.....	326,263	5.2	.7	.6	.3

¹ Estimates of the U. S. Department of Agriculture.

² Peanuts grown with other crops for all purposes were not obtained in 1944 for Arkansas, Louisiana, New Mexico, Oklahoma, and Texas.

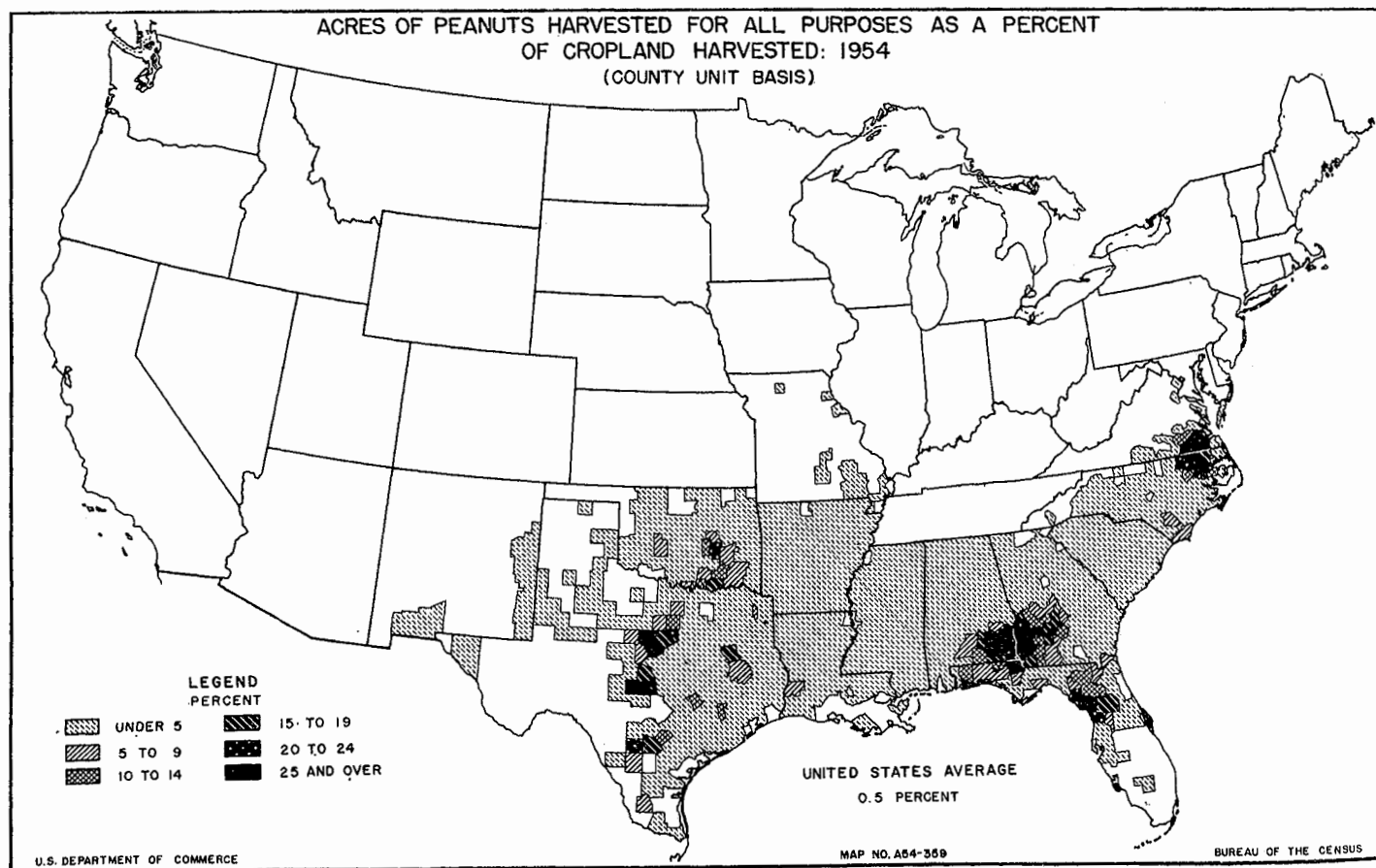


FIGURE 18

TYPES AND VARIETIES OF PEANUTS

Three separate types of peanuts are recognized in the commercial channels of trade—the Virginia type, the Spanish, and the Runner. The Virginia-type peanut is grown mainly in the Virginia-North Carolina region. These peanuts are relatively large, with two or three kernels in a pod. The kernels are relatively long and flat and are covered with a pinkish skin. The Virginia-type supplies most of the peanuts sold in the shell and most of the large salted kernels.

The Spanish-type is the most widely distributed variety in the country. Heaviest production is in Georgia, Texas, Alabama, and Florida. The plant is upright in growth and is harvested easily as the pods are closely centered near the surface of the ground. The pods are small and the kernels are small and round. This type is used by peanut-butter manufacturers, candy makers, and nut salters. The oil content is higher in Spanish peanuts than in either Runner or Virginia.

The Runner peanut is grown commercially in Alabama, Florida, and Georgia. It has a spreading rather than a bunch form of growth. The pod is of medium size but more nearly resembles the Spanish than the Virginia type of pod. In general the yield of Runner is somewhat higher than the yield of Spanish peanuts. Because of this and their widespread adaptability to the soil and climate conditions of the Southeast they are now grown in that region to a much greater extent than in the past. Although they were originally grown for "hogging off" ("hogging off" is the practice of turning the hogs into peanut fields to eat the nuts) or crushing, increasing quantities are being used in the manufacture of peanut butter and to some extent in peanut candy.

MAJOR PRODUCING REGIONS³

Both suitable soil and favorable climate are essential to the commercial production of peanuts. They require a moderately long growing period of 4 to 5 months, with a steady rather high temperature. They need a moderate, uniformly distributed, supply of moisture, especially during the period when the peanuts are forming, followed by dry conditions during harvesting and curing.

Peanuts will grow in nearly all parts of the South, but the differences in suitability of the various soils is very wide. On some soils good yields can be obtained without difficulty, but on others the yields are low even though good production practices are followed. They are usually grown on light-textured soils. Soils that are stony, very gravelly, shallow, wet, very fine, or heavily textured, are generally not used for peanuts. Neither are extremely acid, limy, or salty soils. Deep sands, although they are sometimes used for the crop, are not well suited to it.

Climatic conditions suitable for peanuts are found from southern Virginia southward along the Atlantic seaboard and in the Gulf coast region westward to southern California. But, much of this region contains soils and areas that are unsuitable for the crop. Most of the commercial production is concentrated in three distinct regions.

Virginia-North Carolina region.—This is the oldest peanut-producing region. It is composed of 16 counties located in southeastern Virginia and northeastern North Carolina. The land is low and mostly level with about 60 percent in farms. The remainder is largely second-growth woods and swamps. The productive farming areas are on the well-drained, light-colored, sandy loams. The dark, heavy soils are generally badly drained and not cropped.

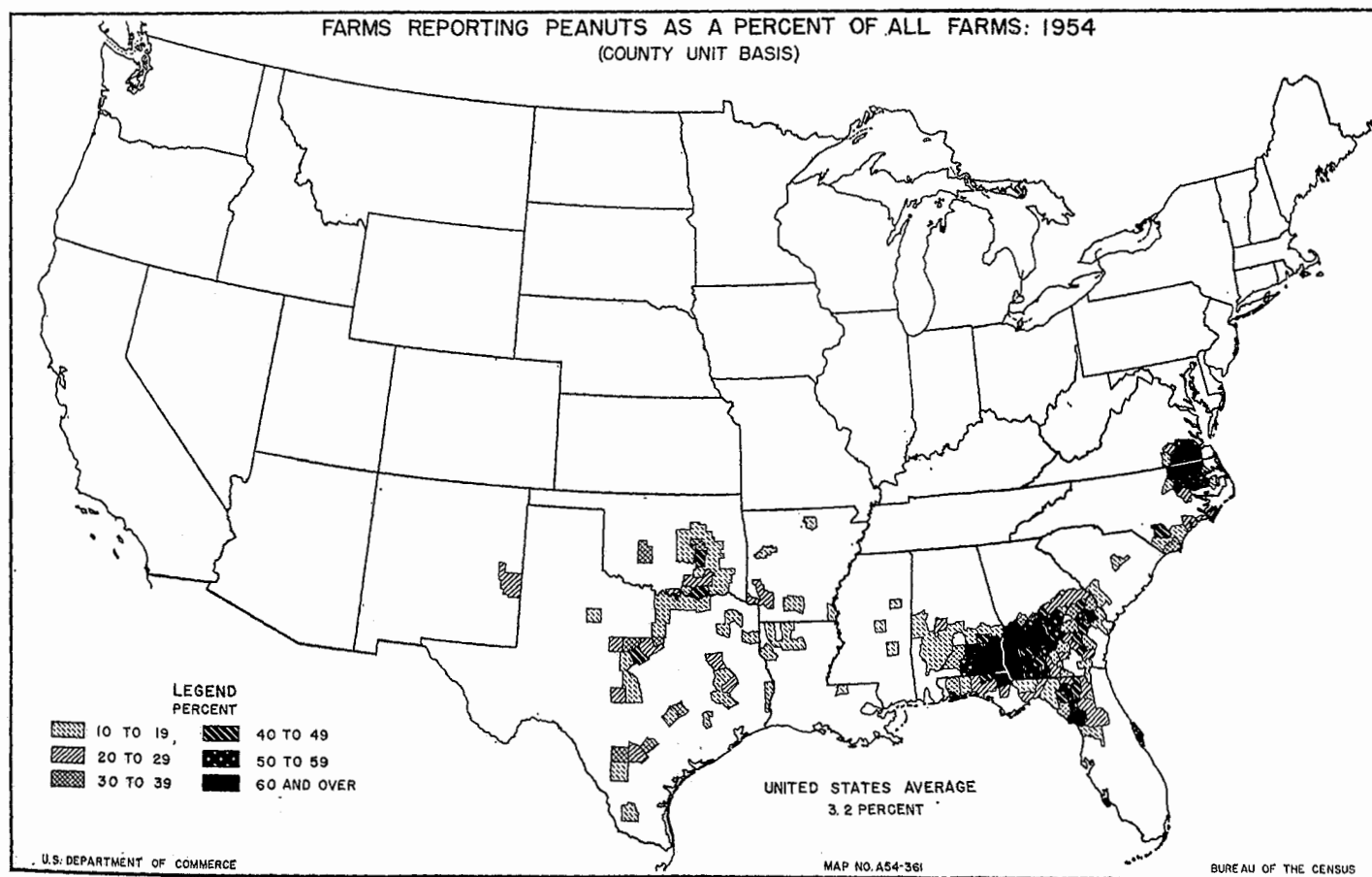


FIGURE 19

³ For a more detailed description of the major producing areas see U. S. Department of Agriculture publications (1) Farmers' Bulletin 2063, "Growing Peanuts" by J. A. Beattie, May 1954, and (2) FM 65 "Peanuts in Southern Agriculture" by K. L. Bachman, G. B. Crowe, and K. V. Goodman, May 1947.

The agriculture of this country is characterized by keen competition between cash crops. Peanuts, cotton, and tobacco and, in some sections, soybeans are grown. Frequently all three of the basic cash crops, or a combination of two of them, are raised on the same farm. Tobacco, under present prices, commands the most favorable position among the enterprises; expansion in tobacco acreage has been limited by production controls. The abundance of peanuts has led to large-scale production of hogs. The harvested peanut fields are cleaned up by hogs which are later finished on corn. Actually, corn is the crop with the largest acreage.

Soils in the region as a whole are very suitable for intensive growing of peanuts. They are grown on the well-drained sandy loam soils which predominate in the area. The most important of these soil types are Norfolk and Ruston sands and sandy loams. The principal poorly drained soils are of the Dunbar and Portsmouth series. Soils on more than 90 percent of the cropland in the Virginia part of the region are classified as suitable for peanuts. Soils in the North Carolina part are not quite so homogeneous. Some of the soils in the eastern part of the region are poorly drained. Some of the counties on the western side have soils similar to those found in the Piedmont which are generally less suitable for this crop.

Crop yields in general in the Virginia-North Carolina region are higher than in many other parts of the South. Relatively favorable yields of peanuts are obtained on all suitable groups of soils. On soils classified as excellent for peanuts, yields averaging more than 1,400 pounds to the acre are frequent. Because of the favorable returns, farming systems are generally built around peanuts as the major cash crop. Almost every farmer grows some peanuts, generally in a 3-year rotation with corn and cotton or soybeans. On farms that have tobacco allotments the acreage in tobacco is usually the amount that can be grown under the tobacco program. There has been considerable competition between peanuts and cotton but in recent years more favorable returns have usually come from peanuts. Feed crops have been fitted into the farm organization to utilize the remaining resources and to provide food for the home and feed for livestock. Hog production is important as hogs are used to clean up the peanut fields.

Georgia-Alabama-Florida region.—Large tracts of soils in the Coastal Plain region in South Carolina, Georgia, Alabama, and Florida, are suitable for peanuts. Commercial production has been concentrated in areas where cotton yields have been low because of climate, boll weevil, and other conditions. Production is centered mainly in subregion 41 and parts of subregion 38. Minor differences in physical production conditions are found in the Georgia-Alabama-Florida part of the region. Soils in southeastern Alabama are somewhat mixed, particularly in the westerly direction and on the edges of the Black Belt, but the predominant soils are the same as in the peanut parts of Georgia and Florida except for the Georgia Red Belt section. On most of the peanut farms, except in the Georgia Red Belt, the principal soils are of Norfolk, Ruston, or Tifton series, which are similar in many of their characteristics and are well suited for both Runner and Spanish peanuts. The soils in the southwestern Coastal Plain area of Georgia and Florida are sandy to a greater depth. Runner peanuts make up a larger proportion of the output. The Greenville, Magnolia, and Faceville soils, which predominate in the Georgia Red Belt section, are somewhat heavier in texture than soils in other sections. These heavier soils, although well adapted to Spanish peanuts, are not so well suited for hogging off as the Norfolk, Ruston, or Tifton soils.

The agriculture as a whole, of the part of this production area located in the southeastern Coastal Plain of Alabama, the southwestern Coastal Plain of Georgia, and the Coastal Plain Red Belt of Georgia, has long been based on a cash-crop economy. During the last 40 years, however, the emphasis has been shifted from almost a complete reliance on cotton to major reliance on peanuts

as a source of income. Just before World War II, cotton and harvested peanuts were about equal in importance in the farming system. During the war period the peanut acreage increased greatly, and in 1944 a little more than 3 acres of peanuts were picked and threshed for each acre of cotton. In 1954 the ratio of peanuts to cotton was 1.1 to 1.

Farms here can be classified as peanut-cotton types. Corn is the chief feed crop but considerable acreages of peanuts are hogged off. Commercial livestock is limited chiefly to hogs especially on the larger farms. The competitive position of cotton here is apparently stronger than in the Virginia-North Carolina region. That is, it requires a smaller shift in the relative prices of the two crops to cause a shift between the acreage of the two crops.

Farming systems on farms growing peanuts in the Coastal Plain of Georgia and northern Florida differ from those discussed above. Because the soils are sandy to a greater depth, Runner peanuts predominate. Runner peanuts are not wanted as much by the edible trade; before World War II they sold at considerably lower prices. Cotton and tobacco were the chief cash crops there and most of the peanuts were hogged off.

During the war many substantial shifts occurred in the farming of this area. Increased demands for peanuts and favorable prices made it more profitable to harvest Runner peanuts for sale. The acreage of harvested peanuts was greatly expanded except on farms that grew tobacco. Acres in cotton decreased as well as acres in corn for, on many farms, the old practice of planting peanuts with corn was supplanted by the planting of peanuts alone.

Hog production is one of the major enterprises in this part of the region and on other farms in the area where sizable acres are hogged off. Probably the most usual method of production is to carry the hogs through the spring and summer on a maintenance ration of corn and range grazing. Sometimes special grazing crops are planted to provide feed for the pigs. Some buying and selling of feeder pigs takes place as the season progresses and the farmers are able to estimate their prospective feed supplies more accurately. When peanuts are ready for grazing, the hogs are turned into the fields. They remain there until they reach a finish weight, or until the feed supply is exhausted. Consequently, many hogs are marketed at a light weight or are sold as feeders to farmers elsewhere. Some of the late-farrowed pigs may be carried through the winter to be fattened on the peanut crop of the following year. Breeding stocks, and pigs and shoats not sold, are carried through the winter by allowing them to glean the fields and are fed a maintenance ration of corn.

Oklahoma-Texas region.—Commercial peanut production in the Southwestern region is found almost entirely in Oklahoma and Texas. Considerable tracts of sandy soils suitable for peanuts occur in many parts of the States in this section but climatic and other conditions have restricted peanuts in several of them. Before World War II, commercial production was limited primarily to the Rio Grande Plain and West Cross Timbers area in Texas and to Bryan County in the Coastal Plains of Oklahoma. Wartime demand brought a rapid increase in the acreage in the eastern and central parts of Oklahoma and Texas.

In terms of total acreage and production, the Cross Timbers is the leading peanut-producing section in Oklahoma, but the proportion of the cropland used for the crop is small. Since this region includes a wide diversity of physical conditions, there is a considerable variation in size and type of farm and in crops grown. On some farms where soils are not well suited for crops, the system of farming is based largely on livestock. Although operating units vary from small part-time units to large cattle ranches, about half of the farms are between 70 and 180 acres in size. Approximately one-fifth of the cropland is used for small grains. These crops are grown largely on the prairie section rather than on the sandy soils.

Cotton and corn are the dominant crops on the sandy locations. Peanuts are limited more to the sandier soils. For the region as a whole, the average acres of peanuts per farm is small, but they are an important enterprise on farms where grown.

Production areas in Texas vary considerably within the State. Some peanuts are grown in the northeast Texas Sandy Lands area, located in the northeastern corner of the State. The upland soils are sandy and only moderately productive. The agriculture is characterized by small farms, irregular shaped fields, and simple tools. The basic cropping system centers around cotton and corn, supplemented in many parts by many special crops, including vegetables, small fruits, and nursery plants. Farmers have been inclined to plant peanuts on land that is not well adapted to other crops and this meant growing peanuts on the poorer soils.

Peanut production methods here resemble those in the Southeast in that acreages are small, power and equipment units are small, and much hand labor is used in digging and stacking. Almost every farmer who grows peanuts also grows a substantial acreage of cotton. Peanuts do not compete favorably with cotton except on the better soil types. The acreage of peanuts grown depends mainly upon the relation between prices for peanuts and for competing crops and the extent to which farmers use technological improvements to reduce costs and increase returns.

The West Cross Timbers area of Texas is the most important area of peanut production in the Oklahoma-Texas region. The agriculture of the area has changed greatly in the last 40 years. Before World War I, cotton occupied about two-thirds of the cropland and was the major source of cash income. Peanuts have almost completely replaced cotton on the sandy soils and are now the principal cash crop in the area. Climate, topography, and size of farms, have been favorable to the mechanization of production. At present, most of the farms are highly mechanized in regard to this crop.

The soils of the West Cross Timbers area are not very homogeneous. In some parts, considerable rough, shallow, stony soils are found. They are used primarily for grazing. The sandy soils used for peanuts are largely brown and fine sandy loam, low in organic matter and in some essential nutrients. They are of low to moderate inherent fertility and have sandy clay subsoils.

There are a number of livestock farms here located on the rougher land and soils unsuited for peanuts. The larger peanut farms have a very high proportion of their land in the crop which probably has been encouraged by the mechanized method of production. On smaller peanut farms a higher proportion of the cropland is devoted to cotton, truck, or miscellaneous crops. On the more suitable soils returns are particularly favorable to peanuts. However, to plant land continuously to peanuts, or in short rotations, quickly reduces the fertility. To maintain profitable production on many of the peanut farms, increased emphasis must be placed on developing suitable rotations and corrective practices to check water and wind erosion and the loss of soil fertility.

A third production area in Texas is in the Rio Grande Plains area and includes most of the counties of Frio and Atascosa and parts of the counties of Medina, LaSalle, and Wilson. Here, agriculture is characterized by a wide diversity of products. Livestock farming and cattle ranching are of some importance. Peanuts, grain sorghums, cotton, watermelons, and truck crops are among the most important crops. Cotton yields are low and the cotton acreage is rapidly declining. Cropland acreages per farm are large and crop production, particularly for grain sorghum and peanuts, has been highly mechanized. The climate, topography, and location of suitable soils, are all favorable to mechanized production of peanuts.

Much of the Rio Grande Plains area is used for grazing except for locations where irrigation is practicable. Farm organization varies considerably from farm to farm. The major competition for the use of land occurs between peanuts and feed crops such as grain sorghum. Peanuts are the dominant crop. Feed crops (such as grain sorghums and corn) are grown and fed primarily to cattle. Watermelons and broomcorn are depended upon as cash crops on some farms but returns from watermelons fluctuate widely depending on prices and marketing conditions. The speculative nature and the high labor requirements tend to restrict acreages of watermelons and truck crops to a small proportion of the cropland.

TRENDS IN ACRES, YIELD, AND PRODUCTION

The trends in acres, yield, and production of peanuts have been different in the different regions. The expansion of the crop during World War II was much greater in the Oklahoma-Texas and the Georgia-Alabama-Florida regions than in the North Carolina-Virginia region. This made necessary more adjustments in the farming systems of these regions as reduction has taken place in the acres grown. In presenting the material in this part of the report, the data for minor States have been grouped with the major regions. Acreage and production in Tennessee are included in the North Carolina-Virginia region; acreage and production in Mississippi are included in the Georgia-Alabama-Florida region; and data for Arkansas, Louisiana, and New Mexico are included in the Oklahoma-Texas region.

Acreage.—Acres of peanuts picked and threshed in 1910 are estimated at 464,000 acres (see Figure 20). Of these, 66 percent was in the North Carolina-Virginia region, 23 percent in the Georgia-Alabama-Florida region, and 11 percent in the Oklahoma-Texas region. From 1910 to 1943 there was a gradual expansion in the acres of peanuts picked and threshed, with a rapid expansion during each of the war periods.

The trend in acreage in the three regions from 1910 to 1955 has not been the same. The acreage in the North Carolina-Virginia region was only slightly higher at the end of the period than it was at the beginning and did not increase a great deal during either war period. In the Georgia-Alabama-Florida region, acreage increased rather rapidly after 1914 and reached a peak of 1,904,000 acres in 1943. This region has led in acreage since 1917. Acreage in the Oklahoma-Texas region declined after World War I to almost what it was before the war. Acreage began to increase again about 1927 but the most rapid increase came after 1941. The peak acreage was reached in 1947 when peanuts from 1,187,000 acres were picked and threshed.

In addition to peanuts that are grown to be picked and threshed, a considerable acreage in the United States is hogged off each year. This practice is not very common in the North Carolina-Virginia region; 95 percent or more of the acreage grown alone each year is picked and threshed (see Figure 21). In the other two major regions only about three-fourths or less of the total crop grown alone is picked and threshed. The proportion so harvested in the Oklahoma-Texas region has increased greatly since 1935. This change was probably brought about partly by the increase in mechanization of production in that area which made picking and threshing relatively more profitable. The decrease in percentage picked and threshed since 1950 was probably due to the very low yield during this period. In the Georgia-Alabama-Florida region, peanuts are interplanted with some other crop, mainly corn, on about 200,000 acres each year. Peanuts on this land are also usually hogged off.

PEANUTS PICKED AND THRESHED: ACREAGE, YIELD PER ACRE, AND PRODUCTION, BY AREAS, UNITED STATES, 1910-1955

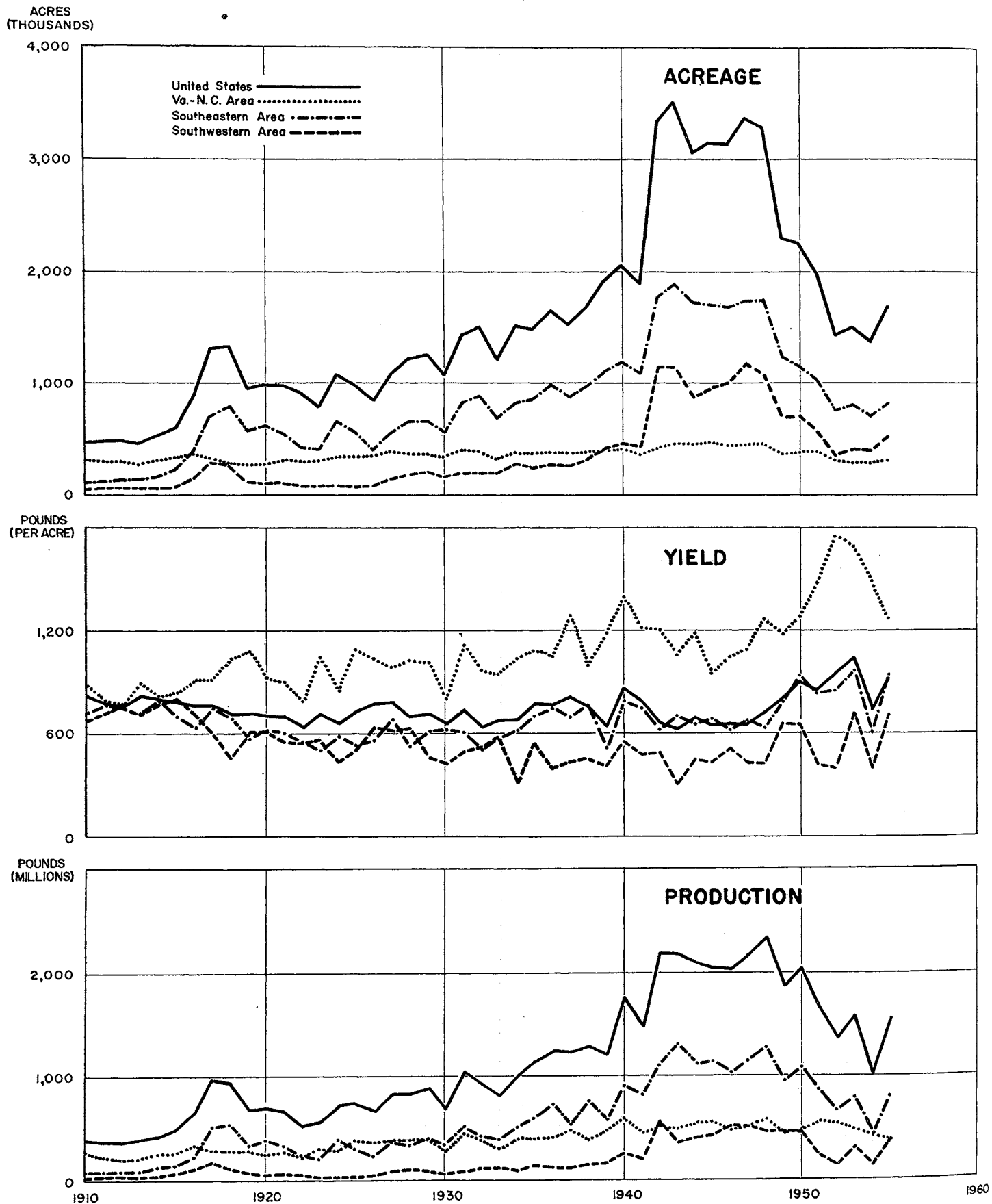


FIGURE 20

PEANUTS: PER CENT ACREAGE PICKED AND THRESHED IS OF TOTAL ACREAGE GROWN ALONE FOR ALL PURPOSES, BY AREAS AND FOR UNITED STATES, 1925-1955

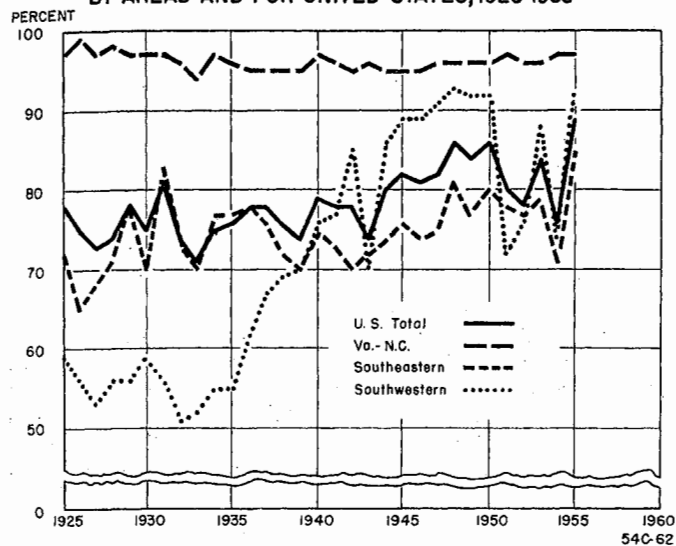


FIGURE 21

Yield.—Unlike most other crops, the yield per acre of peanuts has not shown much increase from 1910 to 1955. It decreased during both of the war periods. This decline was due primarily to the relative greater acreage expansion in the lower yielding areas of the West and the influence of new and inexperienced growers. As the acreage has decreased since 1948, yield per acre has increased. Normally, yield per acre in the North Carolina-Virginia region is about 50 percent more than in the Georgia-Alabama-

Florida region and 2 to 3 times as great as in the Oklahoma-Texas region.

Production.—Peanuts picked and threshed rose from 384 million pounds in 1940 to a record high of 2,336 million pounds in 1948. This was a sixfold increase. Up to 1949 the increase in production was somewhat proportionate to the increase in acres, except during war periods when yield per acre declined. Since 1949, total production has not declined as much as acreage has decreased for there has been an upward trend in yield per acre. Because of the very favorable yield in 1955, the total production was 67 percent of the peak production in 1948, although the 1955 acreage was only 51 percent of the 1948 acreage.

During the last 5 years, 1951 to 1955, 49 percent of the peanuts harvested were produced in the Georgia-Alabama-Florida region, 34 percent in the North Carolina-Virginia region, and 17 percent in the Oklahoma-Texas region. Production in the Oklahoma-Texas region during this period was lower than it would normally have been because of a fairly low yield per acre in 3 of the 5 years.

DISPOSITION OF SUPPLIES

The major concern in agricultural program and price policy is the problem of adjusting the quantity produced to the quantity consumed. This has been a problem for the peanut crop during the last few years, although during the war considerable effort was made to get producers to increase production.

The uses of peanuts in the United States have increased along with production (see Figure 22). The peak in domestic disappearance was reached in the year beginning September 1944 when 2,173 million pounds (farmers' stock basis) were used. This compared with an average of only 424 million pounds during the 1910-14 period. Although exports were fairly limited before 1945, large quantities have been exported in several years since that time.

PEANUTS: SUPPLY AND DISPOSITION, UNITED STATES, 1910-1955

POUNDS
(BILLIONS)

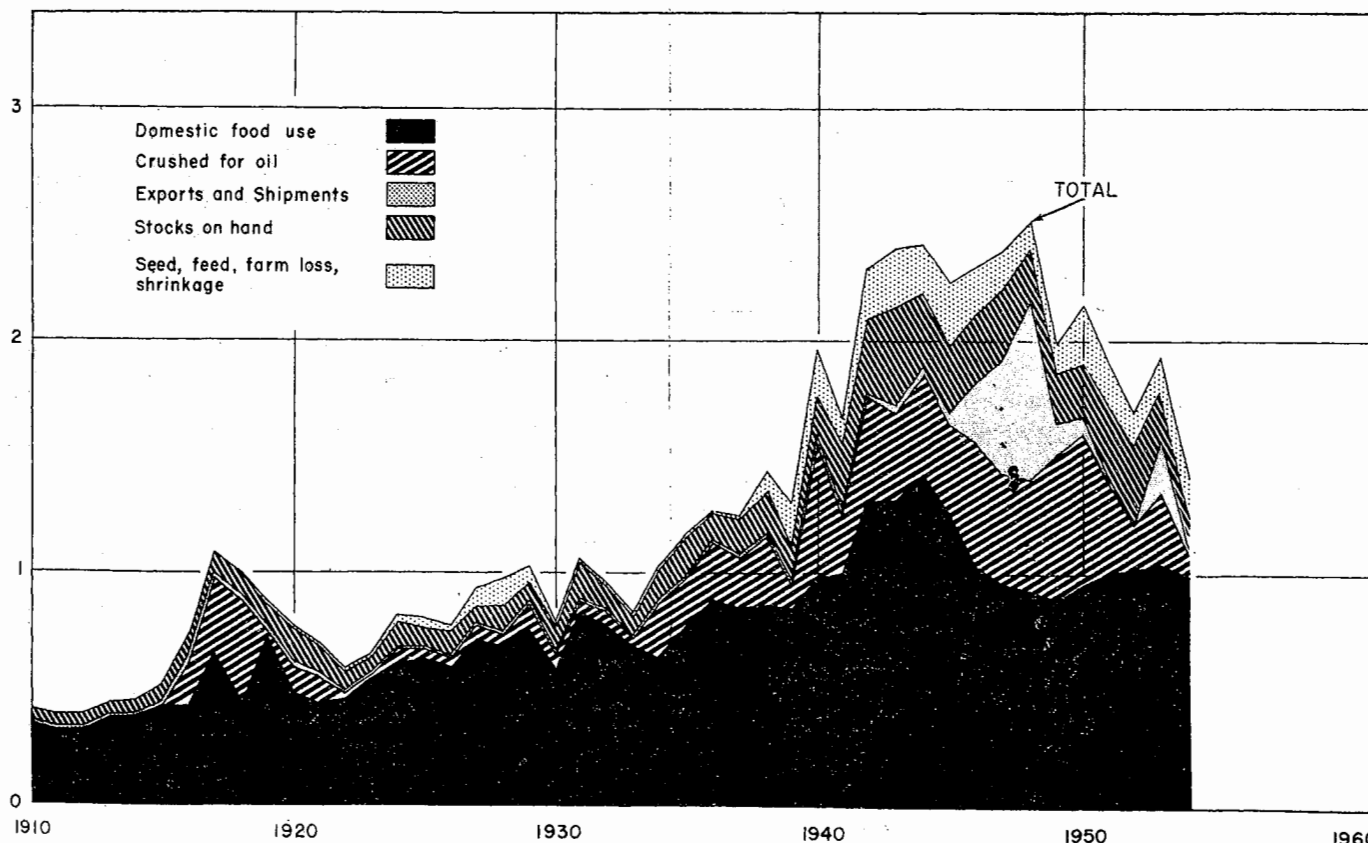


FIGURE 22

54C-63

Picked and threshed peanuts are used in the United States for edible products, for crushing, and for seed. A small quantity is fed to livestock on farms. Domestic disappearance during the 5-year period, 1950-54, averaged 1,495 million pounds (farmers' stock basis) per year. Of this quantity, domestic food uses accounted for 1,003 million pounds, or 67 percent; and crushing, 331 million pounds, or 22 percent.

Trends in consumption.⁴—From 50 to 75 percent of the domestic consumption of peanuts is represented by food products, chiefly peanut butter, candy, salted nuts, and roasted in the shell. The commercial food use of peanuts has increased steadily since 1920. Food consumption reached an all time high of 1,428 million pounds (farmers' stock basis) in 1944, which was about 3 times the 482 million pounds consumed in 1920 (see Table 33). Consumption of cleaned (roasted-in-the-shell) peanuts has been relatively constant since 1920. Use in peanut butter has more than doubled, and use in candy making and in salting has increased considerably. In recent years, makers of peanut butter have taken about half of the shelled nuts used in edible products. Use in candy and as salted nuts, each has taken about one-fourth of the total. These shifts in the proportions of peanuts going into the different uses have had an effect on the demand for peanuts grown in the various areas.

The civilian per capita consumption of peanuts for food uses reached an all-time high of 9.1 pounds (farmers' stock basis) in 1945 (see Table 33). This compared with 6 pounds in 1954 and 3.6 pounds in 1910. The large increase in per capita consumption during the war is believed to reflect mainly the substitution of peanut products for other foods in short supply such as butter, cheese, sandwich meats, jams and jellies, candy, and imported nuts.

TABLE 33.—DOMESTIC FOOD USE OF PEANUTS FOR THE UNITED STATES: 1910 TO 1954

[Farmers' stock basis]

Year beginning Sept. 1	Domestic food use			Year beginning Sept. 1	Domestic food use		
	Milli- tary	Civil- ian	Civil- ian per capita		Milli- tary	Civil- ian	Civil- ian per capita
	Million pounds	Million pounds	Pounds		Million pounds	Million pounds	Pounds
1910.....		345	3.6	1945.....	14	1,243	9.1
1915.....		426	4.2	1946.....		1,036	7.2
1920.....		482	4.5	1947.....	3	951	6.5
1925.....		627	5.4	1948.....	6	914	6.2
1930.....		588	4.8	1949.....	7	892	5.9
1935.....		770	6.0	1950.....	14	947	6.2
1940.....		970	7.2	1951.....	10	991	6.4
1941.....	74	928	6.9	1952.....	10	1,008	6.4
1942.....	146	1,170	8.9	1953.....	10	1,034	6.5
1943.....	223	1,002	8.4	1954.....	9	984	6.0
1944.....	288	1,140	8.7				

¹ Preliminary figures.

Source: United States Department of Agriculture, Agricultural Marketing Service.

Since 1946, per capita consumption of peanuts has averaged slightly below the level of the 1936-41 period. Thus the long-time trend in increase in per capita consumption, which averaged approximately 1.9 ounces⁵ per year (farmers' stock basis) for the period 1920-41, has not been maintained since the war. The failure of the upward movement to continue suggests that the demand for edible peanuts has slackened off and the industry has passed the period of continued expansion, except that which may be due to the increase in total consumption resulting from increase in population.

The per capita expenditures for peanut products used in homes tend to increase as income increases. But based on analysis for 1920-40 and 1946-50, the demand for both cleaned and shelled peanuts at the wholesale level is relatively inelastic.⁴ A 1-percent change in the wholesale price, on the average, has been associated with a change of 0.3 percent in the opposite direction in per capita consumption of cleaned peanuts and 0.4 to 0.5 percent in per capita consumption of shelled peanuts. A 1-percent change in disposable income, on the average, resulted in a change of 0.6 percent in the same direction in per capita consumption of cleaned peanuts and 0.4 to 0.6 percent in that of shelled nuts.

Crushing for oil.—Very few peanuts were crushed for oil before World War I. In 1916, however, there was an estimated crush of about 177 million pounds (farmers' stock basis) and the quantity rose to 441 million pounds in the 1918-19 crop year. Very few peanuts were crushed between 1919 and 1934. Beginning with 1934, Government programs were instituted which encouraged the use of peanuts for crushing and substantial quantities were so used. The peak before World War II was reached in 1940 when 601 million pounds were crushed; the all-time high came in 1950—642 million pounds.

Before Government programs were begun, the quantity of peanuts crushed depended upon the quality of the crop and the relative profitability of shelling and crushing. Each year, a few low-grade farmers' stock peanuts and a small percentage of the kernels, from shelling operations, that were not suitable for food uses, were crushed. Beginning in August 1947 and continuing to the 1951 crop, the Commodity Credit Corporation was permitted to buy surplus production largely in the form of No. 2 grade shelled peanuts, rather than as farmers' stock peanuts. This resulted in a substantial increase in the crushing of farmers' stock peanuts.

Feed, seed, farm loss, and shrinkage.—Of the total supply of peanuts picked and threshed, feed, seed, farm loss and shrinkage account for only about 10 percent of the disposition each year. This means that on farms where peanuts are grown, very few nuts that are picked and threshed are fed directly to livestock. However, not included in the statistics on disposition is the amount of peanuts eaten by the hogs that are run on peanut fields after the nuts are harvested and, also, the amount of peanuts hogs eat in fields that are hogged off.

Many Runner peanuts usually are left in the ground after digging. It has been estimated that in many instances there are enough peanuts to produce 50 pounds⁶ of pork to the acre from gleaning.⁷ There is no estimate on the acreage of peanuts gleaned each year, but, if the amount were only as much as 400,000 acres, this would be enough peanuts to produce 20 million pounds of pork.

The amount of pork produced per acre on peanuts that are hogged off varies depending on the yield per acre, the condition of the peanut crop, and whether or not the hogs have access to a mineral mixture and are fed protein supplements. Experiments in Florida by Pace and Glasscock showed that hogs which received a complete mineral mixture produced 466 pounds of pork per acre of peanuts grazed, while those grazing peanuts alone and not receiving a mineral mixture produced only 258 pounds of pork per acre.⁸ For the 5-year period 1951-55, the amount of peanuts grown in the southeastern section and not picked and threshed averaged 378,000 acres per year. If this amount was hogged off and the amount of pork produced per acre was only 200 pounds, this would be enough feed to produce 75,600,000 pounds of pork.

⁴ For a more complete discussion of this subject see "Peanuts and Their Use for Food" by Banna, Antoine, Armore, Sidney J., and Foote, Richard J., United States Department of Agriculture Publications, Marketing Research Report No. 16, 1952.

⁵ Freund, Rudolf, "What Is Wrong With the Peanut Market," unpublished manuscript, North Carolina Agricultural Experiment Station.

⁶ Downing, James C., Council, James C., and Grigsby, S. Earl, "Balancing Labor and Land Resources for Wartime Production," FM39, United States Department of Agriculture, Bureau of Agriculture Economics, January 1943.

⁷ If the quantity left in the ground was 130 to 150 pounds, each pound of gain would require 2.9 pounds of peanuts.

⁸ Unpublished data, Florida Agricultural Experiment Station.

From these data it is evident that peanuts make an important contribution to the production of pork in the peanut areas, a fact which is not evident from the statistics on disposition.

Exports.—In the period 1910–42 only about 1 percent of the domestic production of peanuts was exported. About 90 percent of the quantity exported was for edible use in Canada. During the 1930's most of the export market in Canada was lost because of competition with lower-priced peanuts from the Far East. Beginning with 1943, exports to Canada increased substantially, as Far Eastern peanuts were no longer available. Because of the world shortage of fats and oils immediately after the end of World War II, large quantities of peanuts from this country were exported to Europe for crushing. Total exports of peanuts from the United States rose from 63 million pounds (farmers' stock basis) in 1945 to 252 million pounds in 1946 and reached a peak of 762 million pounds in 1948 (see Figure 22). The principal countries to which shipments were made were France, Italy, Germany, and Japan. With the improvement in the world's supply of fats and oils and the decline in production of peanuts in this country (with the exception of 1953), very few peanuts have been exported since 1950. Exports in 1953 amounted to 227 million pounds (farmers' stock basis). Increase in exports in 1953 were due mainly to activities relating to the price-support program.

PROGRAMS AND POLICIES, 1933–55

In each year since 1933, with the exception of 1936–37, the United States Department of Agriculture has had a program in effect to support the price received by producers for peanuts. Details of the programs have varied from year to year, reflecting changes in production trends, and in the relative demands for peanuts for direct use in edible products and for crushing for oil and meal. These programs are noteworthy because of the influence they have had on the supply and utilization of peanuts and because somewhat similar programs may be continued in the future.

An outline of the stages through which the programs have passed and a brief appraisal of the effects of governmental programs on the disposition of commercial peanut supplies since World War II are desirable. Selected statistical data relating to the programs are given in Table 34.

The several peanut programs can be divided into three phases. The first phase became effective on January 27, 1934, and was made applicable to the 1933 crop. Processors of peanuts entered into marketing agreements in which they agreed to pay minimum prices to growers of \$65 per ton for Southeastern and Virginia–North Carolina Spanish-type peanuts, \$60 for Virginia-type⁶ and for Southwestern Spanish, and \$55 for Runner type. These prices represented about twice the season average price for the 1932 crops and proved to be too high to be practical. Processors stopped buying peanuts but they continued to process for farmers on a toll basis. The marketing agreement was terminated in the fall of 1934 at the request of the majority of the millers.

The next phase of the peanut program began with the 1934 crop after peanuts were designated as a basic agricultural commodity. The measure adopted did not guarantee minimum prices but an effort was made to increase the incomes of peanut growers by diverting peanuts from the edible trade to be crushed for oil and by adjusting production. In 1934 growers could obtain up to \$20 per ton for diverting up to 20 percent of their production to oil. They could also receive an adjustment payment of \$8 per ton on peanuts harvested in 1934, if they agreed to limit their 1935 acreage of peanuts picked and threshed to the average of 1933 and 1934. Payments were also made to processors to buy and crush farmers' stock peanuts. During the 1934 season approximately 154 million pounds of farmers' stock peanuts were diverted to crushing for oil. The diversion program for peanuts grown in 1935 was essentially the same as in 1934.

⁶ Later changed to \$65 per ton for Virginia type.

TABLE 34.—PEANUTS: ACREAGE, SUPPORT LEVEL, PRICE RECEIVED BY FARMERS, QUANTITY PLEDGED FOR PRICE SUPPORT LOANS, AND QUANTITY PURCHASED UNDER PRICE SUPPORT PROGRAMS: 1935 TO 1955¹

Crop year	Acreage			Support level ²		Average price per pound received by farmers	Quantity pledged for price support loans	Quantity purchased under price support programs ³
	Allotment	Picked and threshed	Percentage of allotment	Percentage of parity on Aug. 1	Per pound			
	Thousand acres	Thousand acres	Per cent	Per cent	Cents	Cents	Million pounds	Million pounds
1935.....	1,497	1,497	100	85	3.1	3.1	73	73
1936.....	1,560	1,560	100	85	3.7	3.7	166	166
1937.....	1,538	1,538	100	85	3.3	3.3	253	253
1938.....	1,330	1,692	127	85	3.3	3.4	26	60
1939.....	1,345	1,908	142	85	3.4	3.3	50	558
1940.....	1,507	2,052	136	85	4.3	4.7	379	379
1941.....	1,610	1,900	118	85	6.6	6.1	297	297
1942.....	1,610	3,355	208	80	7.1	7.1	251	231
1943.....	1,610	3,528	219	80	7.3	8.0	309	96
1944.....	1,610	3,068	190	80	7.5	8.3	400	55
1945.....	1,610	3,100	192	80	8.6	9.1	383	508
1946.....	1,610	3,141	195	80	10.0	10.1	483	1,208
1947.....	1,610	3,377	209	80	10.5	10.4	345	774
1948.....	1,610	3,296	204	80	10.8	10.9	552	869
1949.....	1,610	2,308	143	80	11.5	10.4	253	540
1950.....	1,610	2,262	140	80	12.0	10.9	107	99
1951.....	1,610	1,982	123	80	11.9	11.1	457	297
1952.....	1,610	1,443	89	80	12.2	12.2	14	180
1953.....	1,610	1,515	94	80	12.2	11.6	298	180
1954.....	1,610	1,387	86	80	12.2	11.6	298	180
1955.....	1,731	1,691	98	80	12.2	11.6	298	180

¹ Source: United States Department of Agriculture, Agricultural Marketing Service.

² Farmers' stock basis.

³ From 1937 through 1940, the Commodity Credit Corporation made nonrecourse loans to peanut cooperatives to finance, purchase, storage, and diversion of sale of farmers' stock peanuts by these cooperatives in order to facilitate a surplus-removal program of the Department of Agriculture.

⁴ Under the Agricultural Conservation program.

⁵ Support level originally announced at 85 percent of parity, or 6.2 cents per pound, but revised Oct. 3, 1942, before a substantial movement of eligible peanuts took place.

⁶ Marketing quotas and acreage allotments under Agricultural Act of 1938 suspended.

⁷ The original 1955 allotment of 1,610,000 acres was increased by 7.5 percent in May 1955.

The Supreme Court's decision in the Hoosac Mills case on January 6, 1936, invalidated the production control and processing-tax provision of the Agricultural Adjustment Act. Under the provisions of a new law (the Soil Conservation and Domestic Allotment Act, passed by Congress in February 1936) the two principal means of supporting the price of peanuts were continued. Peanuts continued to be diverted from edible use to be crushed. Instead of paying farmers to reduce the acreage of peanuts grown, payments were made for diverting land from soil-depleting uses to soil-conserving and soil-building uses. A base acreage was established for each farm on the basis of acreage picked and threshed in previous years. On the 1936 crop, growers received \$25 per ton of the normal yield per acre up to 20 percent of the base acreage used for non-soil-depleting crops.

The program for the 1936 crop was continued much on the same basis through the 1940 crop. In 1937, penalties were adopted for harvesting more than base acreages. These penalties were in forms of a stated deduction per ton on the normal yield per acre harvested in excess of the base acreage. These payments and penalties, which applied only to the farmers who participated in the agricultural conservation program, probably kept participating growers from expanding their acreage of peanuts picked and threshed. However, participating growers did have an incentive to increase yields, and nonparticipants brought about an expansion of acreage particularly in the Southwest. In 1940 a slightly increased acreage and a record yield resulted in a production 37 percent higher than in any previous year. As a result, diversion of peanuts to crushing for oil rose to a new peak; for the 1940–41 crop it was more than twice that in any previous year.

The third phase of the peanut-support program followed the large crop in 1940. New legislation was enacted on April 3, 1941, which amended the Agricultural Adjustment Act of 1938 to

authorize marketing quotas for peanuts and reestablish peanuts as a "basic commodity." Growers voted for marketing quotas to be applied in 1941, 1942, and 1943. Nuts produced in excess of quotas were subject to a penalty of 3 cents per pound. Participation in the program was broadened; whereas in 1940 allotments were made in only 6 leading States, in 1941 they were made in 14 States. Acreage in 1941 was 7 percent less than in 1940 and production declined 15 percent.

The entry of the United States into war in December 1941 made it imperative to increase the output of oils and fats from domestic materials. The peanut program became one of expanding rather than restricting production. The Government offered price guarantees of 90 percent parity to the growers of soybeans, cottonseed, and peanuts, at the same time the prices of oils and fats were kept low by means of price controls. Marketing quotas were suspended in 1943. To bridge the gap between relatively high prices to growers, and artificially low prices to consumers, the Commodity Credit Corporation became the sole buyer of farmers' stock peanuts in 1943, 1944, and 1945, and supervised the allotment of supplies to different areas in line with various wartime regulations.

The exclusive authority of the Commodity Credit Corporation to buy and sell peanuts was discontinued with the 1946 crop. But the wartime price guarantee for peanuts was extended through the year 1947 in order to protect farmers against an expected decline in the demand for their products. The supports were supplied through a system of purchases and loans. In 1946 a program was begun to increase the diversion of No. 2 shelled peanuts to oil, to encourage the use of inferior peanuts in the production of oil and meal, and the use of No. 1 shelled peanuts for edible use only. As it turned out, the demand especially for vegetable oils was so extremely strong during 1946 and 1947 that peanut prices would probably have stayed fairly high even without price guarantees and supports.

Beginning with the 1948 crop, the Government and the growers thought it advisable to adjust future supplies to lower levels. Since peanuts were a basic commodity, growers could vote for acreage allotments and marketing quotas. On October 9, 1947, peanut growers voted in favor of marketing quotas to be effective for the 1948, 1949, and 1950 crops. The Secretary of Agriculture, however, suspended quotas for the 1948 crop in view of the critical world shortage of food fats and oils. Acreage allotments and marketing quotas have been in effect for peanuts since the 1949 crop.

Under the allotment program, the acreage of peanuts picked and threshed declined each year from 1949 to 1954 but the decline in supplies was not quite as large. For the 1949 and 1950 crops, growers could "overplant" their allotted acreage by a certain percentage and sell the production from this excess acreage through an agency designated by the Secretary of Agriculture at oil-stock prices. Peanut yields have tended to increase which has caused productions to decrease less than acreage.

In reviewing the phases of the peanut program it is of interest to realize that production trends continued upward prior to the war. A decrease in production was not necessarily the aim of the program but a real consideration is whether production expanded more rapidly than consumption for edible purposes. Between 1933 and 1941, acreage of peanuts harvested increased from 1.2 million acres to 1.9 million, or about 60 percent. During the same period, production increased more than 100 percent but consumption for edible purposes increased only about 40 percent.

The program followed since 1947 has resulted in a reduction in both acreage and production, but production has not declined as much as acreage has been reduced because of an increase in yield per acre. Average acres harvested during the 2 years, 1954

and 1955, was 54 percent less than the acreage harvested in 1947 and 1948. But production decreased only 43 percent. Support programs have tended to reduce the proportion of the crop that would normally go to the edible trade. The proportion of the total supply used for edible purposes was 40 percent in 1947 and 70 percent in 1954. Under normal competitive conditions it is estimated that about 80 percent of the supply is used for edible purposes.¹⁰ The long-time upward trend in per capita consumption of peanuts has not continued in the postwar years. Then, too, a shift in consumption trends between uses has affected the market for some types of peanuts more than others. Relatively higher prices for peanuts have no doubt been a factor in the failure of per capita consumption to continue to increase.

Possible changes in programs to better meet present and prospective conditions in the industry continue to be of interest. Evaluation of seed changes must take into account the present organization of peanut farms, the agricultural economy of the principal peanut-producing regions, and the effects which curtailment of production have on the organization of these farms.

NUMBER, RESOURCES, AND CHARACTERISTICS OF SPECIALIZED PEANUT FARMS

For the crops included in the other field-crop group, there is more overlapping in peanut production areas than is true for tobacco. This made it more difficult to select subregions as representative of specialized peanut areas. To show some of the important characteristics of peanut farms and the use of resources, data are presented for subregion 21 as representative of the Virginia-North Carolina peanut area, subregion 41 for the Georgia-Alabama-Florida area, and subregion 96 as representative of the Oklahoma-Texas area.

Number and Use of Resources

There were 24,710 farms classified as other field-crop farms in the three subregions summarized. This number accounted for only 0.7 percent of the commercial farms listed in the 1954 Census and was only 16.3 percent of the total number of farms reporting peanuts for all purposes in 1954. The number of other field-crop farms in these areas in 1954 was 54 percent less than the 53,684 listed in 1950.

The decrease in the number of these farms in the selected peanut areas between 1950 and 1954 was due partly to an overall shift in total number of farms of 19 percent, a small increase of acres in cotton to acres in peanuts, and a lower-than-normal yield for peanuts. In 1949, the ratio of acres in cotton to acres in peanuts was 0.7 to 1, but was 0.8 to 1 in 1954. Yields of peanuts were especially low in the Oklahoma-Texas and the Georgia-Alabama-Florida areas, which therefore had reduced cash income from peanuts. As a result of the last two factors, on farms where both peanuts and cotton were grown, a number of farms were classified as cotton farms in the 1954 Census whereas they may have been classified as peanut farms in 1950.

The production of peanuts on the specialized farms in the three subregions summarized was 395 million pounds in 1954 (see Table 35). This amount was only 61 percent of the total production on all commercial farms in these areas. For the United States, the production on these farms was 46 percent of the production on all commercial farms and 45 percent of the total production in that year.

Peanuts are one of the minor cash enterprises from the standpoint of the agriculture of the United States as a whole. A large share of the production is on commercial farms that are not classified as specialized peanut farms. The proportion of the total agricultural resources used by specialized peanut producers is small. In 1954, of the total for all commercial farms specialized

¹⁰ Freund, Rudolf, "What is Wrong With the Peanut Market," unpublished manuscript, North Carolina Agricultural Experiment Station.

TABLE 35.—NUMBER OF FARMS AND RESOURCES FOR ALL COMMERCIAL FARMS AND OTHER FIELD-CROP FARMS IN THE UNITED STATES AND IN SELECTED PEANUT SUBREGIONS: 1954

Item	United States		Total selected regions		Subregion 21 (Virginia-North Carolina)		Subregion 41 (Georgia-Alabama-Florida)		Subregion 96 (Oklahoma-Texas)	
	All commercial farms	Other field-crop farms	All commercial farms	Other field-crop farms	All commercial farms	Other field-crop farms	All commercial farms	Other field-crop farms	All commercial farms	Other field-crop farms
Total farms.....number..	3,327,889	367,733	88,892	24,710	21,912	15,178	42,852	8,138	24,128	1,394
All land in farms.....thousand acres..	1,032,493	33,685	21,574	2,895	2,336	1,262	8,508	1,337	10,730	296
Total cropland.....do.....	431,585	17,593	7,500	1,428	963	596	3,718	687	2,819	145
Production of peanuts.....million pounds..	852	409	651	305	310	246	302	129	39	20
Peanuts sold.....million dollars..	100	58	77	48	40	32	32	13	5	3
Other crops sold.....do.....	11,856	1,406	162	52	52	39	85	13	25	(Z)
All livestock and livestock products sold.....do.....	12,223	129	143	10	18	6	39	3	86	1
Forestry products sold.....do.....	120	4	5	(Z)	1	(Z)	4	(Z)	(Z)	4
All farm products sold.....do.....	24,299	1,597	387	110	111	77	160	29	116	22
Total capital.....do.....	110,545	4,086	1,786	318	349	206	503	90	844	1,880
Man-equivalent of labor.....number..	4,891,935	556,898	127,012	37,232	34,320	23,946	59,094	11,406	33,598	

Z Less than 0.5.

TABLE 36.—PROPORTION THAT NUMBER OF FARMS, RESOURCES USED, AND GROSS SALES ON COMMERCIAL FARMS IN SPECIFIED PEANUT AREAS WERE OF THE TOTAL FOR ALL COMMERCIAL FARMS IN THE UNITED STATES: 1954

Item	Number of farms	All land in farms (thousand acres)	Acres of cropland (thousands)	Total capital invested (million dollars)	Man-equivalent of labor (number)	All farm products sold (million dollars)	Peanuts sold (million dollars)	Production of peanuts (million pounds)
United States.....	3,327,889	1,032,493	431,585	110,545	4,891,935	24,299	100	852
Percent of United States total								
United States:								
All commercial farms.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Other field-crop farms.....	11.1	3.3	4.1	4.5	11.4	6.6	58.3	58.6
Other commercial farms.....	88.9	96.7	95.9	95.5	88.6	93.4	41.7	41.4
Total, three areas:								
All commercial farms.....	2.8	2.0	1.8	1.6	2.6	1.7	76.9	76.4
Other field-crop farms.....	.7	.2	.3	.3	.7	.4	48.0	46.3
Other commercial farms.....	2.1	1.8	1.5	1.3	1.9	1.3	28.9	30.1
Virginia-North Carolina (subregion 21):								
All commercial farms.....	.7	.2	.2	.3	.7	.5	40.2	36.4
Other field-crop farms.....	.5	.1	.1	.2	.5	.3	31.9	28.9
Other commercial farms.....	.2	.1	.1	.1	.2	.2	8.3	7.6
Georgia-Alabama-Florida (subregion 41):								
All commercial farms.....	1.4	.8	.9	.5	1.2	.7	31.7	35.4
Other field-crop farms.....	.2	.1	.2	.1	.2	.1	13.5	15.1
Other commercial farms.....	1.2	.7	.7	.4	1.0	.6	18.2	20.3
Oklahoma-Texas (subregion 96):								
All commercial farms.....	(Z)	1.0	(Z)	.8	(Z)	.5	5.0	4.6
Other field-crop farms.....	(Z)	(Z)	(Z)	.7	(Z)	(Z)	2.6	2.3
Other commercial farms.....	.7	1.0	.7	.8	.7	.5	2.4	2.3

Z 0.05 percent or less.

peanut farms in the areas summarized used 0.7 percent of all labor resources, 0.3 percent of the total capital employed, and 0.3 percent of the cropland (see Table 36). They had 0.4 percent of the gross farm income.

Table 37 gives a comparison on a per-farm basis of specialized peanut farms with all commercial farms in the United States and other commercial farms in the peanut areas. Specialized peanut farms are operated fairly intensively. They have less cropland per farm, employ less capital and have a smaller gross income than all commercial farms in the United States. However, the amount of labor per farm is about the same as on all commercial farms.

There are distinct differences in specialized peanut farms in the three production areas. Farms in the Virginia-North Carolina area have the smallest number of acres of cropland but they have higher average receipts from the sale of peanuts and also a higher gross income than farms in the other two areas. From the standpoint of acres of cropland, average capital and gross receipts, specialized peanut farms in the Virginia-North Carolina and the Georgia-Alabama-Florida area do not vary too much from other commercial farms. In the Oklahoma-Texas area, other commercial farms operated about 80 percent more cropland,

TABLE 37.—NUMBER OF COMMERCIAL FARMS AND SPECIFIED CHARACTERISTICS PER FARM FOR THE UNITED STATES AND FOR SELECTED PEANUT SUBREGIONS: 1954

Item	United States, all commercial farms	Subregion 21 (Virginia-North Carolina)		Subregion 41 (Georgia-Alabama-Florida)		Subregion 96 (Oklahoma-Texas)	
		Other field-crop farms	Other commercial farms	Other field-crop farms	Other commercial farms	Other field-crop farms	Other commercial farms
Number of farms.....	3,327,889	15,178	6,734	8,138	34,714	1,394	22,734
Specified characteristics per farm							
Land in farms.....acres..	310	83	160	164	206	213	450
Total cropland.....acres..	130	39	55	84	89	104	130
All farm products sold.....dollars..	7,302	5,101	4,950	3,547	3,789	2,700	4,941
Peanuts sold.....dollars..	30	2,090	1,234	1,654	526	1,839	106
Man-equivalent of labor.....number..	1.47	1.58	1.54	1.40	1.67	1.35	1.40
Investment in—							
Land and buildings.....dollars..	25,437	8,168	10,560	6,121	7,561	9,905	23,901
Livestock.....dollars..	3,154	716	1,522	841	1,298	1,045	3,326
Machinery.....dollars..	4,291	2,113	2,748	2,064	2,160	3,496	4,036
Total.....dollars..	32,882	10,997	14,830	9,026	11,019	14,446	31,263

TABLE 38.—NUMBER OF COMMERCIAL FARMS IN THE UNITED STATES AND DISTRIBUTION OF OTHER FIELD-CROP FARMS IN SPECIFIED PEANUT SUBREGIONS, BY ECONOMIC CLASS OF FARM: 1954

Area	Number of farms	Percent distribution of farms by economic class					
		I	II	III	IV	V	VI
United States, all commercial farms.....	3,327,889	4.0	13.5	21.2	24.4	22.9	14.0
Virginia-North Carolina (subregion 21).....	15,178	.3	6.7	28.3	30.6	18.8	6.3
Georgia-Alabama-Florida (subregion 41).....	8,138	.7	4.4	16.4	33.9	30.7	13.9
Oklahoma-Texas (subregion 96).....	1,394	.4	1.6	9.0	23.3	40.6	25.1
Total, 3 areas.....	24,710	.5	5.6	23.3	36.8	23.9	9.9

had more than twice the capital investment and received almost twice the gross income in 1954 as specialized peanut farms. Gross income on peanut farms in this area in 1954 was probably lower than normal because of the very low yield of peanuts.

Distribution of Number and Selected Resources by Economic Class of Farm

From the standpoint of distribution of income, a smaller proportion of the specialized peanut farms than for all commercial farms fall in the higher income group in the United States. In 1954, only 0.5 percent of the peanut farms were in Economic Class I compared with 4 percent for all commercial farms in the United States (see Table 38). However, only 10 percent of the peanut farms were in Economic Class VI compared with 14 percent for all commercial farms. As indicated previously, the proportion of farms in the Oklahoma-Texas area in Economic Class VI in 1954 was probably higher than normal because of the low peanut yield there.

Table 39 shows how selected resources of specialized peanut

TABLE 39.—SELECTED RESOURCES ON OTHER FIELD-CROP FARMS IN SPECIFIED PEANUT SUBREGIONS AND DISTRIBUTION AMONG VARIOUS ECONOMIC CLASSES OF FARMS: 1954

Item	All farms		Percent of total in various economic classes of farms					
	Unit	Total	I	II	III	IV	V	VI
Virginia-North Carolina (subregion 21)								
Number of farms.....	Number	15,178	0.3	6.7	28.3	39.6	18.8	6.3
All land in farms.....	Thousand acres	1,262	2.7	17.7	33.4	31.9	11.4	2.9
Acres of cropland.....	Thousand	596	2.2	18.3	35.0	31.4	10.9	2.2
Production of peanuts.....	Million pounds	246	2.0	22.0	36.2	29.8	8.6	1.4
Gross sales.....	Thousand dollars	77,424	2.1	18.4	39.8	31.0	7.6	1.1
Total capital.....	Million dollars	206	2.3	18.2	36.3	30.8	9.9	2.5
Man-equivalent of labor.....	Number	23,946	.8	10.4	32.2	37.3	14.9	4.4
Georgia-Alabama-Florida (subregion 41)								
Number of farms.....	Number	8,138	0.7	4.4	16.4	33.9	30.7	13.9
All land in farms.....	Thousand acres	1,337	7.1	16.2	22.2	28.7	18.0	7.8
Acres of cropland.....	Thousand	687	5.4	15.4	23.4	30.0	19.3	6.5
Production of peanuts.....	Million pounds	129	6.3	19.7	26.5	28.8	15.3	3.4
Gross sales.....	Thousand dollars	28,869	6.6	16.9	28.0	30.9	14.8	2.8
Total capital.....	Million dollars	90	6.5	14.5	25.0	31.2	17.4	5.4
Man-equivalent of labor.....	Number	11,406	5.4	9.3	19.5	31.5	24.5	9.8
Oklahoma-Texas (subregion 96)								
Number of farms.....	Number	1,394	0.4	1.6	9.0	23.3	40.6	25.1
All land in farms.....	Thousand acres	296	.7	4.4	14.9	27.7	36.8	15.5
Acres of cropland.....	Thousand	145	.7	3.3	16.5	31.0	34.3	14.1
Production of peanuts.....	Million pounds	20	4.8	8.2	22.6	28.3	27.8	8.3
Gross sales.....	Thousand dollars	3,764	4.3	7.7	22.5	30.5	27.0	8.0
Total capital.....	Million dollars	22	1.0	4.3	17.2	28.8	34.3	14.4
Man-equivalent of labor.....	Number	1,880	.8	2.0	10.2	24.0	38.1	24.9

farms are distributed among the various economic classes of farms. Farms in Classes I and II are the larger farms. In proportion to the number of farms in these classes, they operate a much larger proportion of the farmland, have more capital, produce a larger share of the peanuts, and receive a larger proportion of the gross farm income. These farms also have a larger proportion of the labor supply but the increase in labor is much less than the difference in production.

In the Virginia-North Carolina area, 7 percent of the farms are in Classes I and II but 24 percent of the peanuts are produced on these farms; in the Georgia-Alabama-Florida area, 5.1 percent of the farms that are in Classes I and II produce 25 percent of the peanuts; and in the Oklahoma-Texas area, 23.6 percent of the peanuts are produced by the 2 percent of the farms that are in Classes I and II.

Variation in Types of Farming in Specified Peanut Areas

For the three subregions included in this study, only in the Virginia-North Carolina area was the majority of farms classed as other field-crop farms (see Table 40). In the Georgia-Alabama-Florida region, only 19 percent of the commercial farms were classed as other field-crop farms; 44 percent were classified as cotton farms. Peanuts are grown extensively only in parts of the Oklahoma-Texas area. Only 6 percent of the farms in this area were classified as other field-crop farms compared to 49 percent classified as livestock farms other than poultry or dairy.

Tenure of Operator

Color of operator and percent tenancy is quite different in the various peanut regions. In the Virginia-North Carolina region in 1955, only 44 percent of the operators were white and 63 percent of all operators were classified as tenants. In the Georgia-Alabama-Florida region, 62 percent of the operators were white and 57 percent were tenants. In the one peanut subregion in the Oklahoma-Texas region for which data were summarized, all of the operators were white and 38 percent were classified as tenants.

In the two regions with nonwhite operators, the proportion of nonwhite increased as gross farm income decreased. In all regions, there was no consistent relationship between amount of gross income and farm tenancy.

TABLE 40.—NUMBER OF COMMERCIAL FARMS AND PROPORTION OF FARMS IN VARIOUS TYPE CLASSIFICATIONS IN SPECIFIED PEANUT SUBREGIONS: 1954

Type of farm	Subregion 21 (Virginia-North Carolina)	Subregion 41 (Georgia-Alabama-Florida)	Subregion 96 (Oklahoma-Texas)	Total, 3 subregions
Number of commercial farms.....	21,912	42,852	24,128	88,892
Percent of commercial farms classified as:				
Field-crop farms, other than vegetable and fruit-and-nut, total.....	78.7	64.5	20.6	56.0
Other field-crop.....	69.3	19.1	5.8	27.8
Cash-grain.....	2.7	1.3	5.3	2.7
Cotton.....	6.7	44.1	9.5	25.5
Vegetable farms.....	.2	.5	.5	.4
Fruit-and-nut farms.....	(Z)	.3	.3	.2
Dairy farms.....	.3	.8	10.6	3.3
Poultry farms.....	.5	1.2	5.0	2.1
Livestock farms other than dairy or poultry.....	7.7	12.2	48.6	21.0
General farms, total.....	12.0	19.2	14.0	16.1
Primarily crop.....	8.2	12.7	4.4	9.4
Primarily livestock.....	.2	.1	1.5	.5
Crop and livestock.....	3.6	6.4	8.1	6.2
Miscellaneous.....	.6	1.3	.4	.9
All farms.....	100.0	100.0	100.0	100.0

Z 0.05 percent or less.

PRODUCTION CONDITIONS ON PEANUT FARMS BY ECONOMIC CLASS OF FARM IN SELECTED PEANUT AREAS

Data are presented on a per-farm basis for some of the important characteristics of farms producing peanuts. It should be kept in mind that these data are subject to the same limitations as enumerated for the tobacco subregions on page 22. In these peanut subregions, there probably was more overlapping of crops included in the other field-crop classifications than was true for the tobacco subregions. As a result, the proportion of other field-crop farms that are specialized peanut farms may be lower for the peanut subregions than the proportion of such farms that were specialized tobacco farms in the tobacco subregions.

TABLE 41.—COLOR AND TENURE OF FARM OPERATORS ON OTHER FIELD-CROP FARMS IN SPECIFIED PEANUT SUBREGIONS, BY ECONOMIC CLASS OF FARM: 1954

Item	All farms	Economic class of farm					
		I	II	III	IV	V	VI
Virginia-North Carolina (subregion 21)							
Total number of operators.....	15, 178	52	1, 011	4, 296	6, 003	2, 855	961
Percent of operators:							
White.....	44	81	85	50	40	32	25
Nonwhite.....	56	19	15	50	60	68	75
Owners, part owners, or managers.....	37	75	53	29	33	47	56
Croppers.....	38	12	17	44	44	29	26
Other tenants.....	25	13	30	27	23	24	18
Georgia-Alabama-Florida (subregion 41)							
Total number of operators.....	8, 138	57	359	1, 339	2, 758	2, 497	1, 128
Percent of operators:							
White.....	62	100	93	82	64	50	47
Nonwhite.....	38		7	18	36	50	53
Owners, part owners, or managers.....	43	100	76	48	36	39	44
Croppers.....	31		8	27	36	32	29
Other tenants.....	26		16	25	28	28	27
Oklahoma-Texas (subregion 96)							
Total number of operators.....	1, 394	6	22	126	325	565	350
Percent of operators:							
White.....	100	100	100	100	100	100	100
Nonwhite.....							
Owners, part owners, or managers.....	62	17	77	72	74	54	59
Croppers.....	1					3	1
Other tenants.....	37	83	23	28	26	43	40

Size of farm.—The average size of other field-crop farms was 83 acres in the Virginia-North Carolina peanut area (see Table 42). This was about half the size of similar farms in the Georgia-Alabama-Florida area and only 40 percent of the average size in the Oklahoma-Texas area. In each area approximately half of the total acres was in cropland. Both total acres and crop acres increased as the amount of gross farm income increased. The difference between number of crop acres on Classes I and VI farms was greater in the Virginia-North Carolina area than either of the other two areas.

TABLE 42.—NUMBER AND SIZE OF OTHER FIELD-CROP FARMS IN SPECIFIED PEANUT SUBREGIONS, BY ECONOMIC CLASS OF FARM: 1954

Item	All farms	Economic class of farm					
		I	II	III	IV	V	VI
Virginia-North Carolina (subregion 21)							
Number of farms.....	15, 178	52	1, 011	4, 296	6, 003	2, 855	961
Total acres per farm.....	83	646	222	98	67	51	38
Total crop acres per farm.....	39	255	107	49	31	23	14
Percent of total acres in cropland....	47	39	48	50	46	45	37
Georgia-Alabama-Florida (subregion 41)							
Number of farms.....	8, 138	57	359	1, 339	2, 758	2, 497	1, 128
Total acres per farm.....	164	1, 661	603	221	139	97	92
Total crop acres per farm.....	84	658	294	121	75	53	40
Percent of total acres in cropland....	51	40	49	55	54	55	43
Oklahoma-Texas (subregion 96)							
Number of farms.....	1, 394	6	22	126	325	565	350
Total acres per farm.....	213	386	582	351	252	193	132
Total crop acres per farm.....	104	180	218	191	139	88	59
Percent of total acres in cropland....	49	47	37	54	55	46	45

TABLE 43.—PERCENT DISTRIBUTION, BY SIZE OF FARM, OF OTHER FIELD-CROP FARMS IN SPECIFIED PEANUT SUBREGIONS, BY ECONOMIC CLASS OF FARM: 1954

Total acres per farm	Percent distribution for each economic class of farm						
	All farms	I	II	III	IV	V	VI
Virginia-North Carolina (subregion 21)							
Under 10 acres.....	3	-----	-----	-----	2	6	20
10 to 29 acres.....	25	10	1	11	29	37	40
30 to 69 acres.....	36	10	12	43	37	34	29
70 to 139 acres.....	21	-----	26	27	21	17	6
140 to 259 acres.....	10	10	31	13	8	5	3
260 to 499 acres.....	4	-----	24	5	2	1	2
500 acres and over.....	1	70	6	1	-----	-----	(Z)
Total.....	100	100	100	100	100	100	100
Georgia-Alabama-Florida (subregion 41)							
Under 10 acres.....	2	-----	-----	(Z)	(Z)	2	7
10 to 29 acres.....	10	-----	1	-----	5	16	26
30 to 69 acres.....	31	-----	1	18	35	40	30
70 to 139 acres.....	26	-----	6	31	31	24	19
140 to 259 acres.....	17	-----	25	28	16	12	12
260 to 499 acres.....	9	9	29	17	9	5	3
500 acres and over.....	5	91	38	6	4	1	3
Total.....	100	100	100	100	100	100	100
Oklahoma-Texas (subregion 96)							
Under 10 acres.....	1	-----	-----	-----	-----	-----	3
10 to 29 acres.....	1	-----	-----	-----	-----	1	3
30 to 69 acres.....	6	-----	-----	-----	2	9	10
70 to 139 acres.....	24	-----	-----	4	9	27	44
140 to 259 acres.....	40	83	-----	24	46	45	31
260 to 499 acres.....	25	-----	68	63	41	15	9
500 acres and over.....	3	17	32	9	2	3	-----
Total.....	100	100	100	100	100	100	100

Z 0.5 percent or less.

Only 15 percent of the farms in the Virginia-North Carolina area had 140 or more acres and 28 percent had less than 30 acres (see Table 43). In the Georgia-Alabama-Florida area, 31 percent of the farms had 140 or more acres and in the Oklahoma-Texas area, 68 percent were of this size. In the Oklahoma-Texas area, 40 percent of the Class VI farms had 140 acres or more.

Color, tenure, and age of operator.—The color of the operators is decidedly different for the several peanut areas. In the Virginia-North Carolina area, only 44 percent of the operators are white compared with 62 percent in the Georgia-Alabama-Florida area and 100 percent in the Oklahoma-Texas area (see Table 44). In the two areas with nonwhite operators, the proportion that was nonwhite increased as the size of farm decreased. In the Virginia-North Carolina area, 19 percent of the operators of Class I farms were nonwhite.

Percent tenancy is high in all of the peanut areas but it is higher for nonwhite operators than for white operators. In the Virginia-North Carolina area in 1954 only 48 percent of the white

TABLE 44.—COLOR AND TENURE OF OPERATORS OF OTHER FIELD-CROP FARMS IN SPECIFIED PEANUT SUBREGIONS, BY ECONOMIC CLASS OF FARM: 1954

Item	All farms	Economic class of farm					
		I	II	III	IV	V	VI
Virginia-North Carolina (subregion 21)							
Number of operators.....	15,178	52	1,011	4,296	6,003	2,855	961
Percent of operators:							
White.....	44	81	85	50	40	32	25
Nonwhite.....	56	19	15	50	60	68	75
Total.....	100	100	100	100	100	100	100
Percent of white operators:							
Owners, part owners, or managers.....	48	81	55	39	44	66	71
Croppers.....	23	14	14	29	28	9	15
Other tenants.....	29	5	31	32	28	25	14
Total.....	100	100	100	100	100	100	100
Percent of nonwhite operators:							
Owners, part owners, or managers.....	29	50	38	19	25	38	51
Croppers.....	49	50	32	60	54	38	30
Other tenants.....	22	50	30	21	21	24	19
Total.....	100	100	100	100	100	100	100
Georgia-Alabama-Florida (subregion 41)							
Number of operators.....	8,138	57	359	1,339	2,758	2,497	1,128
Percent of operators:							
White.....	62	100	93	82	64	50	47
Nonwhite.....	38	---	7	18	36	50	53
Total.....	100	100	100	100	100	100	100
Percent of white operators:							
Owners, part owners, or managers.....	57	100	80	58	50	58	59
Croppers.....	19	---	5	18	21	20	18
Other tenants.....	24	---	15	24	29	22	23
Total.....	100	100	100	100	100	100	100
Percent of nonwhite operators:							
Owners, part owners, or managers.....	18	---	19	3	12	20	30
Croppers.....	51	---	58	70	63	45	39
Other tenants.....	31	---	23	27	25	35	31
Total.....	100	---	100	100	100	100	100
Oklahoma-Texas (subregion 96)							
Number of operators.....	1,394	6	22	126	325	565	350
Percent of operators:							
White.....	100	100	100	100	100	100	100
Nonwhite.....	---	---	---	---	---	---	---
Total.....	100	100	100	100	100	100	100
Percent of white operators:							
Owners.....	62	17	77	72	74	54	59
Croppers.....	1	---	---	---	---	3	1
Other tenants.....	37	83	23	28	26	43	40
Total.....	100	100	100	100	100	100	100

and 29 percent of the nonwhite operators were owners, part owners, or managers. This compared with 57 and 18 percent for these two groups, respectively, in the Georgia-Alabama-Florida area. In the Oklahoma-Texas area 62 percent of the operators were owners, part owners, or managers. There was little relation between tenure status and economic class of farm in any of the areas.

Table 45 shows the proportion of operators in various age groups. The distribution of age of operator was about the same for the three areas, except that in the Oklahoma-Texas area there were proportionately fewer operators in the under 25-year group and more in the 55-to-64-year group. In each area more of the operators of Class VI farms were in the higher age groups.

Land use.—Approximately 50 percent of the total farm acreage in each of the peanut areas is in cropland (see Table 46). Farms in the Virginia-North Carolina area are likely to have only a small acreage in pasture. In the Georgia-Alabama-Florida area about one-tenth of the cropland is in cropland pastured; slightly more than one-fifth of the total land is in woodland pastured but there is very little other pastureland. In the Oklahoma-Texas area about 16 percent of the cropland is in cropland pastured and 23 percent of the total land in each of woodland pastured and other pasture. The general land-use pattern in each of the areas was approximately the same on the various classes of farms.

From the standpoint of crops grown, peanut farms in each of the subregions are diversified (see Table 47). In both the Virginia-North Carolina and the Georgia-Alabama-Florida areas, corn occupies the largest acreage of cropland. Cotton is important in each of the areas. Tobacco is grown on some farms in both the Virginia-North Carolina and the Georgia-Alabama-Florida areas. About one-fourth of the cropland harvested in these two areas

TABLE 45.—DISTRIBUTION OF FARM OPERATORS BY AGE, ON OTHER FIELD-CROP FARMS IN SPECIFIED PEANUT SUBREGIONS, BY ECONOMIC CLASS OF FARM: 1954

Age of operator	All farms	Economic class of farm					
		I	II	III	IV	V	VI
Virginia-North Carolina (subregion 21)							
Number of operators reporting age...	14,822	47	985	4,196	5,883	2,780	931
Percent reporting:							
Under 25 years.....	4	-----	2	3	5	5	7
25 to 34 years.....	18	4	20	18	20	15	12
35 to 44 years.....	29	28	26	32	30	26	20
45 to 54 years.....	25	47	29	27	23	23	17
55 to 64 years.....	16	17	16	15	15	21	20
65 years and over.....	8	4	7	5	7	10	24
Total.....	100	100	100	100	100	100	100
Georgia-Alabama-Florida (subregion 41)							
Number of operators reporting age...	7,845	56	338	1,313	2,653	2,407	1,078
Percent reporting:							
Under 25 years.....	4	-----	3	5	3	5	6
25 to 34 years.....	19	21	20	22	18	20	10
35 to 44 years.....	29	38	37	31	34	25	19
45 to 54 years.....	26	18	28	25	28	25	22
55 to 64 years.....	15	23	9	12	14	17	22
65 years and over.....	7	-----	3	5	3	8	21
Total.....	100	100	100	100	100	100	100
Oklahoma-Texas (subregion 96)							
Number of operators reporting age...	1,364	6	22	121	315	555	345
Percent reporting:							
Under 25 years.....	1	-----	22	25	24	3	1
25 to 34 years.....	17	-----	5	18	40	23	22
35 to 44 years.....	26	83	73	37	25	29	26
45 to 54 years.....	29	17	-----	16	8	20	32
55 to 64 years.....	20	-----	-----	4	3	9	10
65 years and over.....	7	-----	-----	-----	-----	-----	-----
Total.....	100	100	100	100	100	100	100

TABLE 46.—AVERAGE ACREAGE PER FARM FOR SPECIFIED USES OF LAND ON OTHER FIELD-CROP FARMS IN SPECIFIED PEANUT SUBREGIONS, BY ECONOMIC CLASS OF FARM: 1954

Use of land	Average acres per farm by economic class of farm						
	All farms	I	II	III	IV	V	VI
Virginia-North Carolina (subregion 21)							
Cropland harvested.....	35.9	217.2	96.9	44.9	28.8	20.4	12.0
Cropland pastured.....	1.9	27.4	8.4	2.1	1.2	1.0	.5
Cropland not harvested and not pastured.....	1.4	10.7	2.1	1.6	1.1	1.4	1.2
Total cropland.....	39.2	255.3	107.4	48.6	31.1	22.8	13.7
Woodland pastured.....	4.0	30.8	12.2	5.0	2.8	2.3	1.7
Woodland not pastured.....	36.4	324.1	93.7	40.7	30.4	22.8	19.4
Improved pasture.....	.6	11.2	2.1	0.8	.4	.3	.2
Not improved pasture.....	1.0	9.7	2.4	1.2	.5	.9	.2
Other land.....	1.9	14.9	4.1	1.7	1.7	1.4	3.0
Total.....	83.1	646.0	221.9	98.0	66.9	50.5	38.2
Georgia-Alabama-Florida (subregion 41)							
Cropland harvested.....	66.1	497.8	214.6	95.5	61.7	42.0	26.2
Cropland pastured.....	8.0	85.5	42.5	12.6	5.9	3.7	2.2
Cropland not harvested and not pastured.....	10.3	74.3	36.9	12.5	7.0	7.1	11.3
Total cropland.....	84.4	657.6	294.0	120.6	74.6	52.8	39.7
Woodland pastured.....	29.3	268.2	122.2	37.9	25.4	15.6	17.5
Woodland not pastured.....	39.5	666.9	143.2	43.7	31.3	24.0	29.7
Improved pasture.....	3.3	108.8	20.6	4.7	1.6	.7	.5
Not improved pasture.....	4.9	38.3	16.1	10.1	3.8	2.0	2.4
Other land.....	2.8	21.1	7.0	4.1	2.5	1.6	2.2
Total.....	164.2	1,660.9	603.1	221.1	139.2	96.7	92.0
Oklahoma-Texas (subregion 96)							
Cropland harvested.....	78.5	161.8	170.7	151.3	104.9	65.7	41.1
Cropland pastured.....	15.8	18.3	40.5	27.7	20.6	13.1	9.7
Cropland not harvested and not pastured.....	10.0	-----	6.4	11.5	13.2	9.6	7.8
Total cropland.....	104.3	180.1	217.6	190.5	138.7	88.4	58.6
Woodland pastured.....	48.4	-----	55.2	96.9	44.9	51.6	29.4
Woodland not pastured.....	4.9	141.2	-----	4.6	10.9	2.0	2.3
Improved pasture.....	3.1	-----	7.5	3.1	3.4	3.9	1.4
Not improved pasture.....	45.6	62.5	294.6	44.2	47.1	41.3	35.5
Other land.....	6.3	2.0	7.5	11.9	7.1	5.8	4.4
Total.....	212.6	385.8	582.4	351.2	252.1	193.0	131.6

was in peanuts but slightly more than 40 percent of the cropland harvested in the Oklahoma-Texas area was used for peanuts. The proportion of cropland devoted to this crop in the Oklahoma-Texas area is probably at a maximum if soil fertility is to be maintained.

Cropping systems vary somewhat for farms in the different economic classes. In the Virginia-North Carolina area more soybeans are grown on the larger farms. In the Georgia-Alabama-Florida area, the quantity of small grain increased as size of farm increased. In the Oklahoma-Texas area, cotton was more important on the larger farms.

Variation in acres of peanuts per farm is shown in Table 48. In the Virginia-North Carolina area, 17 percent of the farms had less than 5 acres in peanuts and only 7 percent had more than 25 acres. In the Georgia-Alabama-Florida area, 5 percent of the farms had less than 5 acres but 30 percent had more than 25 acres. In the Oklahoma-Texas area only 1 percent of the farms had less than 5 acres and 70 percent had more than 25 acres. In each area, the proportion of farms in the groups of larger acreage increased as the gross income from the farms increased.

Livestock.—The number of livestock on farms vary considerably by peanut areas. In all areas milk cows are kept mainly to supply milk for home use. Only 29 percent of the farms in the Virginia-North Carolina and 53 percent in the Georgia-Alabama-Florida

TABLE 47.—AVERAGE ACREAGE OF SELECTED CROPS GROWN ON OTHER FIELD-CROP FARMS IN SPECIFIED PEANUT SUBREGIONS, BY ECONOMIC CLASS OF FARM: 1954

Crop	All farms	Average acres per farm by economic class of farm					
		I	II	III	IV	V	VI
Virginia-North Carolina (subregion 21)							
Total cropland harvested.....	35.9	217.2	96.9	44.9	28.8	20.4	12.0
Selected crops:							
Peanuts:							
Grown for all purposes.....	10.6	50.7	28.9	12.9	8.8	6.1	3.3
Harvested for picking and threshing.....	10.6	59.6	29.1	12.9	8.8	6.1	3.3
Corn for grain.....	13.8	88.8	37.8	17.2	11.0	7.6	5.3
Cotton.....	3.1	21.0	4.8	4.0	2.9	2.3	1.2
Tobacco.....	2.4	5.6	3.6	3.6	2.2	1.1	.5
Small grain for grain.....	.5	7.1	3.1	.4	.2	.3	.1
Soybeans for beans.....	2.6	16.6	9.4	3.5	1.7	1.1	.6
All hays.....	.4	8.7	1.2	.3	.3	.3	.3
Georgia-Alabama-Florida (subregion 41)							
Total cropland harvested.....	66.1	497.8	214.6	95.5	61.7	42.0	26.2
Selected crops:							
Peanuts:							
Grown for all purposes.....	21.0	148.4	78.0	30.9	20.4	13.5	9.0
Harvested for picking and threshing.....	20.0	145.2	75.2	28.1	18.4	12.2	8.0
Corn for grain.....	25.2	167.2	70.3	34.0	24.2	17.8	12.0
Cotton.....	6.7	20.6	17.7	8.9	5.9	3.6	1.7
Tobacco.....	1.2	8.3	2.0	1.9	1.4	.7	.3
Small grain for grain.....	2.2	53.1	15.1	4.6	1.0	.4	.1
Soybeans for beans.....	(Z)	.4	.2	(Z)	(Z)	(Z)	(Z)
All hays.....	.5	15.8	2.7	.8	.3	.1	(Z)
Oklahoma-Texas (subregion 96)							
Total cropland harvested.....	78.5	161.8	170.7	151.3	104.9	65.7	41.1
Selected crops:							
Peanuts:							
Grown for all purposes.....	43.8	56.0	69.6	90.9	60.8	36.2	21.5
Harvested for picking and threshing.....	41.5	54.3	69.6	89.2	56.3	33.5	21.5
Corn for grain.....	2.6	10.0	.5	2.6	2.3	2.3	3.2
Cotton.....	6.6	50.8	23.2	9.8	9.1	5.4	3.3
Tobacco.....	4.6	1.3	9.5	13.1	6.6	3.5	1.3
Small grain for grain.....	4.6	1.3	9.5	13.1	6.6	3.5	1.3
Soybeans for beans.....	2.7	25.3	16.8	1.1	3.0	1.9	3.0
All hays.....	2.7	25.3	16.8	1.1	3.0	1.9	3.0

Z 0.05 percent or less.

areas reported milk cows (see Table 49). In the Virginia-North Carolina area there are many hogs on all farms but beef cattle are found only on the larger farms. The hogs are run on the peanut fields after the nuts are harvested.

In some parts of the Georgia-Alabama-Florida area it is a common practice to "hog off" peanuts. Hogs are also grazed on peanut fields. The number of hogs per farm is slightly less than in the Virginia-North Carolina area and accordingly there are only about half as many hogs per acre of peanuts. Beef cattle are more important in the Georgia-Alabama-Florida than in the Virginia-North Carolina area but not as important as in the Oklahoma-Texas area. Hogs are not of much consequence on farms in the Oklahoma-Texas area.

The number of livestock in all areas increased as gross farm income increased but the pattern was similar except the larger farms had more beef cattle.

Labor used.—The labor force for peanut farms is made up mostly of the farm family. In the specialized peanut areas, hired labor was relatively unimportant in 1954 except on the Classes I and II farms (see Table 50). The amount of unpaid family labor was less and the amount of hired labor more in the Georgia-Alabama-Florida area than in either of the other two areas. The number of crop acres per man-equivalent was 25 in the Virginia-North Carolina area, but it was 77 in the Texas-Oklahoma area.

Total number of man-equivalents of labor per farm increased as size of farm increased. The increase was due mainly to an increase in hired labor.

TABLE 48.—DISTRIBUTION OF FARMS REPORTING, BY ACRES OF PEANUTS HARVESTED, FOR OTHER FIELD-CROP FARMS IN SPECIFIED PEANUT SUBREGIONS, BY ECONOMIC CLASS OF FARM: 1954

Item	All farms	Economic class of farm					
		I	II	III	IV	V	VI
Virginia-North Carolina (subregion 21)							
Farms reporting peanuts harvested number..	14,517	52	996	4,245	5,768	2,615	841
Percent distribution by acres of peanuts grown alone and harvested for picking or threshing:							
Under 5 acres.....	17	-----	1	5	15	31	68
5 to 9 acres.....	40	10	11	34	46	50	30
10 to 24 acres.....	36	10	32	53	38	19	2
25 to 49 acres.....	6	11	43	8	1	(Z)	-----
50 to 99 acres.....	1	63	12	(Z)	-----	-----	-----
100 acres and over.....	(Z)	6	1	-----	-----	-----	-----
Total.....	100	100	100	100	100	100	100
Georgia-Alabama-Florida (subregion 41)							
Farms reporting peanuts harvested number..	7,619	52	352	1,280	2,628	2,271	1,036
Percent distribution by acres of peanuts grown alone and harvested for picking or threshing:							
Under 5 acres.....	5	-----	1	2	4	6	12
5 to 9 acres.....	19	-----	6	9	14	21	48
10 to 24 acres.....	46	2	3	31	49	62	35
25 to 49 acres.....	21	-----	16	38	29	10	4
50 to 99 acres.....	7	25	44	19	4	1	1
100 acres and over.....	2	73	30	1	(Z)	-----	-----
Total.....	100	100	100	100	100	100	100
Oklahoma-Texas (subregion 96)							
Farms reporting peanuts harvested number..	1,349	6	22	126	315	540	340
Percent distribution by acres of peanuts grown alone and harvested for picking or threshing:							
Under 5 acres.....	1	-----	-----	-----	-----	1	1
5 to 9 acres.....	7	-----	-----	-----	-----	2	27
10 to 24 acres.....	22	-----	-----	4	3	26	40
25 to 49 acres.....	32	17	23	16	26	45	25
50 to 99 acres.....	31	83	45	32	63	26	7
100 acres and over.....	7	-----	32	48	8	-----	-----
Total.....	100	100	100	100	100	100	100

Z 0.5 percent or less.

The time spent in off-farm work varies for farm operators in the three areas. In the Virginia-North Carolina area, 76 percent of the operators reported that they did not work off the farm and the majority of those that did, reported less than 100 days. In the Oklahoma-Texas area, 44 percent of the operators reported off-farm work. The percentage of operators reporting off-farm work did not vary much by economic class of farm in the Virginia-North Carolina area. In both the Georgia-Alabama-Florida and the Oklahoma-Texas areas, the percentage of operators reporting off-farm work tended to decrease as the gross farm income increased.

Farm mechanization and home conveniences.—The level of mechanization is not very high on peanut farms (see Table 52). Only about half of the farms in the Virginia-North Carolina and the Georgia-Alabama-Florida areas reported tractors as compared with 87 percent in the Oklahoma-Texas area. In all areas the proportion of farms reporting trucks was less than tractors. The level of mechanization increased greatly with size of farms—most of the Class I and II farms reported one or more trucks, tractors, and grain combines.

In regard to home conveniences, electricity was available to most all farm families in each area and in each economic class. The level of other home conveniences was low: 13 percent or less

TABLE 49.—AVERAGE NUMBER OF LIVESTOCK PER FARM ON OTHER FIELD-CROP FARMS IN SPECIFIED PEANUT SUBREGIONS, BY ECONOMIC CLASS OF FARM: 1954

Item	All farms		Economic class of farm					
	Percent of farms reporting	Average number per farm	I	II	III	IV	V	VI
Virginia-North Carolina (subregion 21)								
Horses and mules.....	64	1.2	4.1	1.6	1.4	1.1	1.0	0.9
Milk cows.....	29	1.5	1.5	.9	.5	.4	.5	.2
Other cattle.....	(NA)	1.4	28.5	7.4	1.0	.7	.5	.3
All hogs and pigs.....	77	16.4	102.7	51.8	20.4	12.3	8.9	5.1
Chickens.....	77	26.9	55.1	42.9	30.7	25.5	20.8	17.9
Georgia-Alabama-Florida (subregion 41)								
Horses and mules.....	55	1.0	5.6	1.7	1.0	1.0	1.0	0.9
Milk cows.....	53	1.2	2.5	1.3	1.5	1.5	1.0	.7
Other cattle.....	(NA)	7.3	120.1	36.1	10.5	5.3	3.1	2.1
All hogs and pigs.....	72	14.8	52.0	40.4	25.2	14.5	9.3	5.0
Chickens.....	78	25.4	231.8	40.3	42.5	22.9	16.7	15.1
Oklahoma-Texas (subregion 96)								
Horses and mules.....	30	0.6	-----	0.5	0.5	0.4	0.5	0.8
Milk cows.....	74	2.2	1.2	2.1	2.7	2.5	1.9	2.0
Other cattle.....	(NA)	11.0	36.3	56.7	23.9	13.4	8.5	5.1
All hogs and pigs.....	50	4.0	1.7	6.4	11.7	4.2	3.5	1.8
Chickens.....	84	48.5	266.7	313.9	53.1	49.6	47.4	27.2

NA Not available.

of all farms reported telephones, 28 percent or less reported television sets, and 24 percent or less reported home freezers. In the Oklahoma-Texas area 57 percent reported piped running water as compared with only 32 percent in the Virginia-North Carolina area.

The level of home conveniences increased with the economic class of the farm. Farms in the low-income groups did not have enough income to meet the necessities of life and to provide home conveniences as well.

Fertilizer was reported as being used on 97 percent of the farms in each of the Virginia-North Carolina and the Georgia-Alabama-Florida areas but on only 76 percent of the farms in the Oklahoma-Texas area (see Table 53). The average amount of fertilizer

TABLE 50.—SOURCE OF LABOR ON OTHER FIELD-CROP FARMS IN SPECIFIED PEANUT SUBREGIONS, BY ECONOMIC CLASS OF FARM: 1954

Item	All farms	Economic class of farm					
		I	II	III	IV	V	VI
Virginia-North Carolina (subregion 21)							
Man-equivalent per farm:							
Operator.....	0.89	0.77	0.91	0.93	0.91	0.83	0.84
Unpaid family labor.....	.44	.52	.33	.56	.43	.34	.23
Hired labor.....	.25	2.31	1.24	.31	.15	.08	.03
Total.....	1.58	3.60	2.48	1.80	1.49	1.25	1.10
Georgia-Alabama-Florida (subregion 41)							
Man-equivalent per farm:							
Operator.....	0.88	0.90	0.93	0.90	0.91	0.85	0.86
Unpaid family labor.....	.17	.19	.07	.21	.19	.17	.09
Hired labor.....	.35	9.56	1.97	.55	.20	.10	.04
Total.....	1.40	10.65	2.97	1.66	1.30	1.12	.99
Oklahoma-Texas (subregion 96)							
Man-equivalent per farm:							
Operator.....	0.86	1.00	0.95	0.89	0.86	0.81	0.80
Unpaid family labor.....	.43	.50	.45	.45	.44	.43	.43
Hired labor.....	.06	1.00	.33	.18	.08	.03	.02
Total.....	1.35	2.50	1.73	1.52	1.38	1.27	1.24

TABLE 51.—WORK OFF FARMS BY FARM OPERATORS OF OTHER FIELD-CROP FARMS IN SPECIFIED PEANUT SUBREGIONS, BY ECONOMIC CLASS OF FARM: 1954

Item	All farms	Percent of operators reporting for each economic class of farm					
		I	II	III	IV	V	VI
Virginia-North Carolina (subregion 21)							
Days of work off farm:							
None.....	76	69	85	79	78	66	75
1 to 99 days.....	18	10	9	19	18	20	25
100 to 199 days.....	2	10	1	1	2	6	---
200 days or more.....	3	10	5	1	2	7	---
Not reporting.....	1	11	---	---	---	1	---
Total.....	100	100	100	100	100	100	100
Georgia-Alabama-Florida (subregion 41)							
Days of work off farm:							
None.....	70	83	79	73	72	64	75
1 to 99 days.....	23	5	14	20	22	27	25
100 to 199 days.....	3	---	2	3	2	5	---
200 days or more.....	4	12	5	4	4	4	---
Total.....	100	100	100	100	100	100	100
Oklahoma-Texas (subregion 96)							
Days of work off farm:							
None.....	56	100	73	56	57	54	57
1 to 99 days.....	34	---	22	40	31	30	43
100 to 199 days.....	6	---	5	---	8	9	---
200 days or more.....	4	---	---	4	4	7	---
Total.....	100	100	100	100	100	100	100

used per acre on crops on which applied was 640 pounds in the Virginia-North Carolina area, 380 pounds in the Georgia-Alabama-Florida area, but only 120 pounds in the Oklahoma-Texas area. Practically no liming material was used on farms in the Oklahoma-Texas area. In the Virginia-North Carolina area, lime was reported as being used on 20 percent of the farms and on 10 percent of the farms in the Georgia-Alabama-Florida area.

TABLE 52.—SPECIFIED FACILITIES AND EQUIPMENT FOR FARMS AND HOMES ON OTHER FIELD-CROP FARMS IN SPECIFIED PEANUT SUBREGIONS, BY ECONOMIC CLASS OF FARM: 1954

Item	All farms	Economic class of farm					
		I	II	III	IV	V	VI
Virginia-North Carolina (subregion 21)							
Number per farm:							
Automobiles.....	0.8	1.8	1.2	0.9	0.7	0.6	0.5
Motortrucks.....	0.3	1.2	0.8	0.9	0.3	0.3	0.2
Tractors.....	0.7	3.6	1.9	0.8	0.6	0.5	0.3
Grain combines.....	0.1	0.6	0.3	0.1	(Z)	(Z)	(Z)
Percent of farms reporting:							
Automobiles.....	68	88	88	76	66	57	48
Motortrucks.....	32	60	71	38	28	25	15
Tractors.....	52	79	80	63	48	40	24
Grain combines.....	6	50	26	8	3	4	(Z)
Telephone.....	10	58	38	11	7	6	5
Electricity.....	91	100	99	95	91	85	76
Television.....	28	73	65	33	24	18	12
Piped running water.....	32	65	75	38	28	21	12
Home freezer.....	24	63	60	28	21	15	9
Georgia-Alabama-Florida (subregion 41)							
Number per farm:							
Automobiles.....	0.6	3.2	1.2	0.7	0.6	0.5	0.3
Motortrucks.....	0.5	3.7	1.3	0.8	0.5	0.4	0.3
Tractors.....	0.7	4.8	2.3	1.1	0.7	0.4	0.2
Grain combines.....	0.1	0.8	0.4	0.1	0.1	(Z)	(Z)
Percent of farms reporting:							
Automobiles.....	52	96	81	63	52	50	33
Motortrucks.....	48	96	90	70	50	37	27
Tractors.....	49	100	91	75	55	37	18
Grain combines.....	6	74	34	10	5	1	1
Telephone.....	10	63	34	12	11	6	4
Electricity.....	86	100	100	97	91	77	74
Television.....	8	19	34	9	9	5	3
Piped running water.....	45	100	88	69	40	33	26
Home freezer.....	20	61	55	32	21	14	8

TABLE 52.—SPECIFIED FACILITIES AND EQUIPMENT FOR FARMS AND HOMES ON OTHER FIELD-CROP FARMS IN SPECIFIED PEANUT SUBREGIONS, BY ECONOMIC CLASS OF FARM: 1954—Continued

Item	All farms	Economic class of farm					
		I	II	III	IV	V	VI
Oklahoma-Texas (subregion 96)							
Number per farm:							
Automobiles.....	0.7	1.0	0.3	0.8	0.7	0.7	0.6
Motortrucks.....	0.5	1.0	0.8	0.9	0.7	0.4	0.3
Tractors.....	1.1	2.2	1.6	1.7	1.3	1.0	0.7
Grain combines.....	0.3	0.8	0.3	0.8	0.5	0.2	0.1
Percent of farms reporting:							
Automobiles.....	66	100	27	72	66	70	59
Motortrucks.....	49	100	77	80	68	39	34
Tractors.....	87	100	100	100	100	88	67
Grain combines.....	27	83	32	68	46	18	7
Telephone.....	13	-----	9	24	10	12	14
Electricity.....	94	100	77	92	95	96	90
Television.....	16	17	9	44	14	14	10
Piped running water.....	57	-----	77	84	71	64	23
Home freezer.....	17	17	32	28	25	13	10

Z 0.05 percent or less.

TABLE 53.—USE OF COMMERCIAL FERTILIZER AND LIMING MATERIALS ON OTHER FIELD-CROP FARMS IN SPECIFIED PEANUT SUBREGIONS, BY ECONOMIC CLASS OF FARM: 1954

Item	All farms	Economic class of farm					
		I	II	III	IV	V	VI
Virginia-North Carolina (subregion 21)							
Fertilizer and fertilizing materials:							
Percent of farms using.....	97	98	97	98	97	95	96
Tons per farm reporting.....	10	64	31	13	8	6	3
Acres on which applied per farm.....	32	214	87	39	25	18	11
Pounds used per acre.....	640	600	720	640	620	600	560
Lime and liming materials:							
Percent of farms using.....	10	21	21	17	15	15	14
Tons per farm reporting.....	6	41	17	7	4	4	2
Acres on which applied per farm.....	11	69	20	13	8	7	5
Pounds used per acre.....	1,168	1,184	1,708	1,062	985	1,199	886
Georgia-Alabama-Florida (subregion 41)							
Fertilizer and fertilizing materials:							
Percent of farms using.....	97	100	97	97	97	97	96
Tons per farm reporting.....	13	123	42	20	12	7	5
Acres on which applied per farm.....	67	543	208	100	61	42	26
Pounds used per acre.....	388	455	400	410	389	337	353
Lime and liming materials:							
Percent of farms using.....	10	37	23	22	9	6	2
Tons per farm reporting.....	18	83	33	10	12	10	16
Acres on which applied per farm.....	28	135	47	27	20	17	21
Pounds used per acre.....	1,308	1,238	1,391	1,406	1,190	1,175	1,458
Oklahoma-Texas (subregion 96)							
Fertilizer and fertilizing materials:							
Percent of farms using.....	76	100	77	88	91	76	57
Tons per farm reporting.....	4	6	9	7	5	3	2
Acres on which applied per farm.....	68	108	137	132	82	55	33
Pounds used per acre.....	124	108	124	114	123	124	146
Lime and liming materials:							
Percent of farms using.....	1	-----	-----	-----	2	1	-----
Tons per farm reporting.....	14	-----	-----	-----	25	2	-----
Acres on which applied per farm.....	22	-----	-----	-----	24	20	-----
Pounds used per acre.....	1,227	-----	-----	-----	2,083	200	-----

Capital investment.—The average capital investment of specialized peanut farms is low compared to many types of commercial agriculture in the United States. Farms in the Oklahoma-Texas area with an investment of \$16,262 had the highest investment; farms in the Georgia-Alabama-Florida area with an investment of \$10,290 was the lowest (see Table 55). In each area, 70 percent or more of the total investment was in land and buildings. In the Virginia-North Carolina area about 16 percent of the investment was in machinery compared to about 20 percent in the other two areas.

FARMERS AND FARM PRODUCTION

TABLE 54.—CAPITAL INVESTMENT ON OTHER FIELD-CROP FARMS IN SPECIFIED PEANUT SUBREGIONS, BY ECONOMIC CLASS OF FARM: 1954

Item	All farms	Economic class of farm					
		I	II	III	IV	V	VI
Virginia-North Carolina (subregion 21)							
Investment per farm (dollars):							
Land and buildings.....	9,962	68,702	27,797	13,000	7,863	5,003	3,805
Livestock.....	716	5,498	2,159	859	539	425	274
Machinery.....	2,113	9,288	5,081	2,512	1,767	1,466	904
Total.....	12,791	83,488	35,037	16,371	10,169	6,894	4,983
Georgia-Alabama-Florida (subregion 41)							
Investment per farm (dollars):							
Land and buildings.....	7,385	85,371	25,403	11,133	7,249	4,372	3,318
Livestock.....	841	8,195	2,937	1,260	747	483	325
Machinery.....	2,064	14,336	6,156	2,976	1,995	1,364	780
Total.....	10,290	107,902	34,496	15,369	9,991	6,219	4,423
Oklahoma-Texas (subregion 96)							
Investment per farm (dollars):							
Land and buildings.....	11,721	16,380	34,939	22,152	13,963	9,889	6,312
Livestock.....	1,045	2,770	4,384	2,139	1,241	831	574
Machinery.....	3,496	7,929	4,884	6,069	4,477	3,119	2,105
Total.....	16,262	27,079	44,207	30,360	19,681	13,839	8,991

In each area the amount of the investment increased as amount of gross sales increased. The average investment on Class II farms was 5 to 9 times the average investment on Class VI farms. However, the proportion of the total investment in various categories of farm capital did not change a great deal as the amount of capital investment increased. The average investment for farms in the same economic class varied substantially between the different peanut areas.

Production expense.—Items of specified farm expenditures for farms in the peanut areas are given in Table 55. Expenditures per farm averaged \$1,500 in the Georgia-Alabama-Florida area compared with \$1,374 in the Virginia-North Carolina area, and only \$964 in the Oklahoma-Texas area. On a per crop-acre basis, expenditures of \$30.70 in the Virginia-North Carolina area were almost double the amount in the Georgia-Alabama-Florida area and more than four times that in the Oklahoma-Texas area. The main factors accounting for the differences were the amounts spent for hired labor and for fertilizer and lime.

In each area, the amount of specified expense per crop acre increased as gross income increased. In the Virginia-North Carolina area, expenses that showed the largest increase were hired labor and fertilizer and lime. In the Georgia-Alabama-Florida area, hired labor, gasoline and oil, and fertilizer and lime increased as gross income increased. In the Texas-Oklahoma area, hired labor and gasoline and oil were the expenses that increased most with the increase in size of farm operation.

INCOME AND EFFICIENCY LEVELS

Source of farm income.—In both the Virginia-North Carolina and the Georgia-Alabama-Florida peanut areas, tobacco was grown on a number of farms. Generally, peanuts were the major

TABLE 55.—SPECIFIED FARM EXPENDITURES ON OTHER FIELD-CROP FARMS IN SPECIFIED PEANUT SUBREGIONS, BY ECONOMIC CLASS OF FARM: 1954

Item of expense	All farms	Economic class of farm					
		I	II	III	IV	V	VI
Virginia-North Carolina (subregion 21)							
Amount per farm (dollars):							
Machine hire.....	117	353	200	155	102	80	48
Hired labor.....	366	3,333	1,780	451	215	110	60
Feed for livestock and poultry.....	171	1,361	631	244	96	78	47
Gasoline and other petroleum fuel and oil.....	229	1,162	741	302	173	100	48
Commercial fertilizer and fertilizing materials.....	482	3,173	1,407	615	373	253	131
Lime and liming materials.....	9	67	26	10	7	6	2
Total.....	1,374	9,449	4,785	1,777	966	627	326
Amount per crop acre (dollars):							
Machine hire.....	2.97	1.38	1.86	3.19	3.27	3.50	3.47
Hired labor.....	9.33	13.00	16.57	9.27	6.90	4.84	3.61
Gasoline and other petroleum fuel and oil.....	5.84	4.55	6.90	6.21	5.57	4.38	3.60
Fertilizer and lime.....	12.51	12.69	13.33	12.86	12.22	11.36	9.67
Total.....	30.65	31.68	38.66	31.53	27.96	24.08	20.25
Georgia-Alabama-Florida (subregion 41)							
Amount per farm (dollars):							
Machine hire.....	160	503	305	274	161	114	57
Hired labor.....	390	10,733	2,210	613	222	112	51
Feed for livestock and poultry.....	135	1,916	526	301	77	55	46
Gasoline and other petroleum fuel and oil.....	272	3,265	1,253	451	225	116	55
Commercial fertilizer and fertilizing materials.....	531	6,303	1,708	845	480	276	179
Lime and liming materials.....	12	192	53	27	7	4	2
Total.....	1,500	22,912	6,055	2,511	1,172	677	390
Amount per crop acre (dollars):							
Machine hire.....	1.89	0.76	1.04	2.27	2.16	2.16	1.45
Hired labor.....	4.62	16.32	7.52	5.08	2.98	2.12	1.28
Gasoline and other petroleum fuel and oil.....	3.22	4.97	4.26	3.74	3.01	2.20	1.38
Fertilizer and lime.....	6.43	9.88	5.99	7.23	6.53	5.31	4.67
Total.....	16.16	31.93	18.81	18.32	14.68	11.79	8.68
Oklahoma-Texas (subregion 96)							
Amount per farm (dollars):							
Machine hire.....	179		341	246	232	173	106
Hired labor.....	115	1,917	548	325	157	58	37
Feed for livestock and poultry.....	230	1,167	1,004	540	290	162	100
Gasoline and other petroleum fuel and oil.....	271	783	631	568	359	228	119
Commercial fertilizer and fertilizing materials.....	169	323	439	329	256	135	65
Lime and liming materials.....	(Z)				1	(Z)	
Total.....	964	4,190	2,963	2,008	1,295	756	436
Amount per crop acre (dollars):							
Machine hire.....	1.71		1.57	1.29	1.67	1.96	1.80
Hired labor.....	1.11	10.64	2.52	1.71	1.13	.65	.63
Gasoline and other petroleum fuel and oil.....	2.59	4.35	2.90	2.98	2.58	2.58	2.04
Fertilizer and lime.....	1.62	1.79	2.02	1.73	1.86	1.53	1.11
Total.....	7.03	16.78	9.01	7.71	7.24	6.72	5.68

Z \$0.50 or less.

enterprise. But, on a considerable number of these farms tobacco was more important. These farms were included in the other field-crop group. In this analysis there was no way to separate tobacco from peanut farms. Although peanuts were the major

TABLE 56.—SOURCE OF FARM INCOME OF OTHER FIELD-CROP FARMS IN SPECIFIED PEANUT SUBREGIONS, BY ECONOMIC CLASS OF FARM: 1954

Item	All farms	Economic class of farm					
		I	II	III	IV	V	VI
Virginia-North Carolina (subregion 21)							
Sales per farm (dollars):							
Peanuts.....	2,098	12,374	6,932	2,683	1,580	957	478
Cotton.....	466	2,350	824	619	419	288	125
Tobacco.....	1,753	9,200	2,966	2,810	1,527	589	213
Other field crops.....	328	2,451	1,236	474	213	88	40
Vegetables.....	21	102	116	25	9	10	2
Fruits and nuts.....	1	18	3	1	1	1	—
Horticultural specialties.....	1	—	15	—	(Z)	—	—
Total crops.....	4,668	26,495	12,092	6,612	3,749	1,933	858
Dairy products.....	4	9	1	11	1	1	(Z)
Poultry and poultry products.....	15	39	38	17	14	8	9
Cattle and calves.....	38	815	240	38	15	10	4
Hogs.....	362	4,005	1,669	475	207	103	47
Other livestock and livestock products.....	2	—	5	3	(Z)	1	—
Total livestock.....	421	4,868	1,953	544	237	123	60
Forest products sold.....	12	190	53	8	8	8	2
Gross sales.....	5,101	31,553	14,098	7,164	3,994	2,064	920
Percent of gross sales from peanuts.....	41	39	49	38	40	46	52
Gross sales per acre of cropland dollars.....	130	124	131	147	128	90	67
Georgia-Alabama-Florida (subregion 41)							
Sales per farm (dollars):							
Peanuts.....	1,655	14,730	7,356	2,662	1,410	831	404
Cotton.....	656	3,078	2,418	1,125	659	338	112
Tobacco.....	563	5,346	1,116	1,021	625	279	79
Other field crops.....	176	2,420	776	335	135	67	26
Vegetables.....	54	730	117	106	51	25	9
Fruits and nuts.....	9	195	31	12	7	4	6
Horticultural specialties.....	—	—	—	—	—	—	—
Total crops.....	3,113	26,499	11,814	5,261	2,887	1,544	636
Dairy products.....	10	111	(Z)	1	24	2	(Z)
Poultry and poultry products.....	23	435	58	60	15	5	3
Cattle and calves.....	125	4,181	671	166	77	35	12
Hogs.....	249	1,046	950	625	215	115	52
Other livestock and livestock products.....	1	—	4	1	1	(Z)	(Z)
Total livestock.....	408	5,773	1,683	753	332	157	67
Forest products sold.....	26	1,268	83	29	15	8	8
Gross sales.....	3,547	33,540	13,580	6,043	3,234	1,709	711
Percent of gross sales from peanuts.....	47	44	54	44	44	49	57
Gross sales per acre of cropland dollars.....	42	51	46	50	43	32	18
Oklahoma-Texas (subregion 96)							
Sales per farm (dollars):							
Peanuts.....	1,838	19,819	9,330	4,542	2,280	1,268	644
Cotton.....	259	2,417	1,267	553	409	153	86
Tobacco.....	—	—	—	—	—	—	—
Other field crops.....	88	2,981	30	379	66	52	18
Vegetables.....	44	—	59	75	109	24	4
Fruits and nuts.....	20	—	63	37	43	10	6
Horticultural specialties.....	—	—	—	—	—	—	—
Total crops.....	2,249	25,167	10,749	5,586	2,857	1,507	758
Dairy products.....	11	—	—	41	16	5	4
Poultry and poultry products.....	69	250	593	102	91	58	17
Cattle and calves.....	261	1,338	1,524	551	403	178	60
Hogs.....	97	50	183	397	135	52	20
Other livestock and livestock products.....	13	—	100	37	29	1	5
Total livestock.....	451	1,638	2,400	1,128	674	294	106
Forest products.....	—	—	—	—	—	—	—
Gross sales.....	2,700	26,805	13,149	6,714	3,531	1,801	864
Percent of gross sales from peanuts.....	68	74	71	68	63	70	74
Gross sales per acre of cropland dollars.....	26	149	60	35	25	20	15

Z 50 cents or less.

source of income on the majority of farms in these two areas, they contributed from about 40 to 50 percent of the average gross income on most groups of farms.

In the Virginia-North Carolina area, average gross sales from specified products were \$5,101; of this amount peanuts contributed 41 percent and tobacco 34 percent (see Table 56). Only about 8 percent of the gross sales were from livestock or livestock products. However, the relative importance of livestock increased with the increase in size of farm. Gross sales per crop acre also increased with the size of farm; but farms in Class III had the largest gross sales per acre. On these Class III farms, the average income from tobacco was slightly more than the income from peanuts.

In the Georgia-Alabama-Florida area, average gross sales were \$3,547 per farm or only 70 percent as much as gross sales per farm in the Virginia-North Carolina area. A little over half of the gross income on these farms came from peanuts. Tobacco was of less importance and cotton of more importance in this area than in the Virginia-North Carolina area. Income from livestock and livestock products accounted for about 12 percent of the gross income. The relative importance of livestock increased with size of farm. Beef cattle were important mainly on Classes I and II farms. Gross sales per crop acre increased with size of farm being only \$18 per acre on Class VI farms and \$46 on Class II farms. Average gross sales per acre in this area were only one-third as much as in the Virginia-North Carolina area but about 60 percent more than gross sales per acre in the Oklahoma-Texas area.

Farms in the Oklahoma-Texas area were more specialized than in either of the other two peanut areas. On the average, peanuts contributed 68 percent of the gross income, cotton 10 percent and livestock 17 percent. Beef cattle were more important than hogs on peanut farms in this area. The percent of gross sales from peanuts did not change very much with size of farm.

Gross income above specified expenses.—The amount that gross income exceeded specified expenses averaged \$3,727 per farm in the Virginia-North Carolina area, \$2,047 in the Georgia-Alabama-Florida area, and \$1,736 in the Oklahoma-Texas area (see Table 57). The net above specified expenses increased as the amount of gross sales increased. It will be noticed that approximately one-third of the peanut farms classified as V and VI had incomes above specified expenses averaging under \$1,500. For each economic class of farm, the net above specified expenses was less in the Georgia-Alabama-Florida area than in either of the other two areas.

TABLE 57.—GROSS INCOME OF OPERATOR AND FAMILY ABOVE SPECIFIED EXPENSES ON OTHER FIELD-CROP FARMS IN SPECIFIED PEANUT SUBREGIONS, BY ECONOMIC CLASS OF FARM: 1954

Item	All farms	Economic class of farm					
		I	II	III	IV	V	VI
		Virginia-North Carolina (subregion 21)					
Amount per farm (dollars):							
Gross sales.....	5, 101	31, 553	14, 098	7, 164	3, 994	2, 064	920
Specified expenses.....	1, 374	9, 449	4, 785	1, 777	966	627	326
Gross sales minus specified expenses.....	3, 727	22, 104	9, 313	5, 387	3, 028	1, 437	594
		Georgia-Alabama-Florida (subregion 41)					
Amount per farm (dollars):							
Gross sales.....	3, 547	33, 540	13, 580	6, 043	3, 234	1, 709	711
Specified expenses.....	1, 500	22, 912	6, 055	2, 511	1, 172	677	390
Gross sales minus specified expenses.....	2, 047	10, 628	7, 525	3, 532	2, 062	1, 032	321
		Oklahoma-Texas (subregion 96)					
Amount per farm (dollars):							
Gross sales.....	2, 700	26, 805	13, 149	6, 714	3, 531	1, 801	864
Specified expenses.....	964	4, 190	2, 963	2, 008	1, 295	756	430
Gross sales minus specified expenses.....	1, 736	22, 615	10, 186	4, 706	2, 236	1, 045	428

These data do not measure net income. The specified expenditures do not include any fixed costs, nor all operating costs.

Efficiency levels of farm operation.—Various data on size of farm, capital investment, amount of labor, gross sales and specified expenses, although inadequate for a complete analysis, provide information on the differences in efficiency of farm operation for peanut farms in various areas and also for different size of farms. Both gross sales and gross sales minus specified expenses per man-equivalent were higher in the Virginia-North Carolina area than in either of the other two peanut areas (see Table 58). There was not a great deal of difference in investment per man-equivalent in the Virginia-North Carolina and Georgia-Alabama-Florida areas; the investment in the Oklahoma-Texas area was about 50 percent more than in either of these two areas.

The investment per crop acre was more than twice as much in the Virginia-North Carolina area as in either of the other two areas. On the other hand crop acres per man-equivalent was only one-third as great in the Virginia-North Carolina area as in the Oklahoma-Texas area. Average yield of peanuts per acre in the Virginia-North Carolina area was almost twice the yield in the Georgia-Alabama-Florida area and more than four times the yield in the Oklahoma-Texas area. As indicated before, yield of peanuts in the Oklahoma-Texas area was especially low in 1954. Low yields reduced average income per farm and also the relative efficiency of farms for this area.

In each of the peanut areas, as the gross farm income increased the investment per man-equivalent increased. This same relationship existed for crop acres per man-equivalent. This means that on the larger farms more capital was associated with a unit of labor. A unit of labor was also able to handle a larger unit of

production. Both labor and capital were used more efficiently on the larger farms. The capital investment per \$100 of sales was less than half on the large farms as on the small farms. Both gross sales and net sales per man-equivalent were much greater on the large farms than on the small farms.

SUMMARY AND PROBLEMS

Specialized peanut farms vary considerably in volume of business and size in the various production areas. There are fewer small peanut farms than tobacco farms. About 25 percent in the Virginia-North Carolina region, 45 percent in the Georgia-Alabama-Florida region, and 66 percent in Oklahoma and Texas were Classes V and VI farms. These farms had sales of less than \$2,500 in 1954. About 35 percent of the farms in Virginia-North Carolina were in Classes I, II, and III having sales of over \$5,000 in 1954. In Georgia-Alabama-Florida area only 22 percent had sales of \$5,000 or more.

In the Virginia-North Carolina area the average size of farm in 1954 was 83 acres compared to 164 acres in the Georgia-Alabama-Florida area and 213 acres in the Oklahoma-Texas area. In each area about half of the total land area was in cropland.

In the Virginia-North Carolina area in 1954, 17 percent of the farmers had less than 5 acres of peanuts and only 7 percent had more than 25 acres. In the Georgia-Alabama-Florida area, 5 percent of the farmers had less than 5 acres, and 30 percent had more than 25 acres. In the Oklahoma-Texas area, only 1 percent of the farmers had less than 5 acres in peanuts, and 70 percent had more than 25 acres.

Peanut farms are diversified. Although peanuts were the main source of income on the majority of the farms in the two areas, they contributed less than 50 percent of the average gross income on most groups of farms. Peanut farms tend to be operated intensively with a high percentage of the cropland in row crops. Corn is the most important crop acreage-wise in the Virginia-North Carolina and the Georgia-Alabama-Florida areas.

In both the Virginia-North Carolina and Georgia-Alabama-Florida peanut areas, tobacco was grown on a number of farms. On some farms, tobacco contributed more than 50 percent of the gross income so these farms were included in the other field-crop group. In this analysis there was no way to separate tobacco from peanut farms in these areas.

Cotton is important in all of the areas. About one-fourth of the harvested cropland in the Virginia-North Carolina and Georgia-Alabama-Florida areas is devoted to peanuts compared to slightly more than 55 percent in the Oklahoma-Texas area.

Hogs are an important enterprise on peanut farms in the Virginia-North Carolina and Georgia-Alabama-Florida areas, but not on farms in the Oklahoma-Texas area. Beef cattle are important on most of the farms in Oklahoma-Texas area. They tend to be important only on the larger farms in the other two areas.

With the exception of the larger farms, the labor force on peanut farms is made up mostly of family labor. The proportion of operators working off farms varies by areas. Of the peanut farmers working off the farm the majority worked less than 100 days per year.

Color of operator and percent tenancy also vary by areas. In the Virginia-North Carolina area in 1955, only 44 percent of the operators were white and 63 percent of all operators were classified as tenants. In the Georgia-Alabama-Florida area, 62 percent of the operators were white and 57 percent were tenants. There were no nonwhite operators in the one peanut subregion summarized in the Oklahoma-Texas area; 38 percent of the operators were classified as tenants.

TABLE 58.—SELECTED MEASURES OF EFFICIENCY ON OTHER FIELD-CROP FARMS IN SPECIFIED PEANUT SUBREGIONS, BY ECONOMIC CLASS OF FARM: 1954

Item	All farms	Economic class of farm					
		I	II	III	IV	V	VI
Virginia-North Carolina (subregion 21)							
Gross sales per man-equivalent..dollars..	3,228	8,765	5,085	3,980	2,081	1,651	836
Net sales per man-equivalent..dollars..	2,359	6,140	3,755	2,993	2,032	1,149	542
Gross sales per \$1,000 invested..dollars..	464	553	493	504	452	350	216
Investment per \$100 of gross sales dollars..	216	181	203	198	221	285	404
Total investment per man-equivalent dollars..	6,971	15,868	11,553	7,908	5,951	4,730	3,868
Investment per crop acre.....dollars..	280	224	266	292	284	258	311
Crop acres per man-equivalent.....	25	71	43	27	21	18	12
Pounds of peanuts per acre.....	1,521	1,601	1,853	1,599	1,383	1,203	1,097
Georgia-Alabama-Florida (subregion 41)							
Gross sales per man-equivalent..dollars..	2,534	3,149	4,588	3,640	2,488	1,512	718
Net sales per man-equivalent..dollars..	1,463	998	2,542	2,128	1,586	913	324
Gross sales per \$1,000 invested..dollars..	393	486	518	466	367	303	182
Investment per \$100 of gross sales dollars..	254	206	193	214	272	330	550
Total investment per man-equivalent dollars..	6,440	6,476	8,862	7,805	6,781	5,005	3,929
Investment per crop acre.....dollars..	107	105	89	107	118	108	99
Crop acres per man-equivalent.....	60	62	99	73	57	47	40
Pounds of peanuts per acre.....	793	979	944	912	736	650	483
Oklahoma-Texas (subregion 96)							
Gross sales per man-equivalent..dollars..	2,000	10,722	7,599	4,416	2,558	1,418	646
Net sales per man-equivalent..dollars..	1,286	9,046	5,887	3,095	1,620	823	320
Gross sales per \$1,000 invested..dollars..	187	1,102	298	242	197	144	116
Investment per \$100 of gross sales dollars..	535	91	336	412	509	695	862
Total investment per man-equivalent dollars..	10,711	9,740	25,593	18,193	12,072	9,871	5,678
Investment per crop acre.....dollars..	138	135	203	146	129	142	127
Crop acres per man-equivalent.....	77	72	126	125	100	70	44
Pounds of peanuts per acre.....	354	3,013	1,100	413	316	301	226

The level of living as measured by home conveniences is also low, electricity is the only home convenience item reported as available on most of the peanut farms. In the 3 peanut areas, 13 percent or less of the specialized farms reported telephones, 28 percent or less television sets and 24 percent or less home freezers. Fifty-seven percent of the farmers in the Oklahoma-Texas area reported piped running water, but only 32 percent in the Virginia-North Carolina area.

Average gross receipts of peanut farms are not high. Gross sales from specified products average \$5,101 in the Virginia-North Carolina area of which peanuts contributed 41 percent, tobacco 34 percent and livestock and livestock products 8 percent. Gross sales in the Georgia-Florida-Alabama area averaged \$3,547; of the total, peanuts contributed 47 percent, cotton 18 percent, tobacco 16 percent and livestock and livestock products 12 percent. Farms in the Oklahoma-Texas area were more specialized than in either of the other two areas. Of the average gross income of \$2,700, peanuts contributed 68 percent, cotton 10 percent and livestock and livestock products 17 percent.

The level of mechanization is not very high on peanut farms. For example, only about half of the farms in the Virginia-North Carolina and Georgia-Alabama-Florida areas reported tractors and 87 percent in the Oklahoma-Texas area.

The peanut farmer, like other farmers, is faced with the continuing problem of adjusting to changes in technology. Increases in mechanization make it possible for one man to operate a larger acreage, but on some farms it raises difficult problems. Even though capital is available it is not always possible to acquire additional land in the amount and place desired. Often it is difficult for the farmer to accumulate or acquire additional capital. Thus, many farmers may continue to operate their land with inefficient equipment because they cannot acquire the most modern machinery or having the machinery they may operate inefficiently for the lack of sufficient land. Inadequate knowledge and lack of capital may also be factors in the slowness of adoption of improved farm practices.

The capital investment on peanut farms is low compared to many other types of farming in the United States. However, the average size of farm is increasing and proportionally there has been a large increase in the amount of capital invested. Table 59 shows Census data for acres per farm and value of land and buildings for selected counties in the peanut areas for 1940, 1945, 1950, and 1954. During this period the average size of farm increased from a third to more than double; the value of land and buildings, while the figure was low in 1940, increased from two and

one-half to as much as five times in the various counties. Although data are not available for machinery and equipment, the relative increase in investment was probably greater than for land and buildings.

Adjusting peanut production to bring supplies in line with current needs is a problem for peanut producers. The demand for the crop during the war years resulted in a large expansion of acreage but the increase was different in the various areas. During recent years there also have been shifts in consumption trends between uses that have affected the market for some types of peanuts more than others. The varieties grown are not the same in all the areas and they supply different uses. These factors make it difficult to develop a control program that will yield a supply of peanuts in line with current needs and at the same time not be difficult to administer between areas.

The peanut farmer also faces a problem of conservation and improvement of the soil. In all of the peanut areas, a high percentage of the cropland is planted in row crops. During the war years much of the suitable cropland was planted too intensively to peanuts. Erosion has been and is a problem on those soils that are susceptible. Measures for conservation and improvement of all farmland need to be emphasized.

TABLE 59.—AVERAGE SIZE AND VALUE OF LAND AND BUILDINGS PER FARM, SELECTED COUNTIES IN PEANUT AREAS: 1940 TO 1954

County	1940	1945	1950	1954
Average size of farm (acres)				
Southampton County, Va.	111	101	126	141
Northampton County, N. C.	74	72	77	94
Early County, Ga.	89	72	138	185
Henry County, Ala.	112	104	132	171
Jackson County, Fla.	100	98	123	144
Bryan County, Okla.	134	146	181	226
Comanche County, Tex.	177	185	236	250
Average value of land and buildings per farm (dollars)				
Southampton County, Va.	3,204	4,364	7,600	14,141
Northampton County, N. C.	3,181	3,280	6,224	7,505
Early County, Ga.	2,047	2,562	5,295	7,825
Henry County, Ala.	2,468	3,035	5,873	6,089
Jackson County, Fla.	1,845	2,633	4,063	6,635
Bryan County, Okla.	2,537	3,098	6,906	12,080
Comanche County, Tex.	3,172	5,322	12,380	16,861

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United States Census of Agriculture: 1954

Volume III SPECIAL REPORTS

Part 9

Farmers and Farm Production in the United States (A Cooperative Report)

Chapter IV

Poultry Producers and Poultry Production

CHARACTERISTICS OF FARMERS and FARM PRODUCTION •
PRINCIPAL TYPES OF FARMS •



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PREFACE

The purpose of this report is to present an analysis of the characteristics of farmers and farm production for the most important types of farms as shown by data for the 1954 Census of Agriculture. The analysis deals with the relative importance, pattern of resource use, some measures of efficiency, and problems of adjustment and change for the principal types of farms.

The data given in the various chapters of this report have been derived largely from the special tabulation of data for each type of farm, by economic class, for the 1954 Census of Agriculture. The detailed statistics for each type of farm for the United States and the principal subregions appear in Part 8 of Volume III of the reports for the 1954 Census of Agriculture.

This cooperative report was prepared under the direction of Ray Hurley, Chief of the Agriculture Division of the Bureau of the Census, U. S. Department of Commerce, and Kenneth L. Bachman, Head, Production, Income, and Costs Section, Production Economics Research Branch, Agricultural Research Service of the U. S. Department of Agriculture.

Jackson V. McElveen, Agricultural Economist, Production, Income, and Costs Section, Production Economics Research Branch, Agricultural Research Service of the U. S. Department of Agriculture, supervised a large part of the detailed planning and analysis for the various chapters.

The list of chapters and the persons preparing each chapter are as follows:

Chapter I.....	Wheat Producers and Wheat Production A. W. Epp, University of Nebraska.	Chapter VI....	Western Stock Ranches and Livestock Farms Mont H. Saunderson, Western Ranching and Lands Consultant, Bozeman, Mont.
Chapter II.....	Cotton Producers and Cotton Production Robert B. Glasgow, Production Economics Research Branch, Agricultural Research Service, United States Department of Agriculture.	Chapter VII....	Cash-grain and Livestock Producers in the Corn Belt Edwin G. Strand, Production Economics Research Branch, Agricultural Research Service, United States Department of Agriculture.
Chapter III....	Tobacco and Peanut Producers and Production R. E. L. Greene, University of Florida.	Chapter VIII..	Part-time Farming H. G. Halcrow, University of Connecticut.
Chapter IV....	Poultry Producers and Poultry Production William P. Mortenson, University of Wisconsin.	Chapter IX....	Agricultural Producers and Production in the United States—A General View Jackson V. McElveen, Production Economics Research Branch, Agricultural Research Service, United States Department of Agriculture.
Chapter V.....	Dairy Producers and Dairy Production P. E. McNall, University of Wisconsin.		

The editorial work for this report was performed by Caroline B. Sherman, and the preparation of the statistical tables was supervised by Margaret Wood.

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UNITED STATES CENSUS OF AGRICULTURE: 1954

REPORTS

Volume I.—Counties and State Economic Areas. Statistics for counties include number of farms, acreage, value, and farm operators; farms by color and tenure of operator; facilities and equipment; use of commercial fertilizer; farm labor; farm expenditures; livestock and livestock products; specified crops harvested; farms classified by type of farm and by economic class; and value of products sold by source.

Data for State economic areas include farms and farm characteristics by tenure of operator, by type of farm, and by economic class. Volume I is published in 33 parts.

Volume II.—General Report. Statistics by Subjects, United States Census of Agriculture, 1954. Summary data and analyses of the data for States, for Geographic Divisions, and for the United States by subjects.

Volume III.—Special Reports

Part 1.—Multiple-Unit Operations. This report will be similar to Part 2 of Volume V of the reports for the 1950 Census of Agriculture. It will present statistics for approximately 900 counties and State economic areas in 12 Southern States and Missouri for the number and characteristics of multiple-unit operations and farms in multiple units.

Part 2.—Ranking Agricultural Counties. This special report will present statistics for selected items of inventory and agricultural production for the leading counties in the United States.

Part 3.—Alaska, Hawaii, Puerto Rico, District of Columbia, and U. S. Possessions. These areas were not included in the 1954 Census of Agriculture. The available current data from various Government sources will be compiled and published in this report.

Part 4.—Agriculture, 1954, a Graphic Summary. This report will present graphically some of the significant facts regarding agriculture and agricultural production as revealed by the 1954 Census of Agriculture.

Part 5.—Farm-Mortgage Debt. This will be a cooperative study by the Agricultural Research Service of the U. S. Department of Agriculture and the Bureau of the Census. It will present, by States, data based on the 1954 Census of Agriculture and a special mail survey conducted in January 1956, on the number of mortgaged farms, the amount of mortgage debt, and the amount of debt held by principal lending agencies.

Part 6.—Irrigation in Humid Areas. This cooperative report by the Agricultural Research Service of the U. S. Department of Agriculture and the Bureau of the Census will present data obtained by a mail survey of operators of irrigated farms in 28 States on the source of water, method of applying water, number of pumps used, acres of crops irrigated in 1954 and 1955, the number of times each crop was irrigated, and the cost of irrigation equipment and the irrigation system.

Part 7.—Popular Report of the 1954 Census of Agriculture. This report is planned to be a general, easy-to-read publication for the general public on the status and broad characteristics of United States agriculture. It will seek to delineate such aspects of agriculture as the geographic distribution and differences by size of farm for such items as farm acreage, principal crops, and important kinds of livestock, farm facilities, farm equipment, use of fertilizer, soil conservation practices, farm tenure, and farm income.

Part 8.—Size of Operation by Type of Farm. This will be a cooperative special report to be prepared in cooperation with the Agricultural Research Service of the U. S. Department of Agriculture. This report will contain data for 119 economic sub-

regions (essentially general type-of-farming areas) showing the general characteristics for each type of farm by economic class. It will provide data for a current analysis of the differences that exist among groups of farms of the same type. It will furnish statistical basis for a realistic examination of production of such commodities as wheat, cotton, and dairy products in connection with actual or proposed governmental policies and programs.

Part 9.—Farmers and Farm Production in the United States.

The purpose of this report is to present an analysis of the characteristics of farmers and farm production for the most important types of farms as shown by data for the 1954 Census of Agriculture. The analysis deals with the relative importance, pattern of resource use, some measures of efficiency, and problems of adjustment and change for the principal types of farms. The report was prepared in cooperation with the Agricultural Research Service of the U. S. Department of Agriculture.

The list of chapters (published separately only) and title for each chapter are as follows:

Chapter I—*Wheat Producers and Wheat Production*

II—*Cotton Producers and Cotton Production*

III—*Tobacco and Peanut Producers and Production*

IV—*Poultry Producers and Poultry Production*

V—*Dairy Producers and Dairy Production*

VI—*Western Stock Ranches and Livestock Farms*

VII—*Cash-Grain and Livestock Producers in the Corn Belt*

VIII—*Part-Time Farming*

IX—*Agricultural Producers and Production in the United States—A General View*

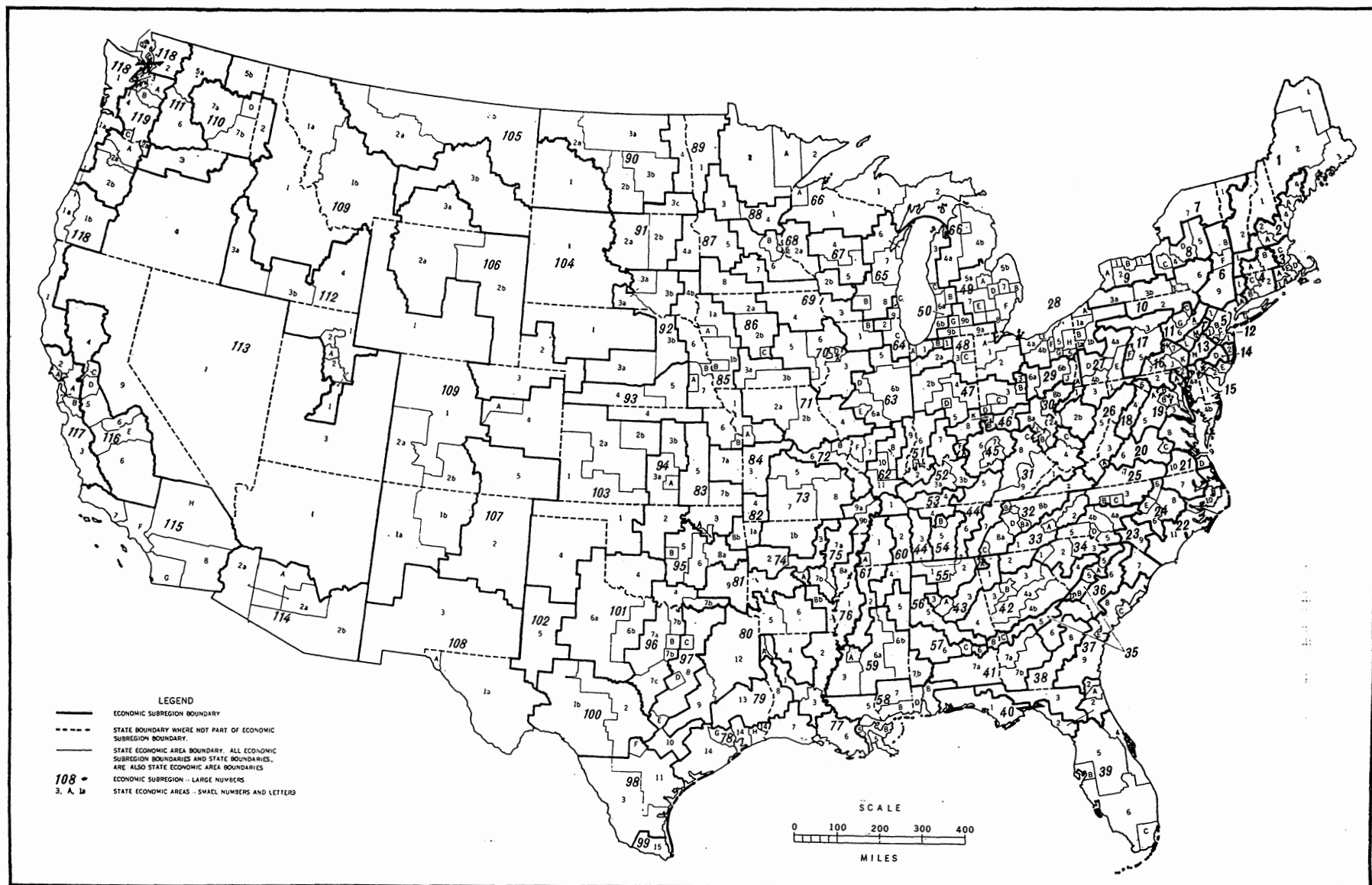
Part 10.—Use of Fertilizer and Lime. The purpose of this report is to present in one publication most of the detailed data compiled for the 1954 Census of Agriculture regarding the use of fertilizer and lime. The report presents data for counties, State economic areas, and generalized type-of-farming areas regarding the quantity used, acreage on which used, and expenditures for fertilizer and lime. The Agricultural Research Service cooperated with the Bureau of the Census in the preparation of this report.

Part 11.—Farmers' Expenditures. This report presents detailed data on expenditures for a large number of items used for farm production in 1955, and on the living expenditures of farm operators' families. The data were collected and compiled cooperatively by the Agricultural Marketing Service of the U. S. Department of Agriculture and the Bureau of the Census.

Part 12.—Methods and Procedures. This report contains an outline and a description of the methods and procedures used in taking and compiling the 1954 Census of Agriculture.

INTRODUCTION

ECONOMIC SUBREGIONS AND STATE ECONOMIC AREAS



INTRODUCTION

Purpose and scope.—American agriculture is exceedingly diverse and is undergoing revolutionary changes. Farmers and their families obtain their income by producing a large variety of products under a large variety of conditions as well as from sources other than farming. The organization of production, type of farming, productivity, income, expenditures, size, and characteristics of operators of the 4.8 million farms in the United States vary greatly. Agriculture has been a dynamic, moving, adjusting part of our economy. Basic changes in farming have been occurring and will continue to be necessary. Adjustments brought by technological change, by changing consumer wants, by growth of population, and by changes in the income of nonfarm people, have been significant forces in changing agriculture since World War II. The transition from war to an approximate peacetime situation has also made it necessary to reduce the output of some farm products. Some of the adjustments in agriculture have not presented relatively difficult problems as they could be made by the transfer of resources from the production of one product to another. Others require substantial shifts in resources and production.

Moreover, a considerable number of farm families, many of whom are employed full time in agriculture, have relatively low incomes. Most of these families operate farms that are small when compared with farms that produce higher incomes. The acreage of land and the amount of capital controlled by the operators of these small farms are too small to provide a very high level of income. In recent years, many farm families on these small farms have made adjustments by leaving the farm to earn their incomes elsewhere, by discontinuing their farm operations, and by earning more non-farm income while remaining on the farm or on the place they farmed formerly.

One objective of this report is to describe and analyze some of the existing differences and recent adjustments in the major types of farming and farm production. For important commodities and groups of farms, the report aims to make available, largely from the detailed data for the 1954 Census of Agriculture but in a more concise form, facts regarding the size of farms, capital, labor, and land resources on farms, amounts and sources of farm income and expenditures, combinations of crop and livestock enterprises, adjustment problems, operator characteristics, and variation in use of resources and in size of farms by areas and for widely differing production conditions. Those types of farms on which production of surplus products is important have been emphasized. The report will provide a factual basis for a better understanding of the widespread differences among farms in regard to size, resources, and income. It will also provide a basis for evaluating the effects of existing and proposed farm programs on the production and incomes of major types and classes of farms.

Income from nonfarm sources is important on a large number of farms. About 1.4 million of the 4.8 million farm-operator families, or about 3 in 10, obtain more income from off-farm sources than from the sale of agricultural products. More than three-fourths of a million farm operators live on small-scale part-time farms and ordinarily are not dependent on farming as the main source of family income. These part-time farmers have a quite different relation to adjustments, changes, and farm problems than do commercial farmers. A description of and facts regarding these part-time farms and the importance of nonfarm income for commercial farms are presented in Chapter 8.

Except for Chapter 8, this report deals with commercial farms (see economic class of farm). The analysis is limited to the major types of agricultural production and deals primarily with geographic areas in which each of the major types of agricultural production has substantial significance.

Source of data.—Most of the data presented in this report are from special compilations made for the 1954 Census of Agriculture, although pertinent data from research findings and surveys of the U. S. Department of Agriculture, State Agricultural Colleges, and other agencies have been used to supplement Census data. The detailed Census data used for this report are contained in Part 8 of Volume III of the reports of the 1954 Census of Agriculture. Reference should be made to that report for detailed explanations and definitions and statements regarding the characteristics and reliability of the data.

Areas for which data are presented.—Data are presented in this report primarily for selected economic subregions and for the United States. The boundaries of the 119 subregions used for the compilation of data on which this report is based are indicated by the map on page vi. These subregions represent primarily general type-of-farming areas. Many of them extend into two or more States. (For a more detailed description of economic subregions, see the publication "Economic Subregions of the United States, Series Census BAE; No. 19, published cooperatively by the Bureau of the Census, and the Bureau of Agricultural Economics, U. S. Department of Agriculture, July 1953.)

DEFINITIONS AND EXPLANATIONS

Definitions and explanations are given only for some of the more important items. For more detailed definitions and explanations, reference can be made to Part 8 of Volume III and to Volume II of the reports of the 1954 Census of Agriculture.

A farm.—For the 1954 Census of Agriculture, places of 3 or more acres were counted as farms if the annual value of agricultural products, exclusive of home-garden products, amounted to \$150 or more. The agricultural products could have been either for home use or for sale. Places of less than 3 acres were counted as farms only if the annual value of sales of agricultural products amounted to \$150 or more. Places for which the value of agricultural products for 1954 was less than these minima because of crop failure or other unusual conditions, and places operated at the time of the Census for the first time were counted as farms if normally they could be expected to produce these minimum quantities of agricultural products.

All the land under the control of one person or partnership was included as one farm. Control may have been through ownership, or through lease, rental, or cropping arrangement.

Farm operator.—A "farm operator" is a person who operates a farm, either performing the labor himself or directly supervising it. He may be an owner, a hired manager, or a tenant, renter, or sharecropper. If he rents land to others or has land cropped for him by others, he is listed as the operator of only that land which he retains. In the case of a partnership, only one partner was included as the operator. The number of farm operators is considered the same as the number of farms.

FARMERS AND FARM PRODUCTION

Farms reporting or operators reporting.—Figures for farms reporting or operators reporting, based on a tabulation of all farms, represent the number of farms, or farm operators, for which the specified item was reported. For example, if there were 11,922 farms in a subregion and only 11,465 had chickens over 4 months old on hand, the number of farms reporting chickens would be 11,465. The difference between the total number of farms and the number of farms reporting an item represents the number of farms not having that item, provided the inquiry was answered completely for all farms.

Farms by type.—The classification of commercial farms by type was made on the basis of the relationship of the value of sales from a particular source, or sources, to the total value of all farm products sold from the farm. In some cases, the type of farm was determined on the basis of the sale of an individual farm product, such as cotton, or on the basis of the sales of closely related products, such as dairy products. In other cases, the type of farm was determined on the basis of sales of a broader group of products, such as grain crops including corn, sorghums, all small grains, field peas, field beans, cowpeas, and soybeans. In order to be classified as a particular type, sales or anticipated sales of a product or group of products had to represent 50 percent or more of the total value of products sold.

The types of commercial farms for which data are shown, together with the product or group of products on which the classification is based are:

Type of farm	Product or group of products amounting to 50 percent or more of the value of all farm products sold
Cash-grain.....	Corn, sorghum, small grains, field peas, field beans, cowpeas, and soybeans.
Cotton.....	Cotton (lint and seed).
Other field-crop.....	Peanuts, Irish potatoes, sweet potatoes, tobacco, sugarcane, sugar beets for sugar, and other miscellaneous crops.
Vegetable.....	Vegetables.
Fruit-and-nut.....	Berries and other small fruits, and tree fruits, nuts, and grapes.
Dairy.....	Milk and other dairy products. The criterion of 50 percent of the total sales was modified in the case of dairy farms. A farm for which the value of sales of dairy products represented less than 50 percent of the total value of farm products sold was classified as a dairy farm if— (a) Milk and other dairy products accounted for 30 percent or more of the total value of products sold, and (b) Milk cows represented 50 percent or more of all cows, and (c) Sales of dairy products, together with the sales of cattle and calves, amounted to 50 percent or more of the total value of farm products sold.
Poultry.....	Chickens, eggs, turkeys, and other poultry products.
Livestock farms other than dairy and poultry.	Cattle, calves, hogs, sheep, goats, wool, and mohair, provided the farm did not qualify as a dairy farm.

Type of farm
General.....

Product or group of products amounting to 50 percent or more of the value of all farm products sold

Farms were classified as general when the value of products from one source or group of sources did not represent as much as 50 percent of the total value of all farm products sold. Separate figures are given for three kinds of general farms:

- (a) Primarily crop.
- (b) Primarily livestock.
- (c) Crop and livestock.

Primarily crop farms are those for which the sale of one of the following crops or groups of crops—vegetables, fruits and nuts, cotton, cash grains, or other field crops—did not amount to 50 percent or more of the value of all farm products sold, but for which the value of sales for all these groups of crops represented 70 percent or more of the value of all farm products sold.

Primarily livestock farms are those which could not qualify as dairy farms, poultry farms, or livestock farms other than dairy and poultry, but on which the sale of livestock and poultry products amounted to 70 percent or more of the value of all farm products sold.

General crop and livestock farms are those which could not be classified as either crop farms or livestock farms, but on which the sale of all crops amounted to at least 30 percent but less than 70 percent of the total value of all farm products sold.

Miscellaneous. This group of farms includes those that had 50 percent or more of the total value of products accounted for by sale of horticultural products, or sale of horses, or sale of forest products.

Farms by economic class.—A classification of farms by economic class was made for the purpose of segregating groups of farms that are somewhat alike in their characteristics and size of operation. This classification was made in order to present an accurate description of the farms in each class and in order to provide basic data for an analysis of the organization of agriculture.

The classification of farms by economic class was made on the basis of three factors; namely, total value of all farm products sold, number of days the farm operator worked off the farm, and the relationship of the income received from nonfarm sources by the operator and members of his family to the value of all farm products sold. Farms operated by institutions, experiment stations, grazing associations, and community projects were classified as abnormal, regardless of any of the three factors.

For the purpose of determining the code for economic class and type of farm, it was necessary to obtain the total value of farm products sold as well as the value of some individual products sold.

The total value of farm products sold was obtained by adding the reported or estimated values for all products sold from the farm. The value of livestock, livestock products except wool and mohair, vegetables, nursery and greenhouse products, and forest

products was obtained by the enumerator from the farm operator for each farm. The enumerator also obtained from the farm operator the quantity sold for corn, sorghums, small grains, hays, and small fruits. The value of sales for these crops was obtained by multiplying the quantity sold by State average prices.

The quantity sold was estimated for all other farm products. The entire quantity produced for wool, mohair, cotton, tobacco, sugar beets for sugar, sugarcane for sugar, broomcorn, hops, and mint for oil was estimated as sold. To obtain the value of each product sold, the quantity sold was multiplied by State average prices.

In making the classification of farms by economic class, farms were grouped into two major groups, namely, commercial farms and other farms. In general, all farms with a value of sales of farm products amounting to \$1,200 or more were classified as commercial. Farms with a value of sales of \$250 to \$1,199 were classified as commercial only if the farm operator worked off the farm less than 100 days or if the income of the farm operator and members of his family received from nonfarm sources was less than the total value of all farm products sold.

Land in farms according to use.—Land in farms was classified according to the use made of it in 1954. The classes of land are mutually exclusive, i. e., each acre of land was included only once even though it may have had more than one use during the year.

The classes referred to in this report are as follows:

Cropland harvested.—This includes land from which crops were harvested; land from which hay (including wild hay) was cut; and land in small fruits, orchards, vineyards, nurseries, and greenhouses. Land from which two or more crops were reported as harvested was to be counted only once.

Cropland used only for pasture.—In the 1954 Census, the enumerator's instructions stated that rotation pasture and all other cropland that was used only for pasture were to be included under this class. No further definition of cropland pastured was given the farm operator or enumerator. Permanent open pasture may, therefore, have been included under this item or under "other pasture," depending on whether the enumerator or farm operator considered it as cropland.

Cropland not harvested and not pastured.—This item includes idle cropland, land in soil-improvement crops only, land on which all crops failed, land seeded to crops for harvest after 1954, and cultivated summer fallow.

In the Western States, this class was subdivided to show separately the acres of cultivated summer fallow. In these States, the acreage not in cultivated summer fallow represents largely crop failure. There are very few counties in the Western States in which there is a large acreage of idle cropland or in which the growing of soil-improvement crops is an important use of the land.

In the States other than the Western States, this general class was subdivided to show separately the acres of idle cropland (not used for crops or for pasture in 1954). In these States, the incidence of crop failure is usually low. It was expected that the acreage figure that excluded idle land would reflect the acreage in soil-improvement crops. However, the 1954 crop year was one of low rainfall in many Eastern and Southern States and, therefore, in these areas the acreage of cropland not harvested and not pastured includes more land on which all crops failed than would usually be the case.

Cultivated summer fallow.—This item includes cropland that was plowed and cultivated but left unseeded for several months to control weeds and conserve moisture. No land from which crops were harvested in 1954 was to be included under this item.

Cropland, total.—This includes cropland harvested, cropland used only for pasture, and cropland not harvested and not pastured.

Land pastured, total.—This includes cropland used only for pasture, woodland pastured, and other pasture (not cropland and not woodland).

Woodland, total.—This includes woodland pastured and woodland not pastured.

Value of land and buildings.—The value to be reported was the approximate amount for which the land and the buildings on it would sell.

Off-farm work and other income.—Many farm operators receive a part of their income from sources other than the sale of farm products from their farms. The 1954 Agriculture Questionnaire included several inquiries relating to work off the farm and non-farm income. These inquiries called for the number of days worked off the farm by the farm operator; whether other members of the operator's family worked off the farm; and whether the farm operator received income from other sources, such as sale of products from land rented out, cash rent, boarders, old age assistance, pensions, veterans' allowances, unemployment compensation, interest, dividends, profits from nonfarm business, and help from other members of the operator's family. Another inquiry asked whether the income of the operator and his family from off-farm work and other sources was greater than the total value of all agricultural products sold from the farm in 1954. Off-farm work was to include work at nonfarm jobs, businesses, or professions, whether performed on the farm premises or elsewhere; also, work on someone else's farm for pay or wages. Exchange work was not to be included.

Specified facilities and equipment.—Inquiries were made in 1954 to determine the presence or absence of selected items on each place such as (1) telephone, (2) piped running water, (3) electricity, (4) television set, (5) home freezer, (6) electric pig brooder, (7) milking machine, and (8) power feed grinder. Such facilities or equipment were to be counted even though temporarily out of order. Piped running water was defined as water piped from a pressure system or by gravity flow from a natural or artificial source. The enumerator's instructions stated that pig brooders were to include those heated by an electric heating element, by an infrared or heat bulb, or by ordinary electric bulbs. They could be homemade.

The number of selected types of other farm equipment was also obtained for a sample of farms. The selected kinds of farm equipment to be reported were (1) grain combines (for harvesting and threshing grains or seeds in one operation); (2) cornpickers; (3) pickup balers (stationary ones not to be reported); (4) field forage harvesters (for field chopping of silage and forage crops); (5) motortrucks; (6) wheel tractors (other than garden); (7) garden tractors; (8) crawler tractors (tracklaying, caterpillar); (9) automobiles; and (10) artificial ponds, reservoirs, and earth tanks.

Wheel tractors were to include homemade tractors but were not to include implements having built-in power units such as self-propelled combines, powered buck rakes, etc. Pickup and truck-trailer combinations were to be reported as motortrucks. School buses were not to be reported, and jeeps and station wagons were to be included as motortrucks or automobiles, depending on whether used for hauling farm products or supplies, or as passenger vehicles.

Farm labor.—The farm-labor inquiries for 1954, called for the number of persons doing farmwork or chores on the place during a specified calendar week. Since starting dates of the 1954 enumeration varied by areas or States, the calendar week to which the farm-labor inquiries related varied also. The calendar week was September 26–October 2 or October 24–30. States with the September 26–October 2 calendar week were: Arizona, California, Colorado, Connecticut, Florida, Idaho, Kansas, Kentucky, Louisiana, Maine, Massachusetts, Michigan, Minnesota, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico,

FARMERS AND FARM PRODUCTION

New York, North Dakota, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Dakota, Tennessee, Texas, Utah, Vermont, Washington, Wisconsin, and Wyoming. States with the October 24-30 calendar week were: Alabama, Arkansas, Delaware, Georgia, Illinois, Indiana, Iowa, Maryland, Mississippi, Missouri, North Carolina, Ohio, South Carolina, Virginia, and West Virginia. Farmwork was to include any work, chores, or planning necessary to the operation of the farm or ranch business. Housework, contract construction work, and labor involved when equipment was hired (custom work) were not to be included.

The farm-labor information was obtained in three parts: (1) Operators working, (2) unpaid members of the operator's family working, and (3) hired persons working. Operators were considered as working if they worked 1 or more hours; unpaid members of the operator's family, if they worked 15 or more hours; and hired persons, if they worked any time during the calendar week specified. Instructions contained no specifications regarding age of the persons working.

Regular and seasonal workers.—Hired persons working on the farm during the specified week were classed as "regular" workers if the period of actual or expected employment was 150 days or more during the year, and as "seasonal" workers if the period of actual or expected employment was less than 150 days. If the period of expected employment was not reported, the period of employment was estimated for the individual farm after taking into account such items as the basis of payment, wage rate, expenditures for labor in 1954, and the type and other characteristics of the farm.

Specified farm expenditures.—The 1954 Census obtained data for selected farm expense items in addition to those for fertilizer and lime. The expenditures were to include the total specified expenditures for the place whether made by landlord, tenant, or both.

Expenditures for machine hire were to include any labor included in the cost of such machine hire. Machine hire refers to custom machine work such as tractor hire, threshing, combining, silo filling, baling, ginning, plowing, and spraying. If part of the farm products was given as pay for machine hire, the value of the products traded for this service was to be included in the amount of expenditures reported. The cost of trucking, freight, and express was not to be included.

Expenditures for hired labor were to include only cash payments. Expenditures for housework, custom work, and contract construction work were not to be included.

Expenditures for feed were to include the expenditures for pasture, salt, condiments, concentrates, and mineral supplements, as well as those for grain, hay, and mill feeds. Expenditures for grinding and mixing feeds were also to be included. Payments made by a tenant to his landlord for feed grown on the land rented by the tenant were not to be included.

Expenditures for gasoline and other petroleum fuel and oil were to include only those used for the farm business. Petroleum products used for the farmer's automobile for pleasure or used exclusively in the farm home for heating, cooking, and lighting were not to be included.

Crops harvested.—The information on crops harvested refers to the acreage and quantity harvested for the 1954 crop year. An exception was made for land in fruit orchards and planted nut trees. In this case, the acreage represents that in both bearing and nonbearing trees and vines as of October and November 1954.

Hay.—The data for hay includes all kinds of hay except soybean, cowpea, sorghum, and peanut hay.

Livestock and poultry.—The data on the number of livestock and poultry represent the number on hand on the day of enumera-

tion (October-November 1954). The data relating to livestock products and the number of livestock sold relate to the sales made during the calendar year 1954.

LABOR RESOURCES

The data for labor resources available represent estimates based largely on Census data and developed for the purpose of making comparisons among farms of various size of operations. The labor resources available are stated in terms of man-equivalents.

To obtain the man-equivalents the total number of farm operators as reported by the 1954 Census were adjusted for estimated man-years of work off the farm and for the number of farm operators 65 years old and over. The farm operator was taken to represent a full man-equivalent of labor unless he was 65 years or older or unless he worked at an off-farm job in 1954.

The man-equivalent estimated for farm operators reporting specified amounts of off-farm work were as follows:

<i>Days worked off the farm in 1954</i>	<i>Estimated man-equivalent</i>
1-99 days.....	0.85
100-199 days.....	.50
200 days and over.....	.15

The man-equivalent for farm operators 65 years of age and older was estimated at 0.5.

Man-equivalents of members of the farm operator's family were based upon Census data obtained in response to the question "How many members of your family did 15 or more hours of farm work on this place the week of September 26-October 2 (or, in some areas, the week of October 24-30) without receiving cash wages?" Each family worker was considered as 0.5 man-equivalent. This estimate provides allowance for the somewhat higher incidence of women, children, and elderly persons in the unpaid family labor force.

In addition, the number of unpaid family workers who were reported as working 15 or more hours in the week of September 26-October 2 was adjusted to take account of seasonal changes in farm employment. Using published and unpublished findings of the U. S. Department of Agriculture and State Agricultural Colleges, and depending largely upon knowledge and experience with the geographic areas and type of farming, each author determined the adjustment factor needed to correct the number of family workers reported for the week of September 26-October 2 to an annual average basis.

Man-equivalents of hired workers are based entirely upon the expenditure for cash wages and the average wage of permanent hired laborers as reported in the 1954 Census of Agriculture.

Value of or investment in livestock.—Numbers of specified livestock and poultry in each subregion were multiplied by a weighted average value per head. The average values were computed from data compiled for each kind of livestock for the 1954 Census of Agriculture. The total value does not include the value of goats. (For a description of the method of obtaining the value of livestock, see Chapter VI of Volume II of the reports for the 1954 Census of Agriculture.)

Value of investment in machinery and equipment.—The data on value of investment in machinery and equipment were developed for the purpose of making broad comparisons among types and economic classes of farms and by subregions. Numbers of specified machines on farms, as reported by the Census, were multiplied by estimated average value per machine. Then the total values obtained were adjusted upward to provide for the inclusion of items of equipment not included in the Census inventory of farm machinery.

The estimates for average value of specified machines and the proportion of total value of all machinery represented by the value of these machines were based largely on published and unpublished data from the "Farm Costs and Returns" surveys conducted currently by the Agricultural Research Service, U. S. Department of Agriculture.¹ Modifications were made as needed in the individual chapters on the basis of State and local studies. The total estimated value of all machinery for all types and economic classes of farms is approximately equal to the value of all machinery as estimated by the U. S. Department of Agriculture.

Value of farm products sold, or gross sales.—Data on the value of the various farm products sold were obtained for 1954 by two methods. First, the values of livestock and livestock products sold, except wool and mohair; vegetables harvested for sale; nursery and greenhouse products; and forest products were obtained by asking each farm operator the value of sales. Second, the values of all other farm products sold were computed. For the most important crops, the quantity sold or to be sold was obtained for each farm. The entire quantity harvested for cotton and cottonseed, tobacco, sugar beets for sugar, hops, mint for oil, and sugarcane for sugar was considered sold. The quantity of minor crops sold was estimated. The value of sales for each crop was computed by multiplying the quantity sold by State average prices. In the case of wool and mohair, the value of sales was computed by multiplying the quantity shorn or clipped by the State average prices.

Gross sales include the value of all kinds of farm products sold. The total does not include rental and benefit, soil conservation, price adjustment, Sugar Act, and similar payments. The total

does include the value of the landlord's share of a crop removed from a farm operated by a share tenant. In most of the tables, detailed data are presented for only the more important sources of gross sales and the total for the individual farm products or sources will not equal the total as the values for the less important sources or farm products have been omitted. (For a detailed statement regarding the reliability and method of obtaining the value of farm products sold, reference should be made to Chapter IX of Volume II of the reports for the 1954 Census of Agriculture.)

Livestock and livestock products sold.—The value of sales for livestock and livestock products includes the value of live animals sold, dairy products sold, poultry and poultry products sold, and the calculated value of wool and mohair. The value of bees, honey, fur animals, goats, and goat milk is not included.

The value of dairy products includes the value of whole milk and cream sold, but does not include the value of butter and cheese, made on the farm, and sold. The value of poultry and products includes the value of chickens, broilers, chicken eggs, turkeys, turkey eggs, ducks, geese, and other miscellaneous poultry and poultry products sold. The value does not include the value of baby chicks sold.

Crops sold.—Vegetables sold includes the value of all vegetables harvested for sale, but does not include the value of Irish potatoes and sweetpotatoes.

The value of all crops sold includes the value of all crops sold except forest products. The value of field crops sold includes the value of sales of all crops sold except vegetables, small fruits and berries, fruits, and nuts.

¹ Farm Costs and Returns, 1955 (with comparisons), Agriculture Information Bulletin No. 158, Agricultural Research Service, U. S. Department of Agriculture, June 1956.

CHAPTER IV

POULTRY PRODUCERS AND POULTRY PRODUCTION

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POULTRY PRODUCERS AND POULTRY PRODUCTION

WILLIAM P. MORTENSON

INTRODUCTION

The place of poultry in American agriculture today is vastly different from what it was several decades ago. Great changes have occurred in the number of poultry on farms and in the methods of production, the distribution of poultry production, and the demand for poultry and poultry products.

From the time of early settlement until about 40 years ago, a poultry enterprise was found on virtually every farm. It was traditionally a minor sideline associated with such farm operations as the production of cash grain, livestock, dairy products, or cotton. Poultry meat was mainly the byproduct of egg production. Chickens that were no longer laying eggs at a satisfactory rate were sold for meat and the cockerels that were raised with the pullets were disposed of as fryers or roasters. A limited number of chickens were grown especially for meat. Poultry meat from these sources was supplemented with turkeys, ducks, and geese.

Evidences of decisive changes began to appear in the early 1930's. At about that time four developments began to take place in the poultry industry. (1) With a greater emphasis on flocks of commercial size, light breeds and strains of chickens gradually replaced the meat breeds, for use in making replacements in the laying flocks. (2) Feeding, breeding, and management practices were so improved that more eggs were produced per layer, so fewer layers were needed to supply the eggs that the market demanded. (3) As the technique of "sexing" chicks became perfected, only the female chicks were sold by the hatcheries. The male chicks were destroyed under the assumption that it was unprofitable to grow them out. (4) Chicken broilers were beginning to claim a profitable part in the industry.

In 1910, 5.6 of the 6.4 million farms in the United States, or 88 percent of all farms, kept chickens. Since then the number of farmers with chickens has declined steadily; in 1954, only 71 percent of the 4.8 million farms reported chickens.

The proportion of farms with chickens declined in all geographic regions. However, the change in the percentage of farms reporting chickens was greatest in New England and the smallest in the West South Central States.

In New England, 79.5 percent of all farms reported chickens in 1910 as compared with only 46.2 percent in 1954. In the East South Central States, 85.9 percent of the farms had chickens in 1910 as compared with 79.5 percent in 1954.

Although the number of farms keeping chickens has declined during the last 45 years, the total number of chickens has increased more than 50 percent.

Statistics give substantial evidences of the changes during these several decades. Aside from chickens, the 1910 Census of Agriculture shows that 870,000 farmers had turkeys, 660,000 had geese, and 500,000 had ducks. The combined number of ducks and geese on farms added up to 7½ million compared with 3½ million turkeys. During the 44-year period from 1910 to 1954 the numbers of ducks and geese increased slowly while the number of turkeys mounted. In 1954, only 11 million ducks and 1.7 million geese were raised compared with 63 million turkeys—heavy and light breeds.

In 1954, farm sales from poultry and poultry products, as reported in the Census, totaled about 2 billion dollars for the United States. Of this amount, \$917 million came from the sale of chicken eggs, \$558 million from broilers, \$140 million from other chickens sold, and \$304 million for the sale of turkeys, ducks, geese, and miscellaneous poultry and their eggs. This is equal to 28 percent of the income from sales of all farm animals (cattle, hogs, sheep, horses, and mules) and equal to 58 percent of the income from the sale of dairy products.

Poultry production is more important in some parts of the country than in others. In New England, the sale of poultry and poultry products accounted for 84 percent of the total income from livestock and poultry, and their products in 1954; in the Middle Atlantic States, 64 percent. On the other hand, in the Mountain States poultry sales accounted for only 6 percent of the total sales of livestock, poultry, and poultry products.

Table 2.—PERCENTAGE OF FARMS WITH CHICKENS, BY GEOGRAPHIC DIVISIONS: 1910 TO 1954

Geographic division	1910	1920	1925	1930	1935	1940	1945	1950	1954
United States.....	87.7	90.5	86.4	85.4	85.6	84.5	83.6	78.3	71.4
New England.....	79.5	81.7	77.6	72.8	64.5	53.6	55.6	40.2	46.2
Middle Atlantic.....	91.4	91.7	87.7	86.9	82.0	76.2	74.1	67.5	61.0
East North Central.....	93.0	94.1	91.2	91.2	88.5	84.3	83.4	75.3	67.7
West North Central.....	90.7	93.3	91.5	92.2	89.1	88.2	87.7	81.2	76.5
South Atlantic.....	87.3	90.8	87.0	85.8	87.5	87.0	84.5	81.5	73.4
East South Central.....	85.9	90.0	85.2	83.4	87.1	88.3	87.4	85.3	79.5
West South Central.....	85.6	89.0	82.8	82.2	87.2	89.4	88.8	82.6	75.5
Mountain.....	69.1	80.6	78.6	75.3	74.4	73.0	77.7	69.7	61.8
Pacific.....	77.9	82.1	72.0	69.2	68.9	64.7	69.1	59.3	48.0

Table 1.—VALUE OF LIVESTOCK AND LIVESTOCK PRODUCTS SOLD, FOR THE UNITED STATES AND GEOGRAPHIC DIVISIONS: 1954

Geographic division	Value of livestock and livestock products sold (dollars)						Value of poultry and poultry products sold as a percent of—		
	Total ¹	Poultry and poultry products	Dairy ²	Livestock and livestock products other than—			All livestock and livestock products	Livestock and livestock products excluding dairy	Dairy products
				Dairy and poultry	Dairy products	Poultry and poultry products			
United States.....	12,292,424,300	1,918,935,878	3,334,066,274	7,039,422,157	8,958,358,035	10,373,488,431	15.6	21.4	57.6
New England.....	353,944,583	143,149,632	184,109,033	26,085,918	169,835,550	210,704,951	25.8	84.3	77.8
Middle Atlantic.....	1,032,563,394	273,185,005	603,689,096	155,088,693	428,874,293	759,377,789	26.5	63.7	45.3
East North Central.....	2,750,972,015	285,625,079	965,260,190	1,510,086,746	1,795,712,425	2,465,346,936	10.4	15.9	29.9
West North Central.....	3,825,467,516	329,726,452	532,111,199	2,963,629,865	3,293,356,317	3,495,741,064	8.6	10.0	62.0
South Atlantic.....	912,969,766	350,653,386	257,719,027	304,597,363	655,250,739	562,316,380	38.4	53.5	136.1
East South Central.....	526,774,850	93,093,607	146,084,760	286,696,483	379,790,090	433,681,243	17.7	24.5	63.3
West South Central.....	926,171,273	155,131,905	174,110,453	596,028,915	752,060,820	771,039,368	16.7	20.6	89.1
Mountain.....	905,142,086	46,032,090	121,327,106	737,782,870	783,814,960	859,109,976	5.1	5.9	38.0
Pacific.....	1,058,418,246	242,337,522	358,755,410	457,325,314	699,662,836	816,080,724	22.9	34.6	67.6

¹ Includes cattle, hogs, sheep, horses, mules, wool, mohair, chickens, chicken eggs, other poultry and poultry products, milk, and cream. The livestock and livestock products only includes cattle, hogs, sheep, horses, mules, wool, and mohair.

² Milk and cream.

FARMERS AND FARM PRODUCTION

NUMBER OF CHICKENS ON HAND AND CHICKENS SOLD FOR THE UNITED STATES, CENSUSES OF 1910 TO 1954

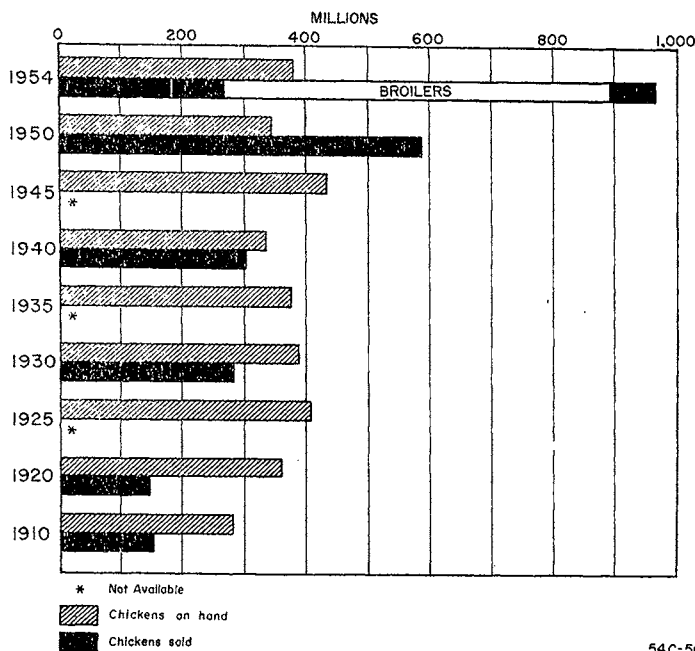


Figure 1

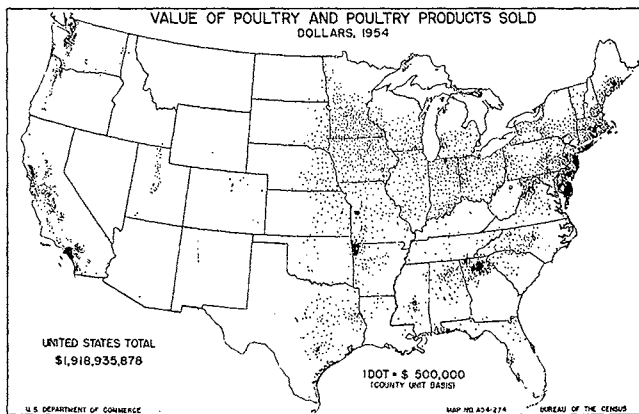


Figure 2

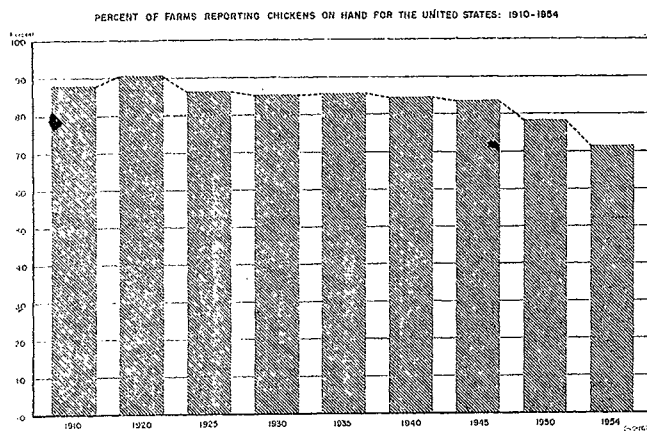


Figure 3

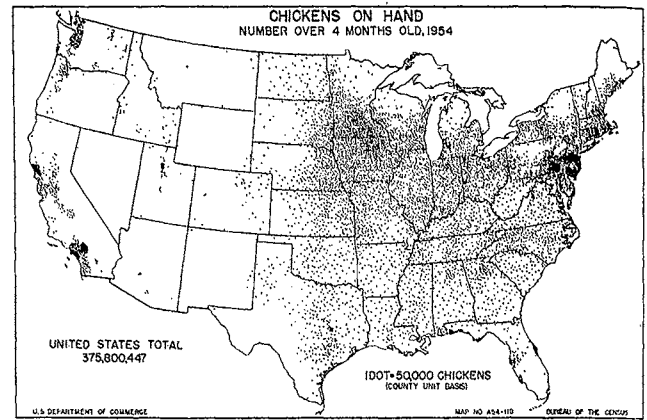


Figure 4

TYPES OF POULTRY ENTERPRISES

The three important types of poultry enterprises are (1) the production of eggs, (2) the production of broilers, and (3) the production of turkeys and other poultry products. Each of these types have significant characteristics and differ in their geographic distribution.

Egg Production

Although there has been a definite trend toward fewer and larger laying flocks on farms, the production of eggs is scattered rather widely over the country. Approximately three-fourths of our farms have a laying flock but on many farms egg production is not large—it is only a sideline.

Except for heavy concentrations of chickens in New Jersey, Pennsylvania, and California, chickens 4 months old and over are distributed over all parts of the United States. Sales of eggs are more concentrated than the number of chickens. Almost half of all eggs sold are produced in five States—California, Minnesota, Iowa, Pennsylvania, and New Jersey.

The East North Central, West North Central, and Middle Atlantic geographic divisions lead in total sales of chicken eggs. The largest number of broilers is produced in the South Atlantic States. Production of eggs has become a highly commercialized farm operation in some areas with a continued growth of larger flocks concentrated into specific areas, but it continues to be a sideline on many farms throughout a large part of the country. Fewer than 5 percent of all farms have poultry as the main enterprise. On 95 percent of the farms the poultry is secondary to other enterprises, with flocks of relatively few laying hens.

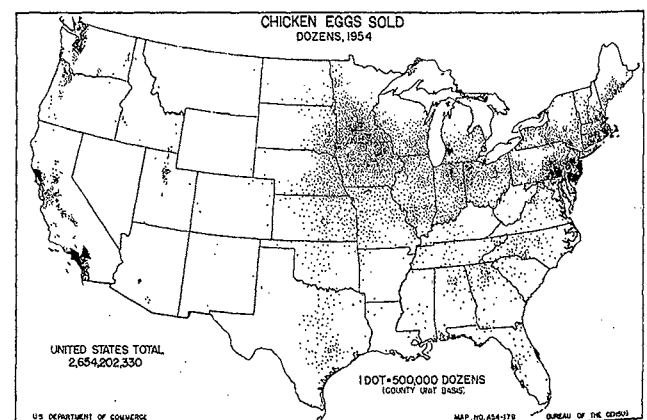


Figure 5

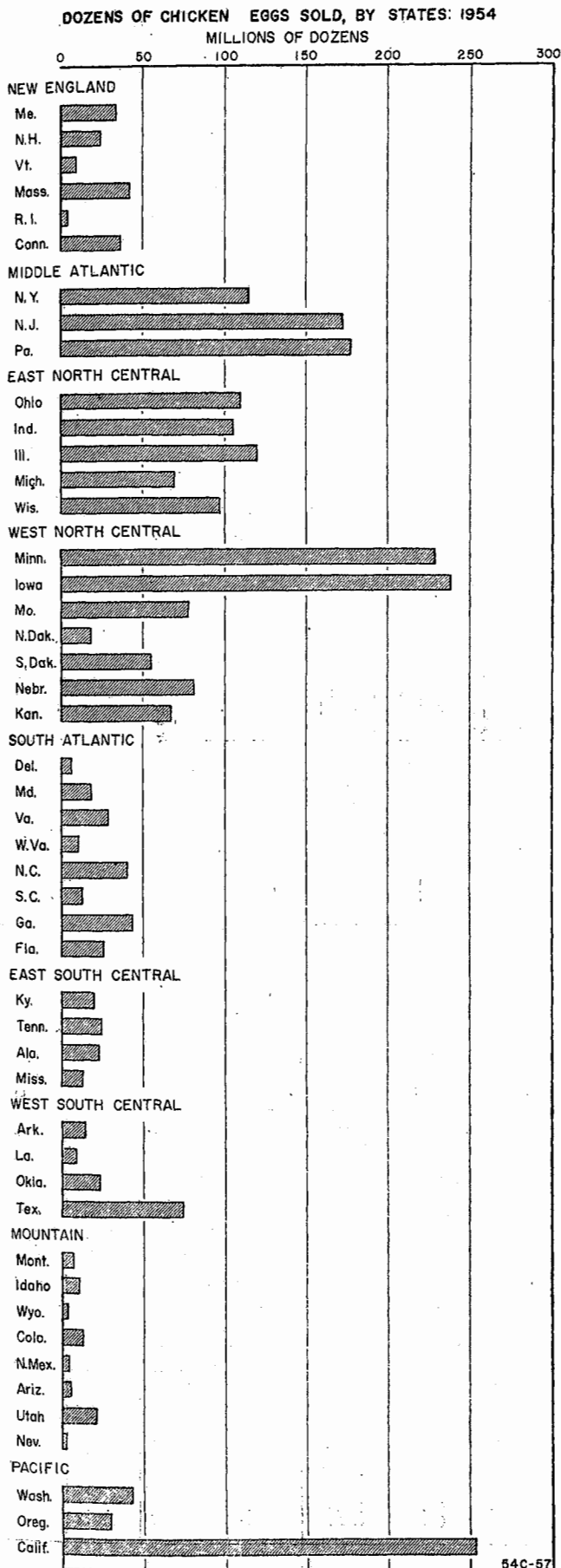


Figure 6

On the 4,782,416 farms in the United States, 2.4 million, or 51 percent, have flocks below 100; on these farms most of the eggs and chickens are consumed on the farms where produced. Almost nine-tenths of the chickens that are 4 months old and over are on commercial farms. The other 10 percent are on part-time and residential farms. In the South Atlantic, East South Central, and West South Central geographic divisions almost 40 percent of the farms that report chickens 4 months old and over, on hand, are on noncommercial farms. Those farms account for about 25 percent of the total number of chickens on hand.

Size of flock.—Table 4 shows the variation in size of flock in different parts of the country. The percentage of farms reporting chickens and the percentage of total chickens on hand, by size of flock, for the United States and for three selected geographic divisions are shown in figure 7. Even though the small farm flocks are still common in all areas, a large proportion of the chickens on hand are in the larger flocks of 400 or more. For the United States, 63 percent of the farms reporting chickens have flocks of under 100 but these farms account for only 15 percent of the chickens on hand. Only about 6 percent of the farms report over 400 chickens on hand but these farms have 44 percent of the chickens. In the New England States, 56 percent of the farms report fewer than 100 chickens but account for only 3 percent of the total chickens; the great proportion of the chickens are in flocks of 400 or more. The 29 percent of the farms that have 400 or more chickens account for 92 percent of all the chickens in New England.

PERCENT OF FARMS REPORTING CHICKENS AND PERCENT OF TOTAL CHICKENS ON HAND, BY SIZE OF FLOCK, FOR COMMERCIAL FARMS, FOR THE UNITED STATES AND THREE GEOGRAPHIC DIVISIONS: 1954

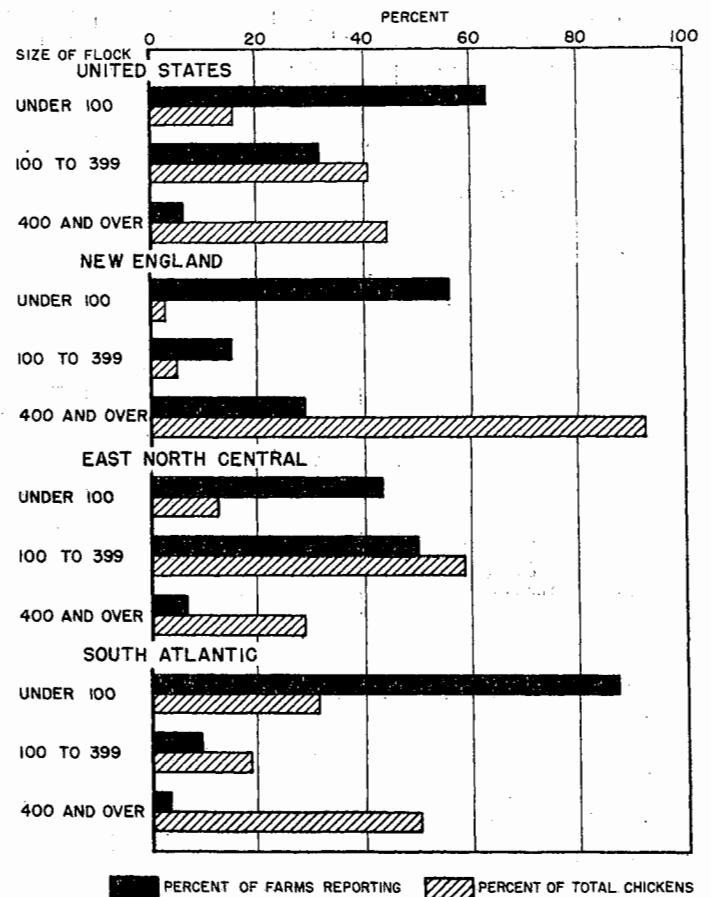


Figure 7

FARMERS AND FARM PRODUCTION

Table 3.—DISTRIBUTION OF FARMS REPORTING AND NUMBER OF CHICKENS ON HAND, 4 MONTHS OLD AND OVER, AMONG COMMERCIAL FARMS, PART-TIME, AND RESIDENTIAL FARMS, FOR THE UNITED STATES AND GEOGRAPHIC DIVISIONS: 1954

Geographic division	All farms		Commercial farms		Other farms ¹			
	Farms reporting	Number of chickens 4 months old and over	Farms reporting as a percentage of all farms	Number of chickens as a percentage of total for all farms	Part-time		Residential	
					Farms reporting as a percentage of all farms	Number of chickens as a percentage of total for all farms	Farms reporting as a percentage of all farms	Number of chickens as a percentage of total for all farms
United States.....	3,437,491	383,970,844	70.0	88.7	11.5	5.6	18.5	5.4
New England.....	38,550	15,384,386	61.2	93.6	12.8	3.3	25.7	2.3
Middle Atlantic.....	158,287	51,138,685	68.7	93.3	13.2	4.0	17.9	2.4
East North Central.....	544,101	73,232,252	79.2	90.5	9.7	5.4	11.0	3.9
West North Central.....	606,367	109,005,263	87.9	95.2	5.5	2.7	6.6	2.0
South Atlantic.....	632,534	38,628,982	59.6	77.6	13.2	9.5	27.1	12.6
East South Central.....	630,478	27,105,797	62.3	72.6	14.1	11.8	23.6	15.4
West South Central.....	507,990	29,282,688	59.4	74.6	15.0	12.0	25.6	13.1
Mountain.....	111,182	9,729,916	77.3	87.7	9.6	6.3	13.0	5.0
Pacific.....	118,002	30,562,875	62.1	93.0	14.6	3.6	23.4	2.8

¹ Data are not shown for abnormal farms.

Table 4.—PERCENT DISTRIBUTION OF COMMERCIAL FARMS REPORTING AND NUMBER OF CHICKENS ON HAND, 4 MONTHS OLD AND OVER, BY SIZE OF FLOCK, FOR THE UNITED STATES AND GEOGRAPHIC DIVISIONS: 1954

Size of flock	Percentage distribution in each geographic division																			
	United States		New England		Middle Atlantic		East North Central		West North Central		South Atlantic		East South Central		West South Central		Mountain		Pacific	
	Farms reporting	Number of chickens	Farms reporting	Number of chickens	Farms reporting	Number of chickens	Farms reporting	Number of chickens	Farms reporting	Number of chickens	Farms reporting	Number of chickens	Farms reporting	Number of chickens	Farms reporting	Number of chickens	Farms reporting	Number of chickens	Farms reporting	Number of chickens
All farms with chickens.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Farms with—																				
Under 50 chickens.....	44.8	7.4	44.0	1.6	29.9	1.6	23.2	3.9	18.4	2.9	72.3	19.7	71.2	32.7	60.0	19.6	52.1	13.0	60.2	3.2
50 to 99 chickens.....	17.8	8.0	12.0	1.2	13.6	2.0	20.4	8.7	16.3	6.3	15.3	11.6	10.8	24.0	20.1	17.2	22.8	14.4	10.6	1.7
100 to 199 chickens.....	17.8	16.3	7.7	1.6	15.5	4.6	29.4	25.1	29.2	23.1	6.0	9.2	6.6	15.5	12.4	21.4	15.0	18.6	6.1	2.0
200 to 399 chickens.....	13.5	24.3	7.4	3.3	15.7	9.4	20.6	33.7	28.7	43.1	2.9	9.3	1.5	7.3	5.5	18.8	6.3	15.8	5.2	3.5
400 to 799 chickens.....	4.0	14.3	9.0	7.8	11.9	14.3	5.1	16.5	6.7	19.1	1.8	11.7	0.6	6.1	1.4	9.6	2.2	11.6	5.3	7.5
800 to 1,599 chickens.....	1.2	9.1	8.8	15.8	6.9	10.9	1.0	6.4	0.7	3.9	1.1	14.3	0.3	5.4	0.5	6.4	0.9	10.3	5.7	16.3
1,600 to 3,199 chickens.....	0.5	8.0	6.7	25.0	4.0	20.5	0.2	3.4	0.1	0.8	0.4	11.9	0.1	3.2	0.1	3.3	0.3	7.1	4.3	25.1
3,200 chickens and over.....	0.3	12.1	4.3	43.7	2.6	30.7	0.1	2.4	(Z)	0.8	0.2	12.2	(Z)	5.8	(Z)	3.7	0.2	9.0	2.6	40.7

Z Less than 0.05 percent.

Table 5.—FARMS REPORTING AND NUMBER OF CHICKENS ON HAND, BY SIZE OF FLOCK, FOR THE UNITED STATES: 1930 TO 1954

Geographic division and size of flock ¹	1930		1935		1940		1945		1950		1954 ²	
	Farms reporting	Number of chickens	Farms reporting	Number of chickens	Farms reporting	Number of chickens	Farms reporting	Number of chickens	Farms reporting	Number of chickens	Farms reporting	Number of chickens
United States.....	5,372,597	378,878,281	5,833,079	371,603,136	5,150,055	337,949,145	4,896,374	426,654,467	4,215,616	343,108,069	2,406,338	340,498,127
Farms with—												
Under 50 chickens.....	2,948,635	67,523,123	3,406,319	80,193,336	3,016,142	69,579,051	2,429,924	59,070,984	2,392,400	54,921,575	1,077,385	25,205,511
50 to 99 chickens.....	1,189,082	77,129,196	1,302,928	82,350,866	1,100,555	70,505,334	1,075,835	67,582,944	810,633	51,571,059	429,049	27,100,590
100 to 199 chickens.....	859,753	109,050,204	803,293	99,761,052	735,831	92,586,630	869,533	110,276,403	641,951	83,937,037	427,317	55,596,897
200 to 399 chickens.....	305,791	74,293,947	257,171	62,118,316	237,010	57,273,801	413,054	101,606,877	282,673	70,701,746	325,917	82,665,993
400 chickens and over.....	69,336	50,881,811	63,368	47,179,566	60,517	48,004,329	108,028	88,117,259	88,059	81,977,252	146,670	149,929,136
400 to 799 chickens.....	(NA)	(NA)	46,858	23,322,929	42,908	21,465,478	(NA)	(NA)	58,349	29,578,209	97,238	48,640,832
800 to 1,599 chickens.....	(NA)	(NA)	12,752	13,241,007	12,948	13,542,791	(NA)	(NA)	18,775	20,001,503	29,305	30,892,223
1,600 to 3,199 chickens.....	(NA)	(NA)	3,042	6,494,733	3,634	7,762,999	(NA)	(NA)	7,745	16,509,080	12,971	29,130,114
3,200 chickens and over.....	(NA)	(NA)	716	4,120,897	939	5,233,061	(NA)	(NA)	3,190	15,887,860	7,156	41,266,967
Percent distribution												
United States.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Farms with—												
Under 50 chickens.....	54.9	17.8	58.4	21.6	58.6	20.6	49.6	13.8	56.8	16.0	44.8	7.4
50 to 99 chickens.....	22.1	20.4	22.3	22.2	21.4	20.9	22.0	15.8	19.2	15.0	17.8	8.0
100 to 199 chickens.....	16.0	28.8	13.8	26.8	14.3	27.4	17.8	25.8	15.2	24.5	17.8	16.3
200 to 399 chickens.....	5.7	19.6	4.4	16.7	4.6	16.0	8.4	23.8	6.7	20.6	13.5	24.3
400 chickens and over.....	1.3	13.3	1.1	12.7	1.2	14.2	2.2	20.7	2.1	23.9	6.0	44.1
400 to 799 chickens.....	(NA)	(NA)	.8	6.3	.8	6.4	(NA)	(NA)	1.4	8.6	4.0	14.3
800 to 1,599 chickens.....	(NA)	(NA)	.2	3.6	.3	4.0	(NA)	(NA)	.4	5.8	1.2	9.1
1,600 to 3,199 chickens.....	(NA)	(NA)	.1	1.7	.1	2.3	(NA)	(NA)	.2	4.8	.5	8.0
3,200 chickens and over.....	(NA)	(NA)	(Z)	1.1	(Z)	1.5	(NA)	(NA)	.1	4.6	.3	12.1

NA Not available.

Z 0.05 percent or less.

¹ For 1954 and 1950, number of chickens on hand, 4 months old and over; for 1945 and 1940, over 4 months old; and for 1935 and 1930, over 3 months old.² Commercial farms only.

Table 6.—PERCENT DISTRIBUTION OF FARMS REPORTING CHICKENS ON HAND, BY SIZE OF FLOCK, FOR THE UNITED STATES AND SELECTED GEOGRAPHIC DIVISIONS: 1930 TO 1954

Geographic division and size of flock ¹	Percent distribution of farms reporting chickens					
	1930	1935	1940	1945	1950	1954
United States	100.0	100.0	100.0	100.0	100.0	100.0
Farms with—						
Under 50 chickens.....	54.9	58.4	58.6	49.6	56.8	54.2
50 to 99 chickens.....	22.1	22.3	21.4	22.0	19.2	17.3
100 to 199 chickens.....	16.0	13.8	14.3	17.8	15.2	14.3
200 to 399 chickens.....	5.7	4.4	4.6	8.4	6.7	10.0
400 chickens and over.....	1.3	1.1	1.2	2.2	2.1	4.3
400 to 799 chickens.....	(NA)	.8	.8	(NA)	1.4	2.9
800 to 1,599 chickens.....	(NA)	.2	.3	(NA)	.4	.8
1,600 to 3,199 chickens.....	(NA)	.1	.1	(NA)	.2	.4
3,200 chickens and over.....	(NA)	(Z)	(Z)	(NA)	.1	.2
New England	100.0	100.0	100.0	100.0	100.0	100.0
Farms with—						
Under 50 chickens.....	66.8	70.0	65.0	63.4	58.8	53.3
50 to 99 chickens.....	16.3	13.5	12.4	12.6	11.7	13.5
100 to 199 chickens.....	8.6	7.5	8.2	8.6	8.5	8.3
200 to 399 chickens.....	4.9	4.7	6.4	5.5	7.3	6.8
400 chickens and over.....	3.5	4.4	8.0	9.9	13.7	18.1
400 to 799 chickens.....	(NA)	2.8	4.7	(NA)	6.1	6.0
800 to 1,599 chickens.....	(NA)	1.2	2.4	(NA)	4.5	5.4
1,600 to 3,199 chickens.....	(NA)	.3	.7	(NA)	2.1	4.3
3,200 chickens and over.....	(NA)	.1	.2	(NA)	1.0	2.5
East North Central	100.0	100.0	100.0	100.0	100.0	100.0
Farms with—						
Under 50 chickens.....	31.4	35.8	38.9	31.1	36.1	29.9
50 to 99 chickens.....	33.3	31.4	30.5	26.3	26.1	21.6
100 to 199 chickens.....	27.1	24.8	23.8	29.3	26.8	26.5
200 to 399 chickens.....	7.2	6.9	6.0	11.3	9.3	16.9
400 chickens and over.....	1.0	1.0	.8	2.0	1.7	5.1
400 to 799 chickens.....	(NA)	.9	.7	(NA)	1.4	4.1
800 to 1,599 chickens.....	(NA)	.1	.1	(NA)	.2	.8
1,600 to 3,199 chickens.....	(NA)	(Z)	(Z)	(NA)	.1	.2
3,200 chickens and over.....	(NA)	(Z)	(Z)	(NA)	(Z)	(Z)
Pacific	100.0	100.0	100.0	100.0	100.0	100.0
Farms with—						
Under 50 chickens.....	58.9	63.9	66.3	66.7	69.5	67.8
50 to 99 chickens.....	17.2	16.4	14.6	16.2	11.6	11.5
100 to 199 chickens.....	8.9	8.3	7.4	7.0	6.2	5.7
200 to 399 chickens.....	6.0	5.1	4.8	4.1	4.6	4.0
400 chickens and over.....	9.1	6.3	6.9	6.0	8.2	11.0
400 to 799 chickens.....	(NA)	3.5	3.7	(NA)	3.6	3.7
800 to 1,599 chickens.....	(NA)	2.0	2.2	(NA)	2.6	3.3
1,600 to 3,199 chickens.....	(NA)	.6	.8	(NA)	1.3	2.5
3,200 chickens and over.....	(NA)	.2	.2	(NA)	.6	1.4

NA Not available.

Z 0.05 percent or less.

¹ For 1954 and 1950, number of chickens on hand, 4 months old and over; for 1945 and 1940, over 4 months old; and for 1935 and 1930, over 3 months old.

In the South Atlantic States, 88 percent of the farms have flocks of less than 100 chickens and only 3 percent have flocks of 400 or more. This geographic division is mainly one of small farm flocks so that egg production is not important as a commercial farm enterprise.

Table 8.—NUMBER OF FARMS REPORTING AND DOZEN EGGS SOLD, BY SIZE OF FLOCK, FOR THE UNITED STATES: CENSUSES OF 1930 TO 1954

Size of flock ¹	Farms reporting eggs sold								Dozens of chicken eggs sold							
	Number				Percent distribution				Number				Percent distribution			
	1954 ²	1949	1939 ³	1929	1954 ²	1949	1939 ³	1929	1954 ²	1949	1939 ³	1929	1954 ²	1949	1939 ³	1929
Total	1,391,734	2,459,984	4,875,472	3,872,482	100.0	100.0	100.0	100.0	2,663,454,463	2,483,696,061	2,391,091,510	1,955,459,439	100.0	100.0	100.0	100.0
Farms with—																
Under 400 chickens.....	1,248,247	2,372,761	4,815,757	3,804,346	89.7	96.5	98.8	98.2	1,158,590,290	1,654,706,249	1,931,925,392	1,539,716,822	43.5	66.6	80.8	78.7
400 chickens and over.....	143,387	87,223	59,715	68,136	10.3	3.5	1.2	1.8	1,604,864,173	828,989,812	459,166,118	415,742,617	56.5	33.4	19.2	21.3
400 to 799 chickens.....	94,444	58,197	42,413	(NA)	6.8	2.4	0.9	(NA)	409,333,605	282,984,008	195,208,689	(NA)	15.4	11.4	8.2	(NA)
800 to 1,599 chickens.....	28,924	18,650	12,785	(NA)	2.1	0.8	0.3	(NA)	305,753,883	212,265,553	136,891,980	(NA)	11.5	8.5	5.7	(NA)
1,600 to 3,199 chickens.....	12,924	7,495	3,589	(NA)	0.9	0.3	0.1	(NA)	322,290,945	176,558,654	77,885,434	(NA)	12.1	7.1	3.3	(NA)
3,200 chickens and over.....	7,095	2,881	928	(NA)	0.5	0.1	(Z)	(NA)	467,485,740	157,181,597	49,180,015	(NA)	17.6	6.3	2.1	(NA)
400 to 999 chickens.....	(NA)	(NA)	47,725	57,095	(NA)	(NA)	1.0	1.5	(NA)	(NA)	240,874,715	243,716,360	(NA)	(NA)	10.1	12.5
1,000 to 2,499 chickens.....	(NA)	(NA)	10,098	9,477	(NA)	(NA)	0.2	0.2	(NA)	(NA)	142,648,700	116,421,355	(NA)	(NA)	6.0	6.0
2,500 chickens and over.....	(NA)	(NA)	1,892	1,564	(NA)	(NA)	(Z)	(Z)	(NA)	(NA)	75,642,703	55,604,902	(NA)	(NA)	3.2	2.8

NA Not available.

Z 0.05 percent or less.

¹ For Censuses of 1954 and 1950, number of chickens on hand, 4 months old and over; for 1940, over 4 months old; and for 1930, over 3 months old.² Data are for commercial farms only.³ Data are for farms reporting and dozens of eggs produced.

Trend in size of flock.—During the last quarter century there has been a distinct trend toward larger laying flocks in all parts of the country. In 1930, 77 percent of the farms reported fewer than 100 chickens on hand; in 1954, 71 percent. Only 7 percent reported more than 200 or more chickens on hand in 1930, compared with 14.3 percent in 1954. In New England, this change has occurred at a more rapid rate than in the rest of the country. More than 83 percent of the farms in New England reported chickens in flocks of less than 100 in 1930 compared with 67 percent in 1954.

The number of farms with flocks of more than 400 increased rapidly over this 25-year period. Only 3.5 percent of the New England farms reported flocks of over 400 in 1930, compared with 18.1 percent in 1954. Moreover, in 1954, 6.8 percent of the farms reported flocks of more than 1,600 compared with less than 0.4 only 20 years earlier.

In the Pacific States the trend toward large flocks was not quite so pronounced as in New England. In the East North Central States the trend has not been so marked as in other areas.

Prices of eggs compared with prices of feed.—The price of eggs compared with the price of feed was more favorable during the 5-year period 1950–1954 than during the 5-year period 1940–1944. The ratio of the local market price of eggs to feed price was more favorable in 1954 than for any year since 1940.

The production of eggs is being concentrated on the larger specialized poultry farms.

In 1929, only 21 percent of the eggs sold were produced on farms with 400 or more chickens on hand; by 1954, 56 percent of all eggs sold came from farms with 400 or more chickens on hand and the 20,000 farms with 1,600 or more chickens on hand, produced 30

Table 7.—EGG-FEED PRICE RATIOS FOR THE UNITED STATES: 1940 TO 1954

Year	Ratio of cost of poultry egg-feed to local market price of eggs (pounds of feed)	Year	Ratio of cost of poultry egg-feed to local market price of eggs (pounds of feed)
1940.....	11.5	1948.....	11.4
1941.....	13.5	1949.....	13.2
1942.....	14.2	1950.....	10.3
1943.....	14.5	1951.....	12.0
1944.....	11.5	1952.....	10.0
1945.....	13.4	1953.....	12.3
1946.....	11.3	1954.....	9.4
1947.....	11.1		

Source: Agricultural Marketing Service, U. S. Department of Agriculture.

percent of all eggs sold. Although there were 1,392,000 farms reporting eggs sold in 1954, the 50,000 farms with 800 or more chickens on hand, accounted for more than 40 percent of the total sales. The 36,000 commercial poultry farms with 800 or more chickens on hand in 1954, produced over one-third of all chicken eggs sold.

Table 9.—NUMBER OF BROILERS SOLD IN 13 LEADING PRODUCING STATES: 1954

State	Number of broilers sold	Percent of United States total
United States.....	792,373,716	100.0
Total, 13 States.....	603,582,339	76.2
Georgia.....	114,369,440	14.4
Arkansas.....	62,337,491	7.9
Delaware.....	61,590,692	7.8
Texas.....	55,711,200	7.0
Maryland.....	46,094,361	5.8
Alabama.....	39,561,620	5.0
California.....	38,275,851	4.8
Virginia.....	37,044,088	4.7
North Carolina.....	35,463,971	4.5
Mississippi.....	34,390,326	4.3
Indiana.....	28,650,981	3.6
Pennsylvania.....	25,816,794	3.3
Maine.....	24,275,524	3.1

Production of Broilers

From its beginning, the production of chicken broilers has been a large-scale commercial operation rather than a sideline of general farming or other types of farming. Growth of the broiler enterprise largely replaced the production of spring fryers which, up until a decade or so ago, was frequently carried on as a part of the poultry enterprise on many farms. The production of broilers is more definitely concentrated into specific areas and into larger operations than is any of the other segments of the poultry industry. The chief broiler areas have developed mainly in five widely different parts of the United States: (1) Delaware-Maryland-Virginia ("Delmarva"), (2) Georgia and Alabama, (3) Arkansas, (4) Texas, and (5) California. Within these groups of States the industry is concentrated into relatively few counties.

The degree of the concentration is indicated by the value of broiler production in the ranking broiler counties. More than 60 percent of the broiler production in this country comes from 100 counties. In those counties the number sold in 1954 varied from 58 million in Sussex County, Delaware, to around 1½ million for each of the lower 27 ranking counties.

In the more concentrated areas, broiler production is on such a highly commercialized basis that it might perhaps be classed more nearly as a rural manufacturing activity than as a farming operation. Production is highly specialized and mechanized; it occurs

Table 10.—NUMBER OF BROILERS SOLD, FROM 100 RANKING COUNTIES: 1954

County	Farms reporting	Number of broilers	Average number per farm reporting	County	Farms reporting	Number of broilers	Average number per farm reporting
Total, 100 counties.....	26,022	477,141,072	18,336	Grant, W. Va.....	388	3,184,772	8,208
Sussex, Del.....	1,299	57,716,993	44,432	Cleburne, Ala.....	182	3,114,663	17,114
Washington, Ark.....	832	17,190,801	19,491	DeKalb, Ala.....	165	3,103,004	18,806
Benton, Ark.....	1,115	13,894,517	15,152	Habersham, Ga.....	197	3,091,655	15,691
Wicomico, Md.....	431	14,887,544	34,542	Dawson, Ga.....	296	3,000,600	10,137
Scott, Miss.....	204	12,915,636	63,312	Augusta, Va.....	215	2,814,188	13,089
Cherokee, Ga.....	864	12,723,945	14,727	Talbot, Md.....	71	2,814,172	39,636
Hall, Ga.....	965	12,644,702	13,103	Madison, Ark.....	175	2,795,176	15,972
Worcester, Md.....	290	11,470,942	39,555	Cobb, Ga.....	183	2,793,611	15,266
Forsyth, Ga.....	1,019	11,125,356	10,918	Hampden, Mass.....	30	2,771,368	92,379
Rockingham, Va.....	1,049	10,959,546	10,448	Catoosa, Ga.....	117	2,748,411	23,491
Gonzales, Texas.....	322	8,810,911	27,363	Rankin, Miss.....	104	2,687,432	25,648
Shelby, Texas.....	498	8,217,863	16,502	Cherokee, Texas.....	130	2,600,898	20,007
Waldo, Maine.....	259	8,186,347	31,608	Independence, Ark.....	208	2,540,030	12,212
Los Angeles, Calif.....	498	7,697,177	15,456	Shenandoah, Va.....	270	2,445,222	9,056
Whitfield, Ga.....	339	7,136,721	21,052	Madison, Ga.....	160	2,442,650	15,267
Somerset, Md.....	270	6,988,860	25,885	Carroll, Ga.....	150	2,388,816	15,925
Lancaster, Pa.....	661	6,352,427	9,610	Barry, Mo.....	180	2,313,313	12,852
Caroline, Md.....	259	6,236,152	24,078	Banks, Ga.....	168	2,266,583	13,492
Lumpkin, Ga.....	464	6,177,550	13,314	Sabine, Texas.....	104	2,222,620	21,371
Windham, Conn.....	256	6,006,473	23,463	Worcester, Mass.....	130	2,205,339	16,964
Chatham, N. C.....	454	5,999,049	13,216	Penobscot, Maine.....	88	2,124,716	24,145
Cullman, Ala.....	246	5,420,676	22,035	Harrison, Ind.....	108	2,104,186	19,483
Sonoma, Calif.....	283	5,369,962	20,418	Walker, Ala.....	73	2,068,811	28,340
Wilkes, N. C.....	532	4,765,752	8,958	Barrow, Ga.....	169	1,994,850	11,745
New London, Conn.....	258	4,720,973	18,322	Buncombe, N. C.....	96	1,944,049	20,261
Marshall, Ala.....	212	4,712,338	22,228	Page, Va.....	242	1,918,553	7,928
Hardy, W. Va.....	485	4,589,314	9,463	Leake, Miss.....	72	1,816,113	25,224
Smith, Miss.....	151	4,534,472	30,030	Walworth, Wis.....	5	1,780,700	350,140
White, Ga.....	318	4,489,682	14,118	Pope, Ark.....	100	1,765,144	17,651
Jackson, Ga.....	305	4,408,438	14,454	Dubois, Ind.....	183	1,685,291	9,209
Kennebec, Maine.....	120	4,386,346	36,553	Androscoggin, Maine.....	35	1,672,581	47,788
Elkhart, Ind.....	256	4,343,117	16,965	Rusk, Texas.....	117	1,650,955	14,111
Nacogdoches, Texas.....	276	4,325,239	15,671	Somerset, Maine.....	66	1,627,584	24,600
Gwinnett, Ga.....	289	4,314,270	14,928	Sullivan, N. Y.....	105	1,625,553	15,481
Accomack, Va.....	158	4,143,014	26,222	Cleburne, Ark.....	148	1,615,810	10,918
Moore, N. C.....	343	4,124,882	12,026	Itawamba, Miss.....	154	1,591,610	10,335
Franklin, Ga.....	296	3,922,026	13,250	Rockingham, N. H.....	94	1,575,770	16,764
Randolph, N. C.....	308	3,883,480	12,609	Santa Clara, Calif.....	69	1,570,075	22,755
Pendleton, W. Va.....	455	3,790,244	8,350	Murray, Ga.....	79	1,569,669	19,743
McLennan, Texas.....	75	3,732,585	49,768	Aiken, S. C.....	47	1,550,247	32,984
San Bernardino, Calif.....	222	3,630,115	16,352	Hanover, Va.....	63	1,546,160	24,542
Pickens, Ga.....	292	3,578,484	12,255	Gordon, Ga.....	89	1,538,120	17,282
Yell, Ark.....	138	3,480,316	25,220	Paulding, Ga.....	71	1,505,795	21,208
Kent, Del.....	150	3,458,199	23,055	Hale, Ala.....	39	1,495,382	38,343
Washington, Ind.....	182	3,448,858	18,950	Miller, Mo.....	104	1,459,944	14,038
McDonald, Mo.....	200	3,277,463	16,387	Hampshire, W. Va.....	168	1,455,849	8,666
Fulton, Ga.....	288	3,250,140	11,216	Tyler, Texas.....	85	1,441,700	16,981
Winston, Ala.....	140	3,206,234	22,902	Pike, Pa.....	81	1,439,633	17,773
Fresno, Calif.....	110	3,205,325	29,139	Stone, Mo.....	70	1,430,992	20,443
				Middlesex, Mass.....	113	1,423,961	12,601

on most farms within the limits of the broiler house. Very little land is required; chicks, feed, and other production items are nearly always purchased.

Broiler production is concentrated mostly on a relatively few farms. Only 50,000 farms reported broilers sold, in 1954. More than 98 percent of the broilers sold were from the 28,000 farms each of which sold 8,000 or more in 1954.

Table 12 shows the broiler production by geographic divisions. The South Atlantic produced 462 million; the South Central, 293 million; and the North Atlantic, 139 million, in 1955. These three divisions produced 83 percent of the United States total of slightly over a billion birds.

Trend of production.—Probably no farm enterprise has increased so rapidly during the last two decades. From a small beginning of some 34 million broilers in 1934 the production has expanded to about 1.3 billion birds in 1956—a 35-fold increase. The development has been especially rapid since World War II.

A combination of full employment at favorable wages for consumers and heavy food purchases by the Armed Services during and after the war, created a powerful overall demand for food, resulting in a pronounced advance in food prices, especially for meat, including broiler meat.

Broiler prices were high before 1950, not only compared with prewar years, but in relation to the price of feed as well. But favorable prices for broilers, in relation to the price of feed, began to change about 1950. Notwithstanding the decline in returns to the producers, the trend of production continued upward although at a somewhat reduced rate until 1955. Between 1955 and 1956, however, the increase was at a more rapid rate—an increase of more than a fifth for the country as a whole.

The volume of broiler production was greatest in the South Atlantic, South Central, and North Atlantic geographic divisions. The rate of increase in production from 1934 to 1955 by geographic divisions is shown in figure 8. (The data in figure 8 are in millions of broilers. This type of chart is commonly referred to as a "ratio chart" with three "decks" or levels. The bottom level shows the figures in units. Thus, the figures on that level are from 1 to 10 million. On the second level the figures are from 10 to 100 million, and on the top level from 100 to 1,000 million. Hence, the line showing the United States production for 1954 and 1955 is slightly over 1,000 million. The amount of slope of any line in figure 8 indicates the rate of increase.)

The South Atlantic, South Central, and North Atlantic divisions have had a more rapid rate of increase during the last 10 years than have the East North Central or the West North Central divisions.

Table 11.—FARMS REPORTING BROILERS, BY NUMBER SOLD: 1954

Farms reporting number of broilers sold as—	Number of farms	
	Total	Percent distribution
Under 8,000.....	22,003	43.9
8,000 to 15,999.....	12,483	24.9
16,000 to 31,999.....	9,747	19.5
32,000 to 49,999.....	1,822	3.6
50,000 to 59,999.....	790	1.6
60,000 to 69,999.....	655	1.3
70,000 to 79,999.....	337	0.7
80,000 and over.....	695	1.4

COMMERCIAL BROILERS: NUMBER PRODUCED FOR THE UNITED STATES AND GEOGRAPHIC AREAS: 1934-1955

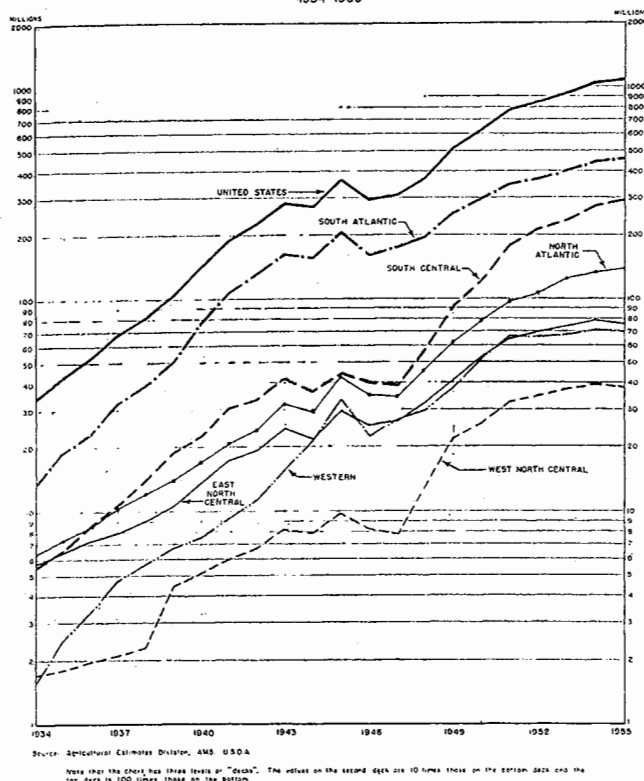


Figure 8

Table 12.—COMMERCIAL BROILERS—NUMBER PRODUCED FOR THE UNITED STATES AND GEOGRAPHIC DIVISIONS: 1934 TO 1955

Geographic division	Number (thousands)										
	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944
United States.....	34,030	42,890	53,155	67,915	82,420	105,630	142,762	191,502	228,187	285,293	274,149
North Atlantic.....	6,360	7,345	8,660	10,360	12,110	14,050	17,000	20,300	24,600	32,210	29,164
East North Central.....	5,700	6,415	7,365	7,970	9,030	10,650	13,600	17,350	19,310	24,405	21,656
West North Central.....	1,700	1,800	1,930	2,070	2,280	4,425	5,125	5,975	6,725	8,237	7,906
South Atlantic.....	13,200	18,200	23,150	32,100	39,200	50,600	70,900	107,660	132,550	162,800	157,148
South Central.....	5,500	6,650	8,750	10,700	14,150	19,150	22,516	30,985	33,835	42,068	36,741
Western.....	1,570	2,480	3,300	4,715	5,650	6,755	7,621	9,232	11,107	15,573	21,534

Geographic division	Number (thousands)										
	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955
United States.....	365,572	292,527	310,168	370,515	513,206	631,458	788,601	860,801	946,533	1,047,798	1,078,264
North Atlantic.....	42,903	35,086	34,648	46,813	62,609	79,119	97,186	106,205	123,787	133,096	139,083
East North Central.....	29,739	25,245	26,388	31,984	41,386	52,637	64,942	69,854	73,916	78,973	76,297
West North Central.....	9,827	8,242	7,801	13,014	21,959	25,649	32,413	34,863	37,178	39,974	38,281
South Atlantic.....	204,769	160,647	175,228	192,194	255,229	298,129	348,724	368,278	405,917	448,556	461,830
South Central.....	44,690	40,365	39,320	56,804	93,611	123,337	178,569	215,136	237,526	275,958	292,758
Western.....	33,044	22,343	26,783	29,706	38,702	52,587	66,767	66,555	68,209	71,241	70,006

Capital requirements.—Capital requirements are high for a broiler operation large enough to provide a satisfactory income for a farm family. Most operators find it necessary to borrow funds for both fixed and working capital. Fixed capital includes mainly capital for land, buildings, and equipment. Short-time or working capital includes feed, fuel, litter, chicks, and medicine.

Investment in buildings and equipment varies greatly from flock to flock, depending upon the type and quality of building and the amount of equipment. If automatic feeding and watering equipment is used, the costs of equipment are naturally higher than if manual equipment is used. But automatic equipment reduces the costs of labor, especially on the larger operations.

As the capital requirement is relatively high, most broiler operators have to borrow a considerable part of it. This is especially true of the requirements for chicks and feed. The method and extent of financing broiler production might be called unique. A large proportion of the required capital is *operating capital*, consisting of feed, chicks, medicine, fuel, and litter. As the production period for a batch of broilers is about 10 to 12 weeks, short-term operating capital is needed in cycles during 3 or 4 production periods of the year. Peak requirements are reached just before the broilers are marketed.

Few broiler growers have enough funds to finance a large-scale operation and some of those who do prefer to be financed by others rather than take all the risk themselves. Feed dealers and others not engaged in farming often provide these funds. Financing is generally carried out under one of four methods: Open account, share contract, flat fee, or labor contract. The most common source of finance is through the dealer who supplies the grower with feed. (See bulletin no. 470, October 1954, Agricultural Experiment Station, Virginia Polytechnic Institute for a description of method of farming.)

Broiler chicks.—Production of hatchery eggs for broiler chicks is an important phase of the broiler industry. To supply the

chicks, hatcheries must obtain the necessary number of eggs from broiler breeds and strains. The job of supplying eggs consists not only of producing the eggs but also of doing experimental breeding work necessary to develop the type of chick that will have a high efficiency in feed conversion and will reach market weight early.

In developing "breeding hens," consideration must also be given to the development of a strain that will have a high rate of lay in order that hatching eggs can be produced as cheaply as possible.

Prices of live broilers compared with retail prices of broilers and other meats.—Prices for broilers have dropped significantly during the last 3 years. Figure 9 shows the trends of the farm and retail prices of broilers from January 1953 through August 1956. To make for better comparison in the chart, the retail prices were decreased by 25 percent to allow for actual shrinkage in the process of dressing. With this adjustment, the trend of price comparisons is somewhat more easily seen than if actual retail prices were used.

It is significant that the two trend (straight) lines are almost exactly parallel, showing that the farm prices of the live birds and the retail prices of the "ready to cook" broilers have decreased by a like amount since January 1953.

In figure 10 retail prices of round steak, rib roast, and broilers, from January 1953 to September 1956, are compared. Prices of round steak and rib roast declined in about the same degree. Prices of broilers declined at a much more rapid rate than the prices of round steak and rib roast and reached an all time low in September 1956.

Even though prices for broilers are highly competitive there is a distinct spread in retail prices between cities in some parts of the country. Since January 1953, prices have been distinctly higher in Seattle than in Minneapolis and much higher than in Washington, D. C. (See figure 11.)

Table 13.—UNITED STATES AVERAGE PRICES OF LIVE BROILERS PER POUND, AND BROILER RATION PER HUNDRED POUNDS, BY MONTHS AND ANNUAL AVERAGES: JANUARY 1947 THROUGH SEPTEMBER 1956

Year	January	February	March	April	May	June	July	August	September	October	November	December	Weighted average
Cents per pound, live weight of broilers													
1947	29.8	25.6	29.4	30.8	32.1	32.6	32.8	34.0	36.3	35.1	32.0	35.5	32.3
1948	37.2	34.5	36.3	37.4	37.5	38.2	36.4	36.6	36.2	33.2	32.5	34.0	36.0
1949	31.1	28.4	30.0	30.2	27.4	26.1	26.7	29.3	28.6	27.3	28.4	25.6	28.2
1950	21.3	26.1	29.6	28.9	27.7	27.1	29.6	31.0	29.9	26.5	25.7	24.2	27.4
1951	26.4	29.2	30.8	30.5	28.8	29.7	29.3	29.7	29.1	26.4	25.7	25.7	28.6
1952	28.8	29.3	28.1	27.1	25.3	26.8	29.3	31.0	31.3	29.1	31.6	29.7	28.8
1953	27.9	27.7	28.1	28.0	27.2	26.2	28.3	27.9	27.1	26.7	26.0	23.2	27.1
1954	24.2	22.6	23.5	24.3	23.7	24.4	25.4	24.9	23.0	21.0	20.1	19.2	23.1
1955	24.4	25.4	29.7	28.4	27.0	27.2	26.5	26.9	25.2	22.0	21.2	19.4	25.2
1956	20.3	21.4	21.9	20.5	21.1	19.9	21.7	19.6	18.3				
Dollars per hundred pounds of feed													
1947	4.65	4.55	4.80	4.95	4.90	5.05	5.20	5.45	5.65	5.80	5.85	5.95	5.23
1948	6.15	5.95	5.85	5.85	5.80	5.75	5.70	5.30	5.10	4.95	4.90	4.95	5.52
1949	4.90	4.80	4.80	4.85	4.85	4.80	4.90	5.00	4.95	4.85	4.75	4.75	4.85
1950	4.75	4.70	4.70	4.80	4.95	4.95	5.05	5.15	5.00	4.95	5.00	5.05	4.92
1951	5.20	5.25	5.35	5.30	5.35	5.30	5.35	5.35	5.35	5.45	5.50	5.55	5.36
1952	5.60	5.65	5.65	5.70	5.70	5.70	5.65	5.70	5.75	5.65	5.55	5.50	5.65
1953	5.46	5.38	5.34	5.32	5.28	5.26	5.23	5.23	5.22	5.14	5.09	5.23	5.26
1954	5.23	5.26	5.32	5.41	5.51	5.39	5.35	5.39	5.33	5.19	5.17	5.18	5.31
1955	5.20	5.18	5.15	5.13	5.08	5.02	5.02	4.95	4.85	4.88	4.77	4.78	5.00
1956	4.79	4.81	4.81	4.91	5.02	5.06	5.08	5.10					

Source: Agricultural Marketing Service, U. S. Department of Agriculture.

AVERAGE ADJUSTED RETAIL PRICE PER POUND AND AVERAGE FARM PRICE PER POUND FOR BROILERS, BY MONTHS, BASED ON 3-MONTH MOVING AVERAGE, FOR THE UNITED STATES: 1953 TO 1956

(RETAIL PRICES DECREASED 25 PERCENT BECAUSE OF SHRINKAGE IN DRESSING)

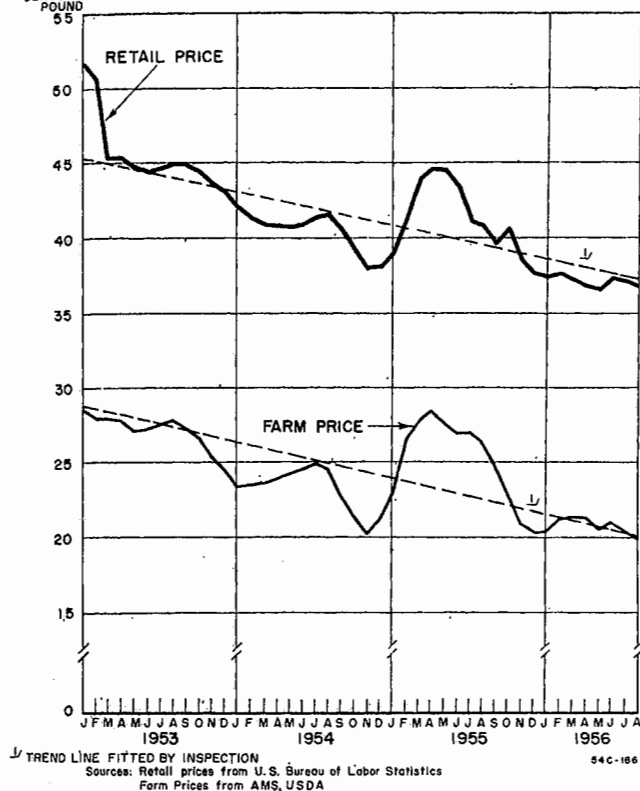


Figure 9

The trends of broiler prices compared with feed are shown in Figure 12 and Table 13. Feed prices have been maintained at a more-or-less constant level since 1949 while the trend of broiler prices has continued downward except for relatively high peaks in certain months of 1952 and 1955.

Prices of broilers compared with prices of feed.—The price of broilers compared with the price of feed (the broiler-feed ratio) has become less favorable to broiler growers since 1948. In that year a pound of live broiler would buy 6.5 pounds of feed (1 to 6.5 ratio). With a few exceptions, the ratio continued to become less favorable until 1954, when the annual average dropped to 1 to 4.3. That is, the price of a pound of live broiler was equivalent to only 4.3 pounds of feed, compared with 6.5 pounds in 1948. During 1955 the relationship improved somewhat, but in 1956 it again grew less favorable and during the first 9 months averaged only 1 to 4.1. The lowest ratio during that entire 10-year period occurred in September 1956.

Trends in feed efficiency.—The rapid increase in efficiency in broiler production has only partly offset the decline in the ratio of broiler prices to feed prices, which has taken place since 1948. As feed constitutes about two-thirds of the total cost of producing broilers, feed efficiency is influential in the profitability of production.

During the last 25 years, the feed efficiency (pounds of feed per pound of gain) has increased significantly. About 20 years ago, somewhat more than 12 pounds of feed were required to produce a 3-pound broiler. Now it can be produced on less than 9 pounds of feed—a reduction of more than 25 percent in feed requirement. The increase in feed efficiency was gradual until the late 1940's. Since then it has been stepped up at a rapid rate. This increase

AVERAGE RETAIL PRICE PER POUND OF SELECTED KINDS OF MEATS, BY MONTHS, BASED ON 3-MONTH MOVING AVERAGE, FOR THE UNITED STATES: 1953 TO 1956

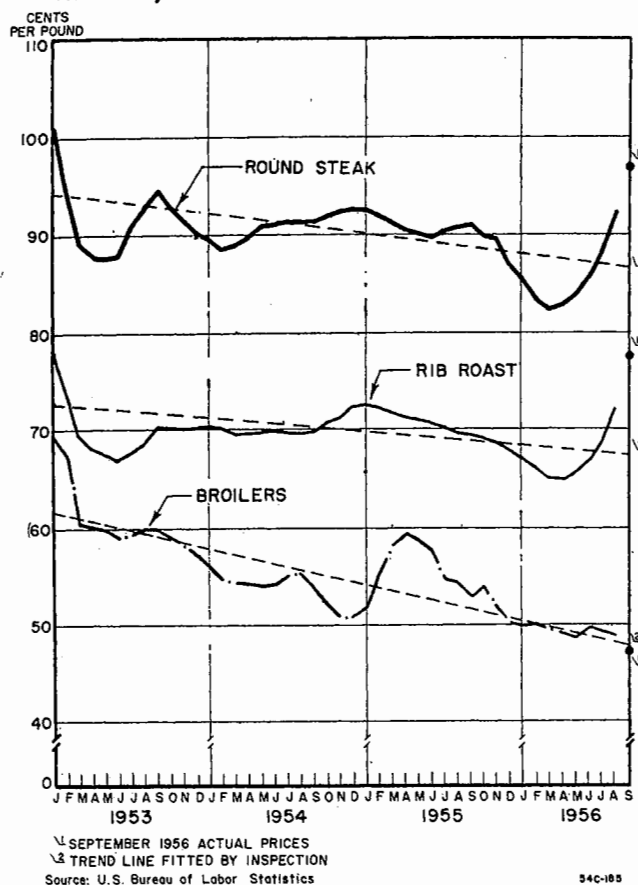


Figure 10

Table 14.—BROILER-FEED PRICE RATIOS,¹ UNITED STATES, BY MONTHS: JANUARY 1947 THROUGH SEPTEMBER 1956

Year	January	February	March	April	May	June	July	August	September	October	November	December	Average
1947.....	6.4	5.6	6.1	6.2	6.6	6.5	6.3	6.2	6.4	6.1	5.5	6.0	6.2
1948.....	6.0	5.8	6.2	6.4	6.5	6.6	6.4	6.9	7.1	6.7	6.6	6.9	6.5
1949.....	6.3	5.9	6.2	6.2	5.6	5.4	5.4	5.9	5.8	5.6	6.0	5.4	5.8
1950.....	4.5	5.6	6.3	6.0	5.6	5.5	5.9	6.0	6.0	5.4	5.1	4.8	5.6
1951.....	5.1	5.6	5.8	5.8	5.4	5.6	5.5	5.6	5.4	4.8	4.7	4.6	5.3
1952.....	5.1	5.2	5.0	4.8	4.4	4.7	5.2	5.4	5.4	5.2	5.7	5.4	5.1
1953.....	5.2	5.2	5.3	5.3	5.2	5.0	5.4	5.4	5.2	5.2	5.1	4.5	5.2
1954.....	4.6	4.3	4.4	4.5	4.3	4.5	4.7	4.0	4.3	4.0	3.9	3.7	4.3
1955.....	4.7	4.0	5.8	5.5	5.3	5.4	5.3	5.4	5.2	4.5	4.4	4.1	5.0
1956.....	4.2	4.4	4.6	4.2	4.2	3.9	4.3	3.8	3.6				

¹ Number of pounds of broiler mash equal in value to 1 pound of broiler—live weight.

FARMERS AND FARM PRODUCTION

AVERAGE RETAIL PRICE PER POUND OF BROILERS IN
THREE CITIES BASED ON 3-MONTH MOVING
AVERAGE: 1953 TO 1956

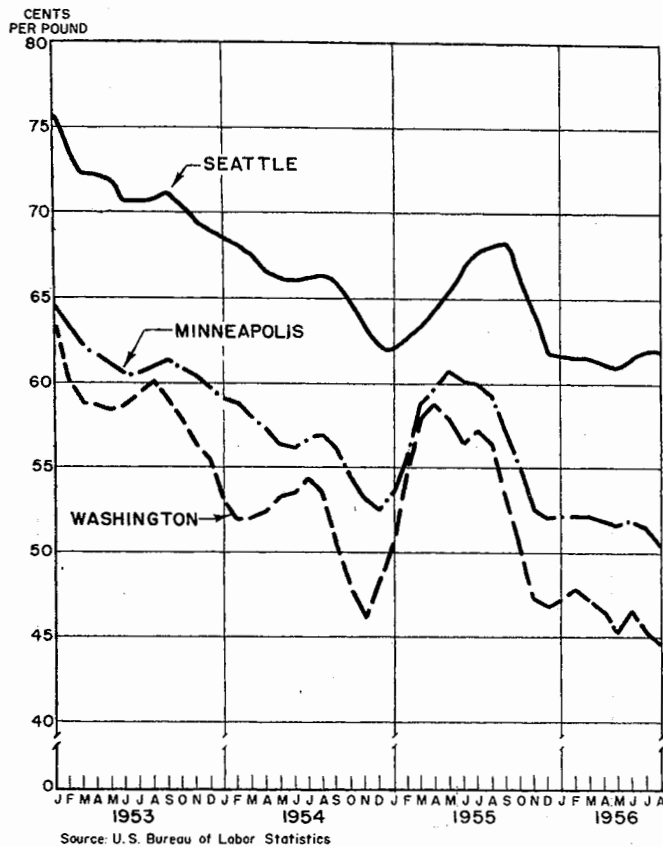


Figure 11

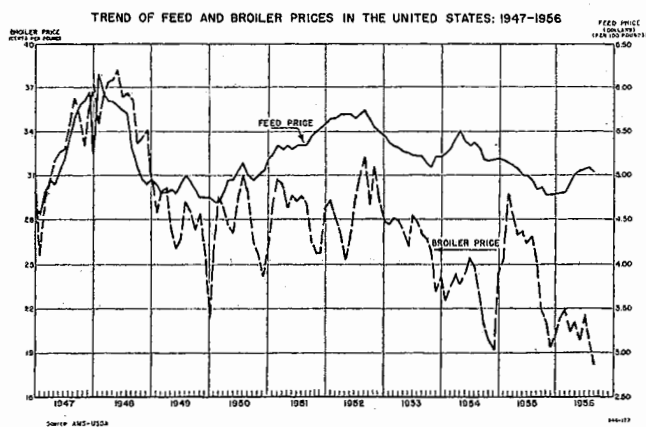


Figure 12

has been due to several factors, such as the development of better strains of birds through an effective breeding program, improved feeding and management practices, and a great improvement in the quality of feed.

In addition to the increase in feed efficiency there have been other gains in operation efficiency. Improvements have been made in sanitation and disease control. Increases in the size of broiler enterprises have made for more efficient use of labor and capital.

Table 15.—ESTIMATED AVERAGE POUNDS OF FEED FED TO
BROILERS PER BIRD, UNITED STATES: YEAR BEGINNING OCTO-
BER 1, 1933 TO 1955

Year	Pounds of feed per bird	Year	Pounds of feed per bird
1933.....	12.3	1945.....	12.3
1934.....	12.0	1946.....	11.9
1935.....	12.5	1947.....	11.5
1936.....	11.8	1948.....	11.5
1937.....	12.7	1949.....	10.2
1938.....	11.7	1950.....	10.3
1939.....	11.9	1951.....	9.8
1940.....	12.3	1952.....	9.2
1941.....	12.0	1953.....	9.2
1942.....	12.5	1954.....	9.0
1943.....	11.8	1955.....	8.8
1944.....	12.0		

Source: Agricultural Research Service, United States Department of Agriculture.

Production of Turkeys and Other Poultry Products

Turkeys.—Turkeys constituted a small sideline enterprise on many farms in 1910. The growing of turkeys has now become a highly commercial affair. At that earlier date, 870,000 farmers reported 3½ million turkeys on hand, averaging 4 turkeys per farm. In 1954, 170,000 farmers raised 63 million turkeys, averaging 370 per farm. Some farmers reported as many as 20,000 turkeys in a single flock. The number of ducks raised each year has been continued at about some 11 million birds but there has been gradually distinct concentrations in specific areas.

Until about 25 years ago, a few turkeys could be found on about a tenth of our farms. They were used mainly to add to the family meat supply but some were sold locally. In 1929 there were 638,000 farms reporting turkeys raised, with an average of 26 turkeys raised per farm. By 1939 the number of farms with turkeys had decreased to 390,000 but the average number raised per farm had more than doubled.

After 1940 the number of farms raising turkeys continued to decline, but the number of birds raised increased rapidly. From 1944 to 1954 the number increased from 27 million to 63 million, and the average number raised per farm was 370 in 1954. This average does not fully indicate the size of the turkey enterprise on many farms. The tendency toward larger flocks has been general in all parts of the country. A large proportion of the turkey crop

Table 16.—NUMBER OF TURKEYS RAISED IN 16 LEADING STATES:
1954

State	Number farms reporting	Number turkeys raised	Average per farm reporting
California.....	6,125	9,911,034	1,618
Minnesota.....	2,029	7,055,002	2,684
Virginia.....	5,550	5,104,489	920
Iowa.....	2,163	4,265,787	1,972
Texas.....	25,356	2,805,988	111
Ohio.....	3,198	2,532,026	792
Missouri.....	4,427	2,394,903	541
Pennsylvania.....	5,380	2,361,410	438
Utah.....	1,001	2,303,637	2,301
Indiana.....	2,167	2,033,179	943
Wisconsin.....	1,504	1,660,672	1,042
West Virginia.....	2,280	1,702,836	747
Oregon.....	2,386	1,501,596	629
Arkansas.....	5,213	1,392,286	267
South Carolina.....	5,023	1,353,799	270
Michigan.....	2,336	1,107,880	474
Total.....	76,827	49,486,524	644

Table 17.—PERCENT DISTRIBUTION OF FARMS REPORTING TURKEYS RAISED, BY NUMBER RAISED, FOR THE UNITED STATES AND SELECTED STATES: 1939 TO 1954

State and number of turkeys raised per farm	Percentage distribution for each year			
	1939	1949	1954	
			Light breeds	Heavy breeds
United States:				
Under 100.....	87.6	83.0	89.9	80.7
100 to 799.....	11.0	11.0	5.4	8.9
800 and over.....	1.3	6.0	4.7	10.2
Minnesota:				
Under 100.....	77.4	37.2	51.6	29.4
100 to 799.....	18.3	25.9	11.6	11.4
800 and over.....	4.3	36.9	36.8	59.2
California:				
Under 100.....	71.8	76.3	88.1	71.7
100 to 799.....	18.2	7.4	4.1	6.3
800 and over.....	10.0	16.3	7.8	22.0
Virginia:				
Under 100.....	91.9	84.5	77.9	78.8
100 to 799.....	7.1	7.4	3.5	6.4
800 and over.....	1.1	8.1	18.5	14.8
Missouri:				
Under 100.....	88.5	76.6	80.5	70.4
100 to 799.....	11.2	14.5	9.4	11.2
800 and over.....	.3	8.9	10.1	18.4
Texas:				
Under 100.....	88.2	84.0	92.6	80.9
100 to 799.....	11.8	15.2	6.0	14.1
800 and over.....	.1	.8	1.4	5.0
Utah:				
Under 100.....	63.9	46.8	77.4	58.2
100 to 799.....	15.6	6.2	2.4	4.6
800 and over.....	20.5	47.1	20.2	37.2
Wisconsin:				
Under 100.....	80.5	73.6	77.4	67.9
100 to 799.....	11.5	13.4	11.2	13.5
800 and over.....	2.0	13.0	11.4	18.6
Nebraska:				
Under 100.....	84.1	63.4	82.9	70.9
100 to 799.....	14.7	16.0	5.5	9.0
800 and over.....	1.1	20.5	11.6	20.1
Ohio:				
Under 100.....	84.3	72.0	69.9	57.7
100 to 799.....	13.6	18.7	18.5	17.0
800 and over.....	2.1	9.3	11.6	24.4
Pennsylvania:				
Under 100.....	83.6	64.6	62.6	53.0
100 to 799.....	14.7	28.3	27.6	32.3
800 and over.....	1.7	7.2	9.8	14.7
Iowa:				
Under 100.....	81.0	54.4	69.1	36.0
100 to 799.....	11.0	12.5	11.1	11.2
800 and over.....	8.0	33.1	19.8	52.8

is raised by relatively large operators. In fact, turkey production today is generally a large-scale commercial proposition. Flocks of 5,000 to 15,000 birds are frequent in the more important commercial areas.

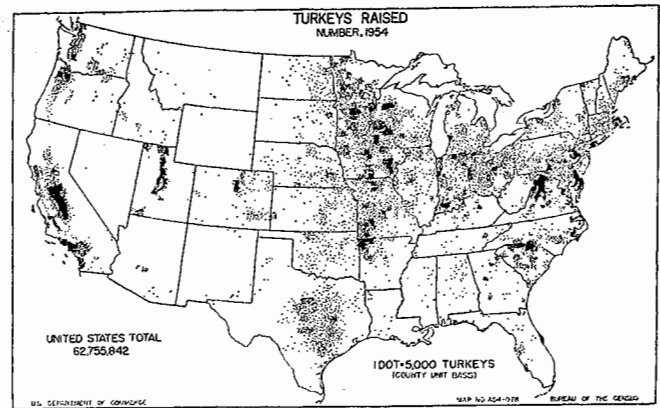


Figure 13

In the main turkey States, except Texas, production is generally concentrated on farms that have relatively large flocks. In Texas, a leading turkey-raising State, the enterprise has not been concentrated on large-scale farms of commercial type. In 1930 the average flock in Texas was 30 birds; by 1954 the average had increased only to 111. The average size of flock in other important turkey-producing States in 1954 was 2,301 for Utah, 1,972 for Iowa, and 2,684 for Minnesota.

Turkey production is highly concentrated in the chief producing areas. The 16 leading turkey-growing States produced 79 percent of the turkeys raised in 1954. Of the 63 million turkeys raised in 1954, 31 million or almost half, were raised in the 100 leading turkey-producing counties.

There has been a definite trend toward larger turkey flocks during the last 15 years in all areas except Texas. In the United States only 1.3 percent of the flocks contained over 800 birds in 1939, as compared with 10.2 (for heavy breeds) in 1954. In 1954, Minnesota had a higher percentage (59.2 percent for heavy breeds) of flocks with more than 800 turkeys than any of the important turkey-producing States. Fifteen years earlier only 4.3 percent of the turkey flocks exceeded 800 birds. The percentage of the farms with less than 100 turkeys raised in Minnesota dropped from 77.4 percent in 1939 to 29.4 in 1954. The change in Iowa was somewhat similar to that of Minnesota.

In Texas relatively small flocks have continued to exist. Only 5 percent of the flocks had more than 800 turkeys in 1954.

Ducks.—The extent of duck raising has not changed much. For 25 years the number raised annually has been about 11 million. But there has been a decided reduction in the number of farmers who raise ducks. In 1929, almost half a million farms reported ducks raised, by 1954 the number had declined to 200,000. The number of ducks raised per farm reporting has more than doubled during the last 25 years.

Table 18.—NUMBER OF TURKEYS, DUCKS, AND GEESSE RAISED IN THE UNITED STATES: 1929 TO 1954

Year	Turkeys raised			Ducks raised			Geese raised		
	Farms reporting	Number	Average number per farm reporting	Farms reporting	Number	Average number per farm reporting	Farms reporting	Number	Average number per farm reporting
1929.....	637,843	16,794,485	26	470,418	11,337,487	24	396,727	3,989,831	10
1934.....	676,114	5,381,912	8	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
1939.....	389,352	27,933,766	72	178,783	12,138,820	68	85,413	1,152,299	13
1944.....	193,540	27,202,266	141	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
1949.....	162,244	36,434,218	225	212,677	10,342,364	49	94,472	1,160,045	12
1954.....	160,807	62,755,842	370	202,353	11,065,481	55	104,385	1,712,999	16

NA Not available.

Table 19.—NUMBER AND USE OF RESOURCES FOR ALL COMMERCIAL FARMS, AND ALL POULTRY FARMS IN SELECTED SUBREGIONS: 1954

Item	Commercial farms			Poultry farms in selected subregions		
	All commercial farms	Poultry farms		Total	Percentage of all poultry farms	Percentage of all commercial farms
		Total	Percentage of all commercial farms			
Number of farms.....	3,327,880	154,251	4.6	56,525	36.6	1.7
All land in farms..... acres, thousands.....	1,032,493	12,048	1.2	3,365	27.9	0.3
Total cropland..... acres, thousands.....	431,585	4,908	1.2	1,216	24.3	0.3
Value of all farm products sold, total..... dollars, millions.....	24,299	1,486	6.1	734	49.4	3.0
All crops except fruits, nuts, and vegetables..... dollars, millions.....	9,738	52	2.5	16	30.8	0.2
Fruits and nuts..... dollars, millions.....	1,187	10	0.8	6	60.0	0.6
Vegetables for sale..... dollars, millions.....	628	5	0.8	3	60.0	0.5
All livestock, poultry, and their products..... dollars, millions.....	12,223	1,416	11.6	708	50.0	5.8
Dairy products..... dollars, millions.....	3,330	28	0.8	9	32.1	0.3
Poultry and poultry products..... dollars, millions.....	1,907	1,333	69.9	685	51.4	35.9
Other livestock and livestock products..... dollars, millions.....	6,986	55	0.8	14	25.5	0.2
All other products..... dollars, millions.....	525	3	0.6	1	33.3	0.2
Total capital..... dollars, millions.....	110,545	2,727	2.5	1,204	44.2	1.1
Land and buildings..... dollars, millions.....	85,708	2,105	2.6	950	45.1	1.1
Implements and machinery..... dollars, millions.....	14,280	385	2.7	145	37.7	1.0
Livestock and poultry..... dollars, millions.....	10,497	237	2.3	109	46.0	1.0
Man-equivalent of labor..... number, millions.....	4,891,935	179,223	3.7	70,963	39.6	1.5
Chickens 4 months old and over..... dozens, millions.....	340	107	31.5	67	53.3	16.8
Chicken eggs sold..... dollars, millions.....	2,064	1,206	45.3	672	55.7	25.2
Broilers sold..... dollars, millions.....	556	537	96.6	291	54.2	52.3
Other chickens sold..... dollars, millions.....	141	66	46.8	34	51.5	24.1
Other poultry and poultry products..... dollars, millions.....	289	259	89.6	97	37.5	33.6

Production of ducks is important in only a few specialized areas. Of the 11 million ducks raised in the United States during 1954, more than 7 million were reported in 5 States: New York, Michigan, Illinois, Wisconsin, and Massachusetts. Almost 5 million were raised in New York, mostly in Suffolk County, Long Island. Other leading duck-producing counties are Saginaw and Gratiot Counties in Michigan; Lake and Piatt Counties in Illinois; and Racine County in Wisconsin.

Geese.—Comparatively few geese, 1.7 million, are raised in this country. More than a fourth of these were raised in two States—New Mexico with 229,000 and California with 216,000. Minnesota ranked third in the production of geese, with 134,000.

Table 20.—POULTRY FARMS AS A PERCENT OF ALL COMMERCIAL FARMS, BY SUBREGIONS: ¹ 1954

Subregion	Per-cent	Subregion	Per-cent	Subregion	Per-cent	Subregion	Per-cent
United States.....	4.6	30.....	7.3	60.....	1.5	90.....	0.4
1.....	12.2	31.....	3.0	61.....	0.6	91.....	0.9
2.....	29.1	32.....	1.9	62.....	4.6	92.....	0.9
3.....	35.2	33.....	21.1	63.....	1.7	93.....	1.1
4.....	29.0	34.....	8.0	64.....	4.2	94.....	1.5
5.....	31.5	35.....	4.6	65.....	1.8	95.....	3.7
6.....	16.9	36.....	1.0	66.....	3.1	96.....	5.1
7.....	3.0	37.....	2.4	67.....	1.8	97.....	4.8
8.....	7.0	38.....	1.5	68.....	2.8	98.....	6.3
9.....	7.9	39.....	6.3	69.....	1.9	99.....	1.0
10.....	8.3	40.....	10.9	70.....	1.4	100.....	6.1
11.....	25.0	41.....	1.2	71.....	1.9	101.....	1.5
12.....	16.2	42.....	18.0	72.....	5.0	102.....	0.9
13.....	18.2	43.....	11.7	73.....	5.6	103.....	1.0
14.....	21.9	44.....	0.9	74.....	9.7	104.....	0.4
15.....	30.5	45.....	0.5	75.....	0.6	105.....	0.3
16.....	15.2	46.....	4.3	76.....	0.4	106.....	1.7
17.....	14.0	47.....	3.1	77.....	0.9	107.....	2.6
18.....	29.9	48.....	4.5	78.....	3.8	108.....	1.1
19.....	7.8	49.....	3.8	79.....	12.8	109.....	1.0
20.....	8.8	50.....	9.0	80.....	7.5	110.....	3.5
21.....	0.5	51.....	3.4	81.....	9.1	111.....	2.5
22.....	1.0	52.....	4.6	82.....	18.8	112.....	4.0
23.....	1.6	53.....	0.9	83.....	2.1	113.....	4.3
24.....	0.9	54.....	1.0	84.....	3.4	114.....	6.8
25.....	1.9	55.....	4.5	85.....	1.0	115.....	22.8
26.....	20.3	56.....	3.9	86.....	2.1	116.....	6.5
27.....	10.6	57.....	1.2	87.....	2.7	117.....	18.3
28.....	9.4	58.....	5.8	88.....	3.7	118.....	9.9
29.....	4.4	59.....	2.5	89.....	2.0	119.....	16.1

¹ Selected poultry subregions are printed in bold type.

POULTRY FARMS

Importance of poultry farms.—An increasingly large part of poultry production is being produced on specialized commercial poultry farms. This trend seems likely to continue. Information on the organization and operation of these farms consequently gives considerable insight into prospective as well as current conditions in poultry production. Poultry farms comprise less than one-twentieth of all commercial farms in the United States but they contain less than one-eighth of the total farmland and cropland in all commercial farms. Poultry farms account for almost one-sixteenth of the value of all farm products sold, but this relative position is mainly the result of the use of relatively large quantities of purchased feed.

Poultry farms account for a smaller proportion of the total capital investment and labor force than they do of the total number of farms. On poultry farms the sales of poultry and poultry products represent almost the only source of farm income.

Poultry farms generally have much less land than most other types of farms. Almost two-thirds of all poultry farms have less than 70 acres each. Only 30 percent of all commercial farms have less than 70 acres.

Poultry farms had about a third of the chickens that were 4 months old and over on all commercial farms, in 1954. In that year, they accounted for 70 percent of all poultry and poultry products sold, 45 percent of the chicken eggs sold, and nine-tenths or more of the broilers sold and turkeys raised.

Important poultry areas.—In order to indicate the characteristics of poultry farms by size of business, 16 of the 119 economic subregions have been selected as poultry subregions because of the relative importance of specialized poultry farms (figure 15). In these subregions a considerable percentage of the farms are poultry-type farms; that is, the farms obtain more than 50 percent of their income from poultry and poultry products. However, only two subregions (subregions 3 and 18) are considered to be mainly poultry subregions. Subregions 2, 4, and 5 are poultry and dairy subregions. In subregion 82 poultry (mainly broilers) and cotton production are important. In the other 10 subregions poultry farming is combined with other kinds of farm enterprises such as livestock, general farming, field crops, and fruits and nuts. The particular combination is usually determined by the background, habits, and traditions of the earlier settlers in the locality

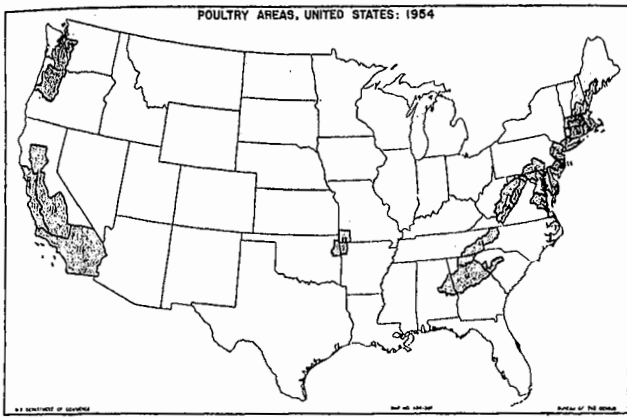


Figure 14

as well as their aptitudes and skills; however, the influence that finally determines the combination of farm enterprises is the relative economic advantage of the various enterprises in an area.

Taken together, the production on poultry farms in these subregions accounts for about one-third of all poultry farms in the United States and for more than half of all poultry products sold on poultry farms. In general, poultry farms in other areas are smaller and less specialized.

In the selected subregions the poultry enterprise is generally important. However, poultry farms are not the most important type of farm in any of these subregions. These 16 selected subregions contain more than one-third of all the poultry farms in the United States.

A brief description of the agriculture in the 16 selected poultry subregions follows:¹

Subregion 2 comprises the southwestern counties of Maine and the southern tier of counties in New Hampshire. It is unusual in two respects: (1) Only about half of the farms are commercial farms; the other half are either part-time or residential farms that provide homes for families who earn their living in nearby factories or in other nonagricultural work. (2) Poultry production has gradually replaced dairying in many places. The income from poultry and poultry products accounts for more than 40 percent of the total farm income in some parts and dairying for another 30 percent. Other considerable sources of farm income include hay, fruits and vegetables, and tobacco. Most of the poultry income is from egg production but broiler production is also valuable.

Subregion 3 includes eastern Massachusetts and all of Rhode Island. It has some of the same characteristics as subregion 2. Poultry farming is the principal commercial type of farming, followed by dairy, fruits (especially cranberries), and vegetables, and the growing of large quantities of flowers under glass. Many of the farms are part-time and residential farms.

Subregion 4 has a very large proportion of part-time and residential farms. A wide belt is covered, including west central Massachusetts and the eastern two-thirds of Connecticut. Notable distinction between this subregion and subregions 2 and 3 is the large quantity of tobacco grown in the Connecticut River Valley. Poultry is a principal source of farm income.

Subregion 5 comprises about the northern half of New Jersey, the metropolitan area of New York City, Long Island, and part of Connecticut. It includes more than 15 million inhabitants—one of the greatest concentrations of population in the United States. The part that is farmed can be characterized by many specialized as well as many residential and part-time farms. The relatively high land values encourage a type of farming that produces a large volume on a small area. Under these conditions, poultry

can compete favorably, hence it is much more important than any other type of farming; it outranks both dairying and potato production.

Subregion 14 is relatively small, consisting of three counties nestled between subregions 5 and 15. It is characterized by heavy poultry production similar to that in the two adjoining subregions.

Subregion 15 is relatively large, including southern New Jersey, all of Delaware, eastern Maryland, and two counties in Virginia. It includes the Delmarva Peninsula and eastern Virginia and also Sussex County in southern Delaware—the county with the greatest concentration of broiler production in the United States. The northern counties in the subregion have a high proportion of well-drained loam and silt-loam soils suited to staple crops like wheat, corn, and hay. Dairying has become a main source of farm income. In the southern counties where more sandy soils exist, poultry and large-scale truck farming provide a large proportion of the farm income. The principal truck crops are tomatoes, green beans, lima beans, cantaloups, cucumbers, watermelons, Irish potatoes, and sweetpotatoes. Throughout the subregion, a type of agriculture has developed that gives a large return per acre of land. Poultry production has become one of the most important farm enterprises.

Subregion 18 covers a strip in northwestern Virginia that runs northeast and southwest. It comprises the part of the Valley of Virginia that is drained by the Shenandoah River. The land is level to rolling, and fertile. Poultry and fruit production are leading farm enterprises in the area.

Subregion 26 includes the central part of the Great Valley in Virginia and the adjoining ridges and mountains. Much of the land is hilly or mountainous. The cropland has been devoted mainly to the growing of corn, wheat, or hay, much of which

NUMBER OF BROILERS SOLD IN POULTRY SUBREGIONS: 1954

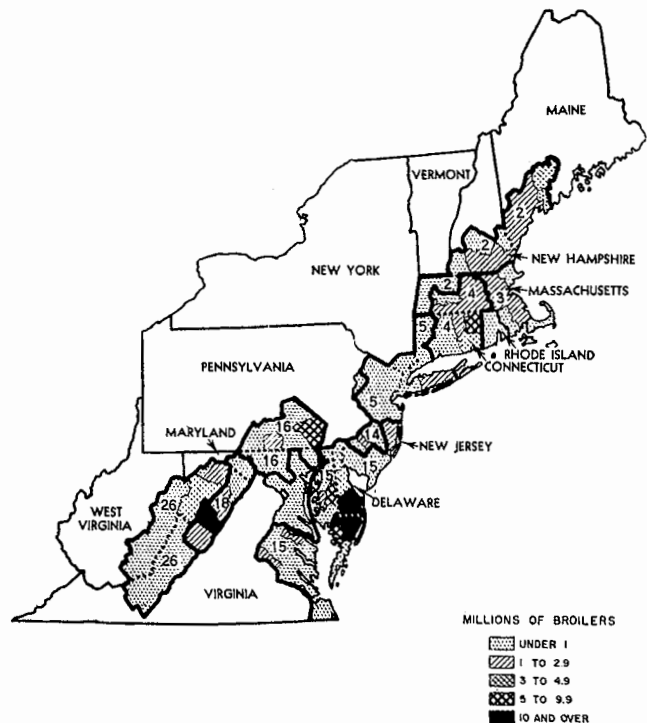


Figure 15

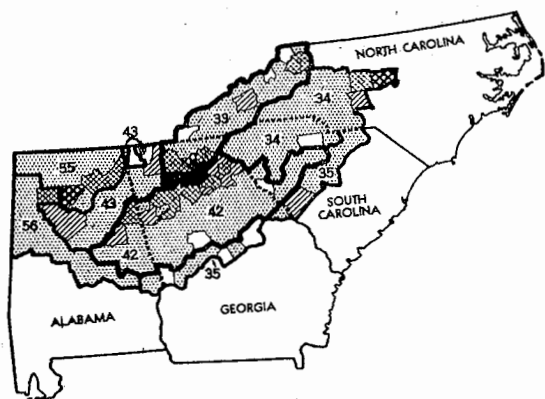
¹ The description is based largely on material from a forthcoming monograph on Systems of Economic Areas prepared by D. J. Bogue and C. L. Beale and to be published by the Scripps Foundation for Research in Population Problems in cooperation with Agricultural Marketing Service, United States Department of Agriculture.

is used for livestock feed. Broiler production on a commercial scale has grown during the last 25 years, but the income from the poultry farms is less than that from similar farms in many of the other selected subregions.

Subregion 33 encompasses the Blue Ridge Mountains and the associated valleys and plateaus in western North Carolina and northern Georgia. Most of the farms here are of a subsistence type; only a limited quantity of farm products are sold through market channels. About half of the land is in farms and only one-fourth of the farmland can be classified as cropland. Income per farm is generally low. More than nine-tenths of the farms are in Economic Classes V, VI, and VII. Many of the farmers supplement their farm income by work off the farm. The leading sources of farm income include tobacco, poultry, livestock, dairy products, vegetables, and corn. The harvesting of timber and forest products provides some income.

The southern tier of counties borders on subregion 42, one of the more highly commercialized broiler localities of the United States. The majority of the farms here are poultry farms. Compared with the other commercial farms of the subregion, incomes are relatively high.

NUMBER OF BROILERS SOLD IN POULTRY SUBREGIONS: 1954



MILLIONS OF BROILERS

UNDER 1
1 TO 2.9
3 TO 4.9
5 TO 9.9
10 AND OVER
NO BROILERS SOLD

A54-520

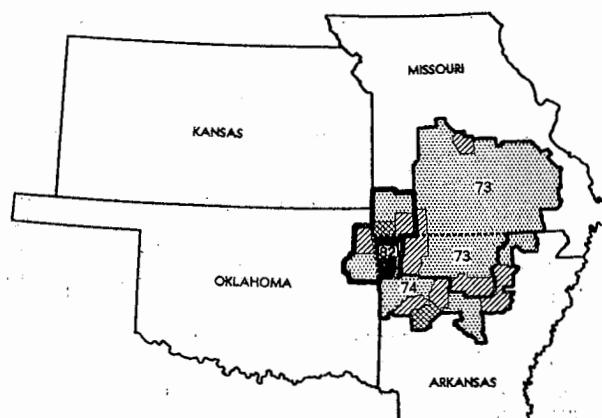
Figure 16

Subregion 42 is comprised mainly of the Georgia Piedmont but extends into South Carolina and Alabama. Cotton (until recent years the principal crop), and other row crops, have been largely replaced by livestock, dairy, and poultry, as major sources of income. The land in parts of this subregion is relatively level, but much of it is rolling or even hilly, so that when cotton was the principal crop, soil erosion was a serious problem. On several million acres the cultivation of crops has been abandoned, and the land has been returned to forest or planted to soil-conserving crops. The agriculture of the entire region has undergone fundamental changes during the last four decades. The

number of farms has been reduced by almost half in 35 years. The 66 counties in this subregion include 6 of the larger broiler-producing counties in the Nation.

Subregion 82 centers in northwestern Arkansas, southwestern Missouri, and northeastern Oklahoma. The heart of broiler production of this subregion is in the two northwestern counties of Arkansas—Washington and Benton—the second and third ranking counties nationally in broiler production, in 1954, with a total of more than 34 million birds.

NUMBER OF BROILERS SOLD, FOR SUBREGIONS 73, 74, AND 82: 1954



MILLIONS OF BROILERS

UNDER 1
1 TO 2.9
3 TO 4.9
5 TO 9.9
10 AND OVER

A54-521

Figure 17

Subregion 115 includes a considerable area of irrigated land, which grows large quantities of fruits, vegetables, sugar beets, flax, dry beans, and hay. Dairy and poultry farming are important farm enterprises. Livestock ranches occupy the rougher and drier parts of the subregion.

Subregion 116 has the largest concentration of fruit farms and vineyards in the United States. The production of fruits, vegetables, and other cash crops are the chief farm enterprises. Dairy and poultry production and livestock ranching are prevalent in certain parts.

Subregion 117 the Central Pacific Coast subregion, is important in poultry and in fruits and vegetables. Parts that are too rough for crop farming are occupied by livestock ranches. Poultry farms are numerous and poultry is second to cash crops as a source of farm income. Dairying is also prevalent.

Subregion 119 like the other three Pacific Coast subregions, has considerable diversification of agriculture. In that part of the area lying in the State of Washington, dairy farms outnumber poultry farms, but poultry has a noteworthy place. In the part that lies in Oregon, the number of fruit-and-nut farms exceeds the number of farms of other types.

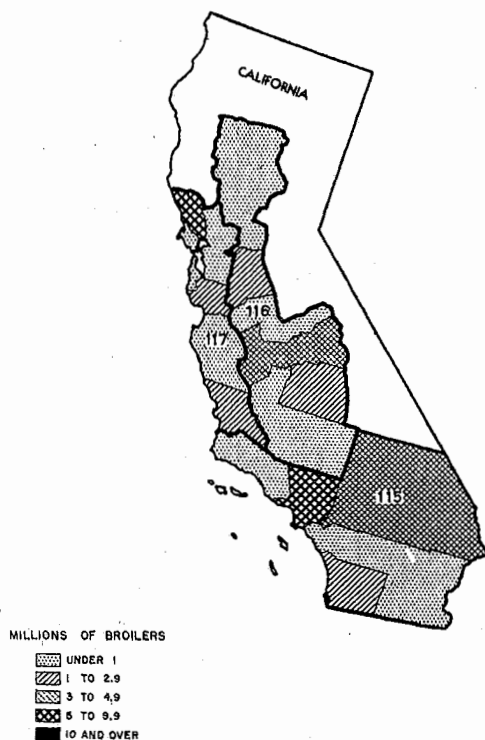
NUMBER OF BROILERS SOLD, FOR SUBREGIONS
115, 116, AND 117: 1954

Figure 18

A54-522

NUMBER OF BROILERS SOLD, FOR SUBREGION 119: 1954

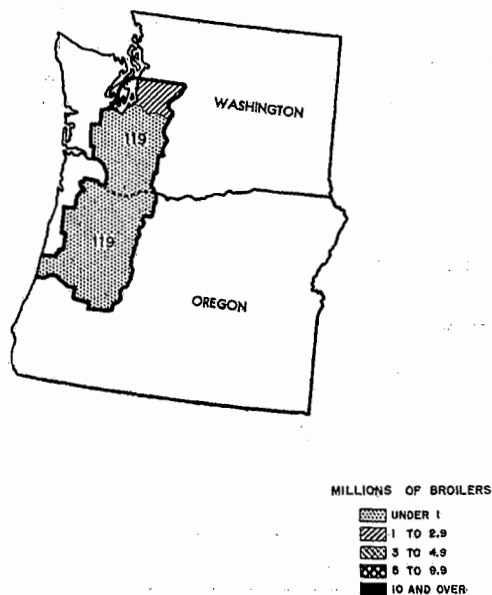


Figure 19

A54-534

The four poultry subregions on or near the Pacific Coast (115, 116, 117, and 119), produce eggs, broilers, and turkeys in large quantities. In 1954, these four subregions accounted for almost 50 percent of the turkeys, 12 percent of the broilers, and 5 percent of the eggs, produced in the 16 selected poultry subregions.

Characteristics of Poultry Farms by Economic Class of Farm

Poultry farms in the 16 selected subregions include 37 percent of all poultry farms in the United States and account for half the value of all poultry and poultry products sold from all poultry farms, and 44 percent of the total capital invested in all poultry farms (see table 19).

The characteristics of poultry farms in the United States and in the 16 selected subregions are similar. Of the total poultry farms in the United States, 27 percent were in Economic Classes I and II, compared with 17 percent of all commercial farms. On the other hand, 37 percent of all poultry farms in the United States and 21 percent of all poultry farms in the selected subregions were in Economic Classes V and VI. Table 21 shows the percentage

Table 21.—DISTRIBUTION OF SELECTED RESOURCES ON ALL
POULTRY FARMS AND ON POULTRY FARMS IN SELECTED POULTRY
SUBREGIONS, BY ECONOMIC CLASS OF FARM: 1954

Item	Percent distribution by economic class of farm						
	Total	I	II	III	IV	V	VI
ALL POULTRY FARMS IN THE UNITED STATES							
Number of farms.....	100.0	8.5	18.5	18.5	17.9	18.8	17.8
All land in farms.....acres.....	100.0	17.8	22.5	18.9	15.7	13.4	11.7
Total cropland.....acres.....	100.0	19.6	23.5	19.0	15.6	12.5	9.8
Capital invested.....dollars.....	100.0	21.6	25.5	18.3	14.3	12.5	7.7
Man-equivalent of labor.....	100.0	19.9	22.8	18.1	14.6	12.5	12.3
Value of all farm products sold, total dollars.....	100.0	43.7	30.2	14.2	7.1	3.7	1.2
All crops except fruits, nuts, and vegetables.....dollars.....	100.0	33.3	30.0	18.7	11.2	5.3	1.6
Fruits and nuts.....dollars.....	100.0	45.3	25.0	12.2	11.1	4.0	2.5
Vegetables for sale.....dollars.....	100.0	24.7	34.6	20.2	12.1	6.6	1.9
All livestock, poultry, and their products.....dollars.....	100.0	44.1	30.2	14.0	6.9	3.6	1.2
Dairy products.....dollars.....	100.0	29.1	36.3	16.9	9.4	5.9	2.4
Poultry and poultry products.....dollars.....	100.0	44.8	30.4	13.8	6.0	3.3	1.1
Other livestock and livestock products.....dollars.....	100.0	35.4	24.4	16.2	11.9	8.4	3.6
All other products.....dollars.....	100.0	27.5	31.2	20.5	11.6	6.1	3.1
Chickens 4 months old and over.....number.....	100.0	45.1	33.1	14.1	5.4	1.9	.4
Chicken eggs sold.....dozens.....	100.0	28.0	33.0	18.3	11.1	6.8	2.8
Broilers sold.....dollars.....	100.0	47.3	33.6	13.4	4.5	1.2	.1
Other chickens sold.....dollars.....	100.0	27.5	29.1	19.5	12.5	8.1	3.2
Other poultry and poultry products sold.....dollars.....	100.0	71.5	20.1	5.0	1.8	.8	.2
POULTRY FARMS IN SELECTED POULTRY SUBREGIONS							
Number of farms.....	100.0	11.7	25.2	23.1	18.9	14.5	6.6
All land in farms.....acres.....	100.0	22.3	27.0	21.4	14.7	9.8	4.7
Total cropland.....acres.....	100.0	26.0	28.4	20.3	13.5	8.2	3.5
Capital invested.....dollars.....	100.0	25.7	29.9	20.1	12.5	8.2	3.6
Man-equivalent of labor.....	100.0	24.5	28.4	19.9	13.7	8.9	4.5
Value of all farm products sold, total dollars.....	100.0	47.6	30.9	13.3	5.7	2.2	.4
All crops except fruits, nuts, and vegetables.....dollars.....	100.0	43.6	29.4	15.7	7.8	2.7	.7
Fruits and nuts.....dollars.....	100.0	47.0	27.8	14.2	7.0	2.9	.5
Vegetables for sale.....dollars.....	100.0	35.0	37.6	15.5	8.0	3.3	.7
All livestock, poultry, and their products.....dollars.....	100.0	47.7	30.9	13.2	5.6	2.2	.4
Dairy products.....dollars.....	100.0	36.2	37.2	16.1	6.5	3.4	.6
Poultry and poultry products.....dollars.....	100.0	48.1	30.9	13.1	5.5	2.1	.3
Other livestock and livestock products.....dollars.....	100.0	37.2	28.7	16.9	10.7	5.2	1.3
All other products.....dollars.....	100.0	38.2	32.7	18.1	6.3	3.4	1.3
Chickens 4 months old and over.....number.....	100.0	29.3	37.0	18.0	9.3	5.0	1.5
Chicken eggs sold.....dozens.....	100.0	33.0	38.6	16.7	7.6	3.4	.7
Broilers sold.....dollars.....	100.0	50.8	30.5	12.8	4.7	1.2	(Z)
Other chickens sold.....dollars.....	100.0	33.8	33.1	17.7	9.3	4.7	1.3
Other poultry and poultry products sold.....dollars.....	100.0	79.0	14.5	4.4	1.3	.6	.1

Z .05 percent or less.

distribution by economic class of farm, of selected resources for all poultry farms in the United States, and for poultry farms in the selected poultry subregions.

Comparisons by economic class between poultry farms and other types of farms are of limited usefulness because of the large expenditures for feed and other items used in production, on poultry farms. The total of specified expenditures on poultry farms are equivalent to about three-fourths of the total received from gross sales. This compares with about two-fifths for commercial farms as a group.

Size of poultry farms.—Specialized poultry farms are usually not very large from the standpoint of area. In most of the 16 selected subregions, poultry farms with less than 29 acres comprise one-half or more of all commercial farms under 29 acres in size. The average size of poultry farms decreases with the decrease in gross sales. Poultry farms in Class I averaged 163 acres of land per farm compared with only 51 acres for farms in Class VI. Accompanying the decrease in size of farm was an even greater decrease in the proportion of the land used in crops. Almost one-third of the land in Class I farms was in harvested crops compared with one-fifth for Class V farms and one-sixth in Class VI farms. The crops raised showed little change between economic classes of farms other than smaller average acreages—corn and hay were equally divided, and represented approximately half of the cropland harvested on farms in each economic class. Wide variations from this pattern are evident in the different subregions.

Table 22.—DISTRIBUTION OF ALL COMMERCIAL AND POULTRY FARMS BY SIZE OF FARM: 1954

Size of farm	All commercial farms in the United States	All poultry farms in the United States	Poultry farms in selected poultry subregions
Percent distribution by size of farm:			
Total number of farms.....	100	100	100
Under 10 acres.....	4	28	33
10 to 29 acres.....	11	18	21
30 to 69 acres.....	15	21	20
70 to 139 acres.....	23	20	15
140 to 259 acres.....	25	10	7
260 to 499 acres.....	14	4	2
500 acres and over.....	9	1	1
Average size of farms.....acres..	310	78	60

There are significant differences among the selected subregions in the distribution of poultry farms, of gross sales, and total investment by economic class of farm. (See Table 23.) In subregions 15 and 116, almost half of the poultry farms are in Economic Classes I and II; on the other hand, only one-fourth of the poultry farms in subregions 16, 33, and 119 are in these two economic classes. For the 16 selected subregions, more than 78 percent of the gross sales of all farm products on poultry farms are on farms in Economic Classes I and II. In subregions 2, 4, 15, 115, 116, and 117, four-fifths or more of the gross sales on poultry farms come from farms in Economic Classes I and II. Gross sales on poultry farms in Economic Classes IV, V and VI, represent less than 10 percent of the gross sales of all poultry farms except in subregions 4, 16, 18, 26, 33, 42, and 119.

The investment in land and buildings, livestock and poultry, and machinery on poultry farms in Economic Classes I and II, comprises 56 percent of the total investment on all poultry farms. Among the 16 selected subregions the proportion of the total investment on all poultry farms in Economic Classes I and II varies considerably. In subregion 116, more than half of the total investment is on farms in Economic Classes I and II; in subregion 42, farms in Economic Classes I and II have less than a fifth of the total investment on all poultry farms in the subregion.

Table 23.—PERCENT DISTRIBUTION OF POULTRY FARMS, GROSS SALES, AND TOTAL INVESTMENT, BY ECONOMIC CLASS OF FARM, FOR SELECTED SUBREGIONS: 1954

Item and subregion	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of poultry farms:							
Total, 16 selected subregions.....	100.0	11.7	25.2	23.1	18.9	14.5	6.6
Subregion 2.....	100.0	15.9	24.1	19.5	17.2	13.9	9.4
Subregion 3.....	100.0	9.8	21.6	21.0	19.7	18.0	9.0
Subregion 4.....	100.0	17.5	27.1	15.2	17.1	17.6	5.5
Subregion 5.....	100.0	11.5	28.8	22.3	18.7	11.3	7.4
Subregion 14.....	100.0	9.0	32.3	26.3	14.3	11.3	6.8
Subregion 15.....	100.0	17.0	37.2	19.6	11.8	8.4	6.1
Subregion 16.....	100.0	7.2	16.7	18.5	21.3	23.2	13.1
Subregion 18.....	100.0	14.8	17.6	19.5	21.8	17.6	8.7
Subregion 26.....	100.0	6.7	18.0	28.5	20.6	18.6	7.6
Subregion 33.....	100.0	4.1	18.7	24.3	23.8	19.1	9.9
Subregion 42.....	100.0	6.4	22.7	31.0	22.8	14.0	3.6
Subregion 82.....	100.0	7.5	27.1	29.0	20.7	10.7	5.0
Subregion 115.....	100.0	14.7	30.1	24.0	16.7	12.0	2.5
Subregion 116.....	100.0	24.3	23.4	22.1	15.0	11.4	3.8
Subregion 117.....	100.0	14.9	28.8	23.0	16.9	11.9	4.4
Subregion 119.....	100.0	7.6	17.7	21.7	25.2	19.3	8.6
Gross sales on poultry farms:							
Total, 16 selected subregions.....	100.0	47.6	30.9	13.3	5.7	2.2	0.4
Subregion 2.....	100.0	57.5	28.5	9.3	4.5	1.7	0.4
Subregion 3.....	100.0	39.8	34.4	14.7	7.3	3.1	0.7
Subregion 4.....	100.0	58.6	27.5	6.9	4.3	2.5	0.3
Subregion 5.....	100.0	40.5	37.4	13.7	5.9	2.0	0.5
Subregion 14.....	100.0	21.3	51.4	19.9	5.2	2.0	0.4
Subregion 15.....	100.0	55.9	32.4	8.2	2.5	0.9	0.2
Subregion 16.....	100.0	41.7	29.1	14.6	9.0	4.6	1.0
Subregion 18.....	100.0	56.3	21.9	11.6	7.1	2.7	0.5
Subregion 26.....	100.0	31.2	31.5	23.9	8.7	4.1	0.5
Subregion 33.....	100.0	22.4	36.9	22.9	11.6	5.1	1.1
Subregion 42.....	100.0	28.3	35.8	23.6	9.2	2.9	0.3
Subregion 82.....	100.0	31.3	38.2	20.9	7.4	1.8	0.4
Subregion 115.....	100.0	50.8	31.3	11.9	4.3	1.5	0.1
Subregion 116.....	100.0	70.5	17.9	7.5	2.7	1.1	0.1
Subregion 117.....	100.0	52.2	30.5	11.2	4.1	1.9	0.2
Subregion 119.....	100.0	39.8	29.3	16.3	9.9	3.0	0.8
Total investment in land and buildings, livestock and poultry, and machinery:							
Total, 16 selected subregions.....	100.0	25.7	29.9	20.1	12.5	8.2	3.6
Subregion 2.....	100.0	30.5	26.9	16.5	12.3	9.0	4.9
Subregion 3.....	100.0	25.3	24.0	18.8	13.4	13.4	5.2
Subregion 4.....	100.0	32.1	30.6	12.4	11.7	10.7	2.5
Subregion 5.....	100.0	19.8	32.5	19.3	14.2	7.7	6.5
Subregion 14.....	100.0	16.0	33.9	23.0	12.7	9.7	4.7
Subregion 15.....	100.0	28.2	42.5	16.1	6.6	4.5	1.9
Subregion 16.....	100.0	20.8	26.2	18.3	15.7	13.7	5.2
Subregion 18.....	100.0	33.4	22.3	16.3	15.9	8.3	4.0
Subregion 26.....	100.0	17.9	23.4	28.2	14.2	12.7	3.6
Subregion 33.....	100.0	10.7	25.1	21.4	21.3	14.1	7.2
Subregion 42.....	100.0	14.1	29.3	28.4	16.5	9.3	2.3
Subregion 82.....	100.0	17.6	34.5	24.7	13.9	7.0	2.4
Subregion 115.....	100.0	26.6	27.2	25.0	10.5	7.2	3.5
Subregion 116.....	100.0	49.6	21.8	14.7	8.1	4.7	1.1
Subregion 117.....	100.0	27.1	32.4	22.5	10.1	5.6	2.2
Subregion 119.....	100.0	18.7	24.4	20.9	20.6	10.9	4.5

Table 24.—OPERATORS OF POULTRY FARMS, BY TENURE OF OPERATOR: 1954

Item	All poultry farms in the United States	Poultry farms in selected poultry subregions
Number of farms.....	154, 251	56, 525
Farms operated by—		
Owners, part owners, and managers.....	144, 381	53, 208
Percent of total.....	93.6	94.1
Tenants.....	9, 870	3, 317
Percent of total.....	6.4	5.9

Tenure and age of operator.—More than 9 in 10 poultry farms are operated by owners, part owners, or managers. The percentage of farms operated by tenants is lower for poultry farms than for any other type of farm. Nearly half of the operators are 55 years old or older (see Table 25). The older operators are found mostly on the smaller operations—Class V and VI farms. More than three-fourths of the operators of Class I farms are less than 55, as are three-fifths of the operators of Class II farms. Three-fourths of the operators of Class VI farms are over this age.

Table 25.—PERCENT DISTRIBUTION OF FARM OPERATORS IN EACH ECONOMIC CLASS OF FARM, BY AGE, FOR ALL POULTRY FARMS IN SELECTED SUBREGIONS: 1954

Item and age group	Percent distribution for each economic class of farm					
	Total	I	II	III	IV	V VI
All poultry farms in the United States:						
Farm operators reporting age.....	100	100	100	100	100	100
Under 25 years.....	1	1	1	1	1	(Z)
25 to 34 years.....	10	17	15	12	9	8
35 to 44 years.....	20	30	26	24	19	16
45 to 54 years.....	22	29	28	24	25	20
55 to 64 years.....	24	17	21	25	26	25
65 years and over.....	24	6	9	14	20	30
Poultry farms in selected poultry subregions:						
Farm operators reporting age.....	100	100	100	100	100	100
Under 25 years.....	1	1	1	1	1	(Z)
25 to 34 years.....	11	15	13	11	10	9
35 to 44 years.....	22	28	28	23	19	18
45 to 54 years.....	25	30	28	26	25	21
55 to 64 years.....	23	19	21	24	26	24
65 years and over.....	18	7	9	15	20	28

Z 0.5 percent or less.

Table 26.—SOURCE OF FARM INCOME ON POULTRY FARMS, BY ECONOMIC CLASS OF FARM, FOR SELECTED POULTRY SUBREGIONS: 1954

Subregion and item	Average per farm by economic class of farm (dollars)					
	Total	I	II	III	IV	V VI
United States:						
Value of all farm products sold.....	9,634	49,400	15,727	7,359	3,808	1,878 666
All crops except vegetables, fruits, and nuts.....	334	1,304	541	337	210	94 29
Vegetables for sale.....	34	97	63	36	23	12 4
Fruits and nuts.....	67	355	90	44	41	14 9
All livestock and livestock products, total.....	9,179	47,577	14,998	6,919	3,521	1,751 620
Poultry and poultry products.....	8,644	45,485	14,177	6,443	3,190	1,535 523
Eggs.....	3,062	10,730	5,379	2,965	1,845	1,058 418
Broilers.....	3,479	19,305	6,307	2,518	878	222 10
Other chickens.....	426	1,378	671	449	298	183 78
Other poultry products.....	1,677	14,072	1,820	511	169	72 17
Dairy products.....	181	617	354	165	95	57 25
Other livestock and livestock products.....	354	1,475	467	311	236	150 72
All other products.....	20	67	35	23	13	7 4
Subregion 2:						
Value of all farm products sold.....	14,731	53,174	16,242	7,061	3,869	1,803 617
All crops except vegetables, fruits, and nuts.....	106	163	197	111	32	26 18
Vegetables for sale.....	41	83	45	54	27	7 5
Fruits and nuts.....	4	14	(Z)	-----	(Z)	10 (Z)
All livestock and livestock products, total.....	14,541	52,827	15,911	6,872	3,809	1,758 574
Poultry and poultry products.....	14,205	52,059	15,309	6,705	3,706	1,649 542
Eggs.....	7,101	24,919	7,100	4,063	2,593	1,084 335
Broilers.....	5,272	22,478	5,495	1,382	433	160 20
Other chickens.....	1,567	4,596	1,964	1,009	617	817 106
Other poultry products.....	265	66	750	251	63	88 21
Dairy products.....	256	672	467	119	30	49 14
Other livestock and livestock products.....	80	96	135	48	78	60 18
All other products.....	39	87	89	14	1	2 20

Z 50 cents or less.

Table 26.—SOURCE OF FARM INCOME ON POULTRY FARMS, BY ECONOMIC CLASS OF FARM, FOR SELECTED POULTRY SUBREGIONS: 1954—Continued

Subregion and item	Average per farm by economic class of farm (dollars)					
	Total	I	II	III	IV	V VI
Subregion 3:						
Value of all farm products sold.....	10,353	42,086	16,517	7,257	3,822	1,806 723
All crops except vegetables, fruits, and nuts.....	60	268	119	17	14	7 9
Vegetables for sale.....	131	286	335	109	31	9 2
Fruits and nuts.....	17	-----	39	37	1	(Z) 5
All livestock and livestock products, total.....	10,116	41,289	16,018	7,084	3,769	1,790 703
Poultry and poultry products.....	9,988	40,863	15,852	6,802	3,729	1,782 681
Eggs.....	5,514	17,196	9,263	4,694	2,582	1,290 450
Broilers.....	1,622	7,580	3,127	579	311	98 49
Other chickens.....	864	2,392	1,342	801	590	237 137
Other poultry products.....	1,988	13,685	2,120	528	246	150 45
Dairy products.....	98	312	153	128	29	----- 2
Other livestock and livestock products.....	32	124	13	54	11	8 20
All other products.....	29	243	6	10	7	----- 4
Subregion 4:						
Value of all farm products sold.....	15,370	51,370	15,580	6,992	3,838	2,190 763
All crops except vegetables, fruits, and nuts.....	168	743	88	31	30	21 8
Vegetables for sale.....	24	15	43	7	36	14 2
Fruits and nuts.....	47	185	28	30	17	(Z) -----
All livestock and livestock products, total.....	15,120	50,417	15,395	6,916	3,754	2,155 753
Poultry and poultry products.....	14,681	48,922	14,942	6,791	3,716	2,007 706
Eggs.....	5,501	13,791	6,814	3,782	2,397	1,273 542
Broilers.....	7,151	29,492	5,916	1,399	684	285 -----
Other chickens.....	1,374	3,453	1,731	1,114	377	825 156
Other poultry products.....	655	2,188	481	496	258	124 8
Dairy products.....	333	1,149	367	87	6	98 19
Other livestock and livestock products.....	106	346	86	38	32	50 28
All other products.....	11	10	26	8	1	-----
Subregion 5:						
Value of all farm products sold.....	12,417	43,762	16,140	7,643	3,941	2,158 757
All crops except vegetables, fruits, and nuts.....	214	616	228	226	106	58 10
Vegetables for sale.....	35	46	34	55	30	19 3
Fruits and nuts.....	11	9	14	14	3	9 12
All livestock and livestock products, total.....	12,128	42,915	15,853	7,329	3,802	2,069 726
Poultry and poultry products.....	11,986	42,543	15,637	7,165	3,759	2,011 712
Eggs.....	8,646	25,026	12,942	5,852	2,796	1,679 506
Broilers.....	938	4,927	841	406	210	-----
Other chickens.....	865	2,318	1,186	648	372	268 172
Other poultry products.....	1,537	10,272	718	259	381	164 34
Dairy products.....	85	322	101	77	4	6 2
Other livestock and livestock products.....	57	50	65	87	39	52 12
All other products.....	29	176	11	19	-----	3 6
Subregion 14:						
Value of all farm products sold.....	10,661	25,118	16,902	8,050	3,885	1,896 633
All crops except vegetables, fruits, and nuts.....	223	504	302	209	155	6 17
Vegetables for sale.....	96	169	98	153	39	17 17
Fruits and nuts.....	10	-----	30	-----	-----	-----
All livestock and livestock products, total.....	10,331	24,445	16,472	7,688	3,676	1,873 599
Poultry and poultry products.....	10,312	24,345	16,470	7,682	3,624	1,873 589
Eggs.....	5,676	5,841	10,599	4,665	2,317	1,273 300
Broilers.....	3,473	18,056	4,131	1,611	538	----- 111
Other chickens.....	653	448	901	705	690	224 175
Other poultry products.....	510	-----	839	701	79	376 3
Dairy products.....	2	-----	-----	-----	16	-----
Other livestock and livestock products.....	17	100	2	6	36	----- 7
All other products.....	1	-----	-----	-----	5	-----
Subregion 15:						
Value of all farm products sold.....	18,646	61,511	16,213	7,772	3,921	1,910 654
All crops except vegetables, fruits, and nuts.....	780	2,236	780	363	237	109 33
Vegetables for sale.....	153	431	140	96	44	40 5
Fruits and nuts.....	2	-----	4	(Z)	1	1 2
All livestock and livestock products, total.....	17,683	58,712	15,276	7,311	3,632	1,754 608
Poultry and poultry products.....	17,443	58,051	15,049	7,191	3,534	1,669 582
Eggs.....	5,483	10,007	7,108	3,953	2,034	1,210 419
Broilers.....	10,715	43,703	7,145	2,589	1,068	152 17
Other chickens.....	524	748	593	580	326	202 128
Other poultry products.....	721	3,593	203	69	106	105 18
Dairy products.....	64	198	64	17	17	7 2
Other livestock and livestock products.....	176	463	163	103	81	78 24
All other products.....	28	132	13	2	7	6 6

Z 50 cents or less.

FARMERS AND FARM PRODUCTION

Table 26.—SOURCE OF FARM INCOME ON POULTRY FARMS, BY ECONOMIC CLASS OF FARM, FOR SELECTED POULTRY SUBREGIONS: 1954—Continued

Subregion and item	Average per farm by economic class of farm (dollars)						
	Total	I	II	III	IV	V	VI
Subregion 16:							
Value of all farm products sold	9,240	53,116	16,133	7,207	3,004	1,850	678
All crops except vegetables, fruits, and nuts	527	1,840	969	546	433	129	70
Vegetables for sale	102	271	281	89	55	27	9
Fruits and nuts	27	21	77	53	3	9	3
All livestock and livestock prod- ucts, total	8,560	50,984	14,742	6,600	3,408	1,684	595
Poultry and poultry products	7,364	43,659	12,305	5,803	3,016	1,554	538
Eggs	3,611	13,594	6,533	3,721	2,028	1,119	434
Broilers	2,146	16,878	3,649	963	508	113	11
Other chickens	478	1,272	708	600	310	209	77
Other poultry products	1,229	11,915	1,325	429	170	113	16
Dairy products	403	2,211	1,168	157	65	19	9
Other livestock and livestock products	802	5,114	1,260	640	327	111	48
All other products	15	(Z)	64	9	5	1	1
Subregion 82:							
Value of all farm products sold	10,713	44,630	15,104	7,741	3,835	1,776	765
All crops except vegetables, fruits, and nuts	44	110	47	50	30	12	17
Vegetables for sale	18	1	46	14	7	2	2
Fruits and nuts	110	523	84	103	73	13	28
All livestock and livestock prod- ucts, total	10,535	43,996	14,924	7,557	3,722	1,749	715
Poultry and poultry products	9,718	42,454	13,764	6,728	3,199	1,484	517
Eggs	419	1,412	179	379	415	493	325
Broilers	8,143	30,590	12,823	5,989	2,600	825	136
Other chickens	87	253	21	115	72	101	55
Other poultry products	1,060	10,199	741	245	112	65	1
Dairy products	490	496	773	538	313	160	100
Other livestock and livestock products	327	1,046	387	291	210	105	89
All other products	0	3	17	3	3	3	3
Subregion 115:							
Value of all farm products sold	15,332	52,819	15,943	7,607	3,986	1,903	761
All crops except vegetables, fruits, and nuts	90	475	38	31	5	13	13
Vegetables for sale	20	49	38	0	0	19	19
Fruits and nuts	375	1,431	289	176	154	70	70
All livestock and livestock prod- ucts, total	14,839	50,850	15,500	7,400	3,821	1,885	729
Poultry and poultry products	14,771	50,577	15,530	7,381	3,766	1,851	729
Eggs	9,168	25,765	11,204	5,530	2,762	1,420	462
Broilers	2,763	11,530	2,648	720	464	128	30
Other chickens	708	1,929	976	561	324	215	105
Other poultry products	2,042	11,353	612	570	216	79	42
Dairy products	1	1	1	1	(Z)	34	34
Other livestock and livestock products	67	272	20	18	55	34	34
All other products	8	14	18	2	2	2	2
Subregion 116:							
Value of all farm products sold	23,265	67,891	17,822	7,008	4,224	2,284	835
All crops except vegetables, fruits, and nuts	837	2,856	376	185	88	38	21
Vegetables for sale	23	71	7	9	10	15	15
Fruits and nuts	521	939	741	385	162	95	16
All livestock and livestock prod- ucts, total	21,884	64,025	16,098	7,329	3,904	2,151	798
Poultry and poultry products	21,456	63,089	16,270	6,907	3,856	2,100	763
Eggs	6,338	9,577	9,530	5,098	3,056	1,627	449
Broilers	4,051	12,620	3,307	773	227	120	181
Other chickens	754	1,188	980	648	378	279	133
Other poultry products	10,313	30,684	2,453	478	195	83	18
Dairy products	213	504	183	177	43	18	18
Other livestock and livestock products	215	452	245	155	65	24	17
All other products	8	14	18	2	2	2	2
Subregion 117:							
Value of all farm products sold	15,442	54,048	16,332	7,497	3,721	2,440	773
All crops except vegetables, fruits, and nuts	55	142	94	13	9	22	22
Vegetables for sale	49	283	8	2	18	15	15
Fruits and nuts	224	521	338	113	100	47	16
All livestock and livestock prod- ucts, total	15,111	53,098	15,892	7,367	3,590	2,362	732
Poultry and poultry products	14,815	52,665	15,349	7,136	3,496	2,312	723
Eggs	8,429	22,050	10,945	5,434	2,858	1,873	598
Broilers	3,360	15,188	2,897	847	233	223	20
Other chickens	1,063	3,647	1,041	575	340	212	94
Other poultry products	1,966	11,780	466	280	65	4	11
Dairy products	87	1	219	90	8	17	17
Other livestock and livestock products	209	432	324	141	86	33	9
All other products	3	4	(Z)	2	4	9	10

Z 50 cents or less.

Table 26.—SOURCE OF FARM INCOME ON POULTRY FARMS, BY ECONOMIC CLASS OF FARM, FOR SELECTED POULTRY SUBREGIONS: 1954—Continued

Subregion and item	Average per farm by economic class of farm (dollars)						
	Total	I	II	III	IV	V	VI
Subregion 18:							
Value of all farm products sold.....	12,381	47,001	15,374	7,339	4,052	1,803	649
All crops except vegetables, fruits, and nuts.....	138	258	224	195	72	30	10
Vegetables for sale.....	5	1	2	2	14	7	1
Fruits and nuts.....	173	1,051	68	7	16	(Z)	1
All livestock and livestock prod- ucts, total.....	12,047	45,614	15,052	7,134	3,945	1,853	637
Poultry and poultry products.....	10,805	41,794	13,009	6,413	3,380	1,615	496
Eggs.....	948	2,408	1,073	762	653	467	366
Broilers.....	4,520	12,791	6,004	3,031	2,402	900	18
Other chickens.....	187	388	201	163	171	94	95
Other poultry products.....	5,160	20,207	5,131	1,557	163	104	27
Dairy products.....	346	868	725	244	138	47	45
Other livestock and livestock products.....	806	2,652	1,318	477	418	101	96
All other products.....	18	78	30	1	5	3	1
Subregion 26:							
Value of all farm products sold.....	8,079	42,051	15,693	7,548	3,801	1,907	650
All crops except vegetables, fruits, and nuts.....	82	240	59	119	54	38	49
Vegetables for sale.....	1	3	2	2	(Z)	1	1
Fruits and nuts.....	12	74	8	7	6	7	10
All livestock and livestock prod- ucts, total.....	8,820	41,604	15,436	7,364	3,712	1,902	590
Poultry and poultry products.....	8,174	39,750	14,508	6,711	3,254	1,592	414
Eggs.....	520	1,745	949	666	404	318	208
Broilers.....	5,137	17,509	9,810	4,936	2,772	1,191	43
Other chickens.....	98	121	128	131	74	40	93
Other poultry products.....	2,419	21,375	3,921	978	4	45	12
Dairy products.....	60	21	64	76	74	55	27
Other livestock and livestock products.....	586	1,893	874	577	384	255	149
All other products.....	64	70	188	56	29	10	1
Subregion 33:							
Value of all farm products sold.....	7,747	41,855	15,333	7,287	3,771	2,086	831
All crops except vegetables, fruits, and nuts.....	135	209	206	145	153	54	67
Vegetables for sale.....	28	23	65	32	18	11	6
Fruits and nuts.....	32	12	100	21	20	12	8
All livestock and livestock prod- ucts, total.....	7,527	41,560	14,927	7,047	3,567	1,998	749
Poultry and poultry products.....	7,332	40,841	14,557	6,867	3,416	1,862	656
Eggs.....	1,836	11,143	2,738	1,430	1,242	607	463
Broilers.....	5,133	27,086	11,481	5,190	1,902	773	63
Other chickens.....	325	1,774	437	247	260	182	137
Other poultry products.....	38	838	1	(Z)	12	3	3
Dairy products.....	56	244	82	75	20	30	15
Other livestock and livestock products.....	139	475	188	105	131	106	78
All other products.....	25	51	35	42	13	11	11
Subregion 42:							
Value of all farm products sold.....	9,746	42,886	15,367	7,422	4,007	1,908	691
All crops except vegetables, fruits, and nuts.....	251	397	361	306	154	86	58
Vegetables for sale.....	12	1	25	11	10	5	3
Fruits and nuts.....	9	15	8	18	6	4	4
All livestock and livestock prod- ucts, total.....	9,438	42,368	14,924	7,050	3,824	1,880	622
Poultry and poultry products.....	9,160	41,051	14,487	6,894	3,692	1,794	533
Eggs.....	1,150	5,141	1,449	818	631	505	351
Broilers.....	7,705	34,796	12,482	5,914	2,909	1,063	65
Other chickens.....	211	614	206	161	151	126	89
Other poultry products.....	94	500	260	1	1	10	28
Dairy products.....	100	778	140	35	20	18	10
Other livestock and livestock products.....	178	639	207	121	112	77	79
All other products.....	36	105	49	42	13	12	4
Subregion 119:							
Value of all farm products sold.....	9,098	47,813	15,034	6,826	3,673	1,832	886
All crops except vegetables, fruits, and nuts.....	234	1,261	362	213	78	36	12
Vegetables for sale.....	11	81	9	9	11	5	5
Fruits and nuts.....	69	242	41	51	82	48	28
All livestock and livestock prod- ucts, total.....	8,732	45,940	14,531	6,532	3,383	1,736	845
Poultry and poultry products.....	8,247	43,832	13,896	6,039	3,107	1,625	808
Eggs.....	4,326	14,288	7,614	4,704	2,296	1,208	691
Broilers.....	1,482	10,687	2,211	678	442	118	118
Other chickens.....	437	1,408	657	408	311	197	112
Other poultry products.....	2,003	17,449	3,414	284	58	2	5
Dairy products.....	217	784	312	221	136	100	9
Other livestock and livestock products.....	268	1,324	323	242	140	111	28
All other products.....	52	289	91	30	19	7	1

Z 50 cents or less.

Table 27.—LAND USE ON POULTRY FARMS, BY ECONOMIC CLASS OF FARM, FOR SELECTED SUBREGIONS: 1954

Subregion and item	Average per farm, by economic class of farm						
	Total	I	II	III	IV	V	VI
United States:							
Land in farms.....acres..	78	163	95	80	69	56	51
Cropland harvested.....acres..	20	50	27	21	18	13	9
Pastureland, total.....acres..	32	64	38	32	28	24	23
Selected crops:							
Corn for all purposes.....acres..	6	15	8	6	5	4	3
Corn for grain.....acres..	5	13	7	5	4	3	2
Wheat.....acres..	2	4	2	2	2	1	1
Oats.....acres..	3	6	4	3	3	2	1
Barley.....acres..	1	2	1	1	(Z)	(Z)	(Z)
All hay.....acres..	6	13	7	6	5	4	3
Crop production:							
Corn for grain.....bushels..	194	649	275	173	145	103	59
Wheat.....bushels..	43	112	62	52	39	21	11
Oats.....bushels..	100	240	143	115	92	56	27
Barley.....bushels..	18	78	28	17	12	5	2
Crop sales:							
Corn for grain.....bushels..	57	233	95	50	33	17	6
Wheat.....bushels..	31	99	49	37	24	10	3
Oats.....bushels..	23	67	36	25	19	11	4
Barley.....bushels..	6	33	9	5	3	1	(Z)
Subregion 2:							
Land in farms.....acres..	88	121	110	80	70	61	65
Cropland harvested.....acres..	12	18	16	12	9	9	8
Pastureland, total.....acres..	15	28	17	13	9	11	13
Selected crops:							
Corn for all purposes.....acres..	(Z)	1	(Z)	1	(Z)		
Corn for grain.....acres..	(Z)	1	1	(Z)	(Z)		
Wheat.....acres..							
Oats.....acres..	(Z)			(Z)	(Z)		
Barley.....acres..							
All hay.....acres..	11	16	14	12	8	7	6
Crop production:							
Corn for grain.....bushels..	7	30	3	6	2		
Wheat.....bushels..							
Oats.....bushels..	(Z)			2	1		
Barley.....bushels..							
Crop sales:							
Corn for grain.....bushels..	1	5	(Z)	2			
Wheat.....bushels..							
Oats.....bushels..							
Barley.....bushels..							
Subregion 3:							
Land in farms.....acres..	29	71	27	31	19	23	20
Cropland harvested.....acres..	4	12	4	4	2	2	3
Pastureland, total.....acres..	5	10	4	9	3	4	4
Selected crops:							
Corn for all purposes.....acres..	(Z)	1	(Z)	(Z)	(Z)		
Corn for grain.....acres..	(Z)		(Z)	(Z)	(Z)		
Wheat.....acres..							
Oats.....acres..							
Barley.....acres..							
All hay.....acres..	3	9	2	3	2	1	2
Crop production:							
Corn for grain.....bushels..	1		3	1	1		
Wheat.....bushels..							
Oats.....bushels..							
Barley.....bushels..							
Crop sales:							
Corn for grain.....bushels..							
Wheat.....bushels..							
Oats.....bushels..							
Barley.....bushels..							
Subregion 4:							
Land in farms.....acres..	48	76	48	44	36	45	28
Cropland harvested.....acres..	7	13	6	5	4	5	4
Pastureland, total.....acres..	12	16	13	12	8	11	5
Selected crops:							
Corn for all purposes.....acres..	1	1	1	(Z)	(Z)	(Z)	
Corn for grain.....acres..	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	
Wheat.....acres..							
Oats.....acres..	(Z)	(Z)		(Z)		(Z)	
Barley.....acres..							
All hay.....acres..	5	9	5	4	3	4	4
Crop production:							
Corn for grain.....bushels..	14	24	26	10	5	4	
Wheat.....bushels..							
Oats.....bushels..	2	5		4		(Z)	
Barley.....bushels..							
Crop sales:							
Corn for grain.....bushels..	2	5		5	1		
Wheat.....bushels..							
Oats.....bushels..							
Barley.....bushels..							

Z 50 cents or less:

Table 27.—LAND USE ON POULTRY FARMS, BY ECONOMIC CLASS OF FARM, FOR SELECTED SUBREGIONS: 1954—Continued

Subregion and item	Average per farm, by economic class of farm						
	Total	I	II	III	IV	V	VI
Subregion 5:							
Land in farms.....acres..	32	50	33	31	22	26	41
Cropland harvested.....acres..	9	17	9	11	6	8	6
Pastureland, total.....acres..	6	11	7	5	6	3	3
Selected crops:							
Corn for all purposes.....acres..	3	7	4	4	2	3	1
Corn for grain.....acres..	3	6	4	4	2	3	1
Wheat.....acres..	2	4	1	2	1	1	1
Oats.....acres..	1	1	1	1	1	1	(Z)
Barley.....acres..	(Z)	1	(Z)	(Z)	(Z)	2	2
All hay.....acres..	2	3	2	3	2	2	2
Crop production:							
Corn for grain.....bushels..	155	380	172	147	85	96	23
Wheat.....bushels..	42	109	39	54	17	20	16
Oats.....bushels..	31	47	27	50	19	19	5
Barley.....bushels..	10	51	7	7	(Z)		
Crop sales:							
Corn for grain.....bushels..	53	128	66	47	38	13	
Wheat.....bushels..	34	101	33	48	10	6	
Oats.....bushels..	4	22	3	5	2	2	3
Barley.....bushels..	6	38	3				
Subregion 14:							
Land in farms.....acres..	30	36	30	24	20	56	23
Cropland harvested.....acres..	7	9	12	6	6	1	2
Pastureland, total.....acres..	3	7	3	2	3	1	13
Selected crops:							
Corn for all purposes.....acres..	5	6	7	4	3	1	1
Corn for grain.....acres..	4	6	7	4	3	1	1
Wheat.....acres..	1		1	(Z)	(Z)		
Oats.....acres..							
Barley.....acres..	(Z)		1				
All hay.....acres..	(Z)		(Z)	1	(Z)	(Z)	(Z)
Crop production:							
Corn for grain.....bushels..	185	238	318	152	117	14	33
Wheat.....bushels..	21		56	9	4		
Oats.....bushels..							
Barley.....bushels..	11		33				
Crop sales:							
Corn for grain.....bushels..	72	103	79	103	72		
Wheat.....bushels..	19		50	8	4		
Oats.....bushels..							
Barley.....bushels..	10		30				
Subregion 15:							
Land in farms.....acres..	60	132	52	38	38	47	20
Cropland harvested.....acres..	23	56	22	14	13	9	4
Pastureland, total.....acres..	6	14	6	2	6	7	4
Selected crops:							
Corn for all purposes.....acres..	12	31	11	7	6	4	1
Corn for grain.....acres..	12	30	11	7	6	4	1
Wheat.....acres..	1	2	1	(Z)	1	(Z)	(Z)
Oats.....acres..	1	1	1	1	(Z)	1	(Z)
Barley.....acres..	1	2	1	(Z)	(Z)	(Z)	(Z)
All hay.....acres..	2	3	2	1	2	1	(Z)
Crop production:							
Corn for grain.....bushels..	427	1,163	398	242	197	106	41
Wheat.....bushels..	22	43	27	9	17	10	3
Oats.....bushels..	23	34	24	21	21	21	8
Barley.....bushels..	19	42	23	8	7	4	1
Crop sales:							
Corn for grain.....bushels..	242	692	246	121	55	29	2
Wheat.....bushels..	17	38	23	6	10	1	
Oats.....bushels..	5	(Z)	7	8	5		
Barley.....bushels..	10	20	15	5	3		
Subregion 16:							
Land in farms.....acres..	46	123	69	48	39	25	18
Cropland harvested.....acres..	26	73	44	26	22	11	8
Pastureland, total.....acres..	9	29	13	9	7	4	3
Selected crops:							
Corn for all purposes.....acres..	9	26	15	9	7	3	3
Corn for grain.....acres..	8	23	13	8	7	3	3
Wheat.....acres..	5	14	9	5	4	2	1
Oats.....acres..	2	2	2	2	2	1	(Z)
Barley.....acres..	1	3	2	1	1	1	(Z)
All hay.....acres..	8	23	12	8	6	3	2
Crop production:							
Corn for grain.....bushels..	405	1,200	706	405	354	144	123
Wheat.....bushels..	150	477	271	151	128	46	33
Oats.....bushels..	61	112	98	55	81	33	10
Barley.....bushels..	60	190	108	52	55	23	11
Crop sales:							
Corn for grain.....bushels..	78	210	118	85	80	37	15
Wheat.....bushels..	106	418	201	98	81	19	16
Oats.....bushels..	6	20	12	9	3	1	
Barley.....bushels..	10	37	37	9	8	3	1

Z 50 cents or less.

FARMERS AND FARM PRODUCTION

Table 27.—LAND USE ON POULTRY FARMS, BY ECONOMIC CLASS OF FARM, FOR SELECTED SUBREGIONS: 1954—Continued

Subregion and item	Average per farm, by economic class of farm						
	Total	I	II	III	IV	V	VI
Subregion 18:							
Land in farms.....acres.....	83	172	123	66	55	38	49
Cropland harvested.....acres.....	19	38	30	17	13	6	6
Pastureland, total.....acres.....	38	96	49	27	27	17	12
Selected crops:							
Corn for all purposes.....acres.....	4	5	6	5	3	2	2
Corn for grain.....acres.....	3	3	5	5	3	2	2
Wheat.....acres.....	2	3	4	3	1	1	1
Oats.....acres.....	1	1	1	(Z)	1	(Z)	(Z)
Barley.....acres.....	2	4	4	1	1	(Z)	(Z)
All hay.....acres.....	9	22	14	7	6	2	3
Crop production:							
Corn for grain.....bushels.....	120	153	166	179	86	56	60
Wheat.....bushels.....	57	87	94	69	32	25	26
Oats.....bushels.....	28	65	48	21	18	11	5
Barley.....bushels.....	77	193	144	42	58	10	5
Crop sales:							
Corn for grain.....bushels.....	14	15	9	39	7	6	(Z)
Wheat.....bushels.....	38	66	68	52	22	5	1
Oats.....bushels.....	1	1	4	3			
Barley.....bushels.....	9	30	15	6	3		
Subregion 28:							
Land in farms.....acres.....	156	328	202	157	138	100	83
Cropland harvested.....acres.....	18	40	20	20	15	12	10
Pastureland, total.....acres.....	84	205	110	84	66	52	40
Selected crops:							
Corn for all purposes.....acres.....	3	7	5	3	2	2	2
Corn for grain.....acres.....	3	4	4	3	2	1	2
Wheat.....acres.....	2	4	2	2	1	1	1
Oats.....acres.....	1	2	2	2	1	1	(Z)
Barley.....acres.....	(Z)	3	(Z)	(Z)	(Z)	(Z)	
All hay.....acres.....	11	23	12	13	9	8	6
Crop production:							
Corn for grain.....bushels.....	124	187	172	137	112	66	86
Wheat.....bushels.....	40	94	45	49	31	23	20
Oats.....bushels.....	47	104	61	57	41	22	6
Barley.....bushels.....	17	132	14	9	13	2	
Crop sales:							
Corn for grain.....bushels.....	10	35	1	18	7	6	4
Wheat.....bushels.....	17	73	16	23	8	1	3
Oats.....bushels.....	1	5		2		2	
Barley.....bushels.....	1	8		1	1	(Z)	
Subregion 33:							
Land in farms.....acres.....	79	128	96	74	73	63	77
Cropland harvested.....acres.....	10	17	10	10	10	9	10
Pastureland, total.....acres.....	19	41	20	17	19	17	18
Selected crops:							
Corn for all purposes.....acres.....	5	6	5	5	5	3	4
Corn for grain.....acres.....	5	5	5	5	5	3	4
Wheat.....acres.....	(Z)	1	1	(Z)	(Z)	(Z)	(Z)
Oats.....acres.....	(Z)	(Z)	(Z)	1	(Z)	(Z)	(Z)
Barley.....acres.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
All hay.....acres.....	3	7	3	3	3	3	3
Crop production:							
Corn for grain.....bushels.....	5	5	5	5	5	3	4
Wheat.....bushels.....	8	14	11	8	7	5	9
Oats.....bushels.....	7	5	4	10	3	8	7
Barley.....bushels.....	1		(Z)	1	1	(Z)	4
Crop sales:							
Corn for grain.....bushels.....	21	44	40	23	16	5	11
Wheat.....bushels.....	3	6	6	3	1	1	4
Oats.....bushels.....	(Z)	1		(Z)			1
Barley.....bushels.....	(Z)			(Z)			
Subregion 42:							
Land in farms.....acres.....	89	107	111	85	62	54	84
Cropland harvested.....acres.....	16	35	20	16	10	9	9
Pastureland, total.....acres.....	35	92	46	31	21	20	44
Selected crops:							
Corn for all purposes.....acres.....	6	7	7	7	5	4	5
Corn for grain.....acres.....	6	6	6	6	5	4	5
Wheat.....acres.....	1	1	1	1	1	(Z)	(Z)
Oats.....acres.....	3	9	4	3	1	2	1
Barley.....acres.....	(Z)	(Z)	(Z)	(Z)	(Z)		
All hay.....acres.....	3	9	4	3	2	2	2
Crop production:							
Corn for grain.....bushels.....	74	85	96	86	57	43	47
Wheat.....bushels.....	17	34	25	18	10	7	7
Oats.....bushels.....	90	300	126	83	36	56	22
Barley.....bushels.....	4	8	12	1	1		
Crop sales:							
Corn for grain.....bushels.....	14	7	21	22	6	6	2
Wheat.....bushels.....	8	28	13	8	17	2	1
Oats.....bushels.....	29	119	87	29	6	14	
Barley.....bushels.....	1	2	2	(Z)	1		

Z 0.5 or less.

Table 27.—LAND USE ON POULTRY FARMS, BY ECONOMIC CLASS OF FARM, FOR SELECTED SUBREGIONS: 1954—Continued

Subregion and item	Average per farm, by economic class of farm						
	Total	I	II	III	IV	V	VI
Subregion 82:							
Land in farms.....acres.....	85	162	99	80	73	42	61
Cropland harvested.....acres.....	15	33	19	14	11	6	12
Pastureland, total.....acres.....	56	110	67	49	51	29	33
Selected crops:							
Corn for all purposes.....acres.....	1	2	1	1	1	1	1
Corn for grain.....acres.....	(Z)	(Z)		(Z)	(Z)		
Wheat.....acres.....	(Z)	(Z)	(Z)	(Z)	1		
Oats.....acres.....	2	3	3	3	1	1	
Barley.....acres.....	(Z)	1	(Z)	(Z)	(Z)	(Z)	
All hay.....acres.....	9	18	11	8	7	4	8
Crop production:							
Corn for grain.....bushels.....	1	5		1	2		
Wheat.....bushels.....	6	13	10	4	6		
Oats.....bushels.....	79	130	104	87	55	17	45
Barley.....bushels.....	7	22	5	5	12	5	
Crop sales:							
Corn for grain.....bushels.....							
Wheat.....bushels.....	5	9	8	3	4		
Oats.....bushels.....	23	74	15	32	14	8	11
Barley.....bushels.....	1	(Z)	1	3			
Subregion 115:							
Land in farms.....acres.....	21	70	11	12	10	15	21
Cropland harvested.....acres.....	4	12	2	3	2	1	6
Pastureland, total.....acres.....	7	26	1	3	2	9	11
Selected crops:							
Corn for all purposes.....acres.....	(Z)	(Z)	(Z)			(Z)	
Corn for grain.....acres.....	(Z)	(Z)	(Z)				
Wheat.....acres.....	(Z)	1	(Z)				(Z)
Oats.....acres.....	(Z)	1		(Z)			
Barley.....acres.....	1	2	(Z)	1	(Z)	(Z)	
All hay.....acres.....	1	3	1	1	(Z)	1	4
Crop production:							
Corn for grain.....bushels.....	4	22	1				
Wheat.....bushels.....	2	8	(Z)	1			10
Oats.....bushels.....	4	26		1			
Barley.....bushels.....	16	80	2	12	8	(Z)	
Crop sales:							
Corn for grain.....bushels.....	2	10	1				
Wheat.....bushels.....	1	7	(Z)	1			3
Oats.....bushels.....	4	23		1			
Barley.....bushels.....	12	64		10	2		
Subregion 116:							
Land in farms.....acres.....	35	87	23	19	10	16	16
Cropland harvested.....acres.....	12	33	10	7	3	2	1
Pastureland, total.....acres.....	12	29	6	5	3	10	12
Selected crops:							
Corn for all purposes.....acres.....	(Z)	1	1	(Z)	(Z)		
Corn for grain.....acres.....	(Z)	1	(Z)	(Z)			
Wheat.....acres.....	1	3		(Z)			
Oats.....acres.....	(Z)	(Z)	(Z)	(Z)			1
Barley.....acres.....	2	6	1	1	2	(Z)	
All hay.....acres.....	3	7	3	2	(Z)	(Z)	(Z)
Crop production:							
Corn for grain.....bushels.....	14	37	9	11			
Wheat.....bushels.....	11	39		7			
Oats.....bushels.....	7	7	13	8			24
Barley.....bushels.....	58	140	56	34	20	12	
Crop sales:							
Corn for grain.....bushels.....	10	31	7	4			
Wheat.....bushels.....	10	34		6			
Oats.....bushels.....	4	4	2	6			24
Barley.....bushels.....	36	96	24	20	8	10	
Subregion 117:							
Land in farms.....acres.....	28	66	35	14	14	12	18
Cropland harvested.....acres.....	4	12	6	2	3	1	(Z)
Pastureland, total.....acres.....	14	28	20	9	5	6	7
Selected crops:							
Corn for all purposes.....acres.....	(Z)	(Z)	(Z)	(Z)		(Z)	
Corn for grain.....acres.....	(Z)	(Z)		(Z)		(Z)	
Wheat.....acres.....	(Z)	1	(Z)	(Z)	(Z)		
Oats.....acres.....	(Z)	1	(Z)		(Z)	(Z)	
Barley.....acres.....	1	6	1			(Z)	
All hay.....acres.....	1	2	2	(Z)	1	(Z)	(Z)
Crop production:							
Corn for grain.....bushels.....	(Z)	1		1		2	
Wheat.....bushels.....	6	24	2	4	4		
Oats.....bushels.....	11	57	3		3	12	
Barley.....bushels.....	42	238	22			10	
Crop sales:							
Corn for grain.....bushels.....	(Z)	1					
Wheat.....bushels.....	5	21	2	3	4		
Oats.....bushels.....	2	1	1			12	
Barley.....bushels.....	14	58	18			10	

Z 0.5 or less.

Table 27.—LAND USE ON POULTRY FARMS, BY ECONOMIC CLASS OF FARM, FOR SELECTED SUBREGIONS: 1954—Continued

Subregion and item	Average per farm, by economic class of farm						
	Total	I	II	III	IV	V	VI
Subregion 119:							
Land in farms.....acres..	47	125	68	48	35	25	22
Cropland harvested.....acres..	14	45	22	15	9	6	3
Pastureland, total.....acres..	19	43	29	20	14	11	11
Selected crops:							
Corn for all purposes.....acres..	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
Corn for grain.....acres..	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
Wheat.....acres..	2	6	4	2	1	1	(Z)
Oats.....acres..	3	8	5	3	2	1	(Z)
Barley.....acres..	1	3	1	1	(Z)	(Z)	(Z)
All hay.....acres..	5	10	6	5	3	3	2
Crop production:							
Corn for grain.....bushels..	2		3	1	3		1
Wheat.....bushels..	56	239	93	61	23	10	5
Oats.....bushels..	114	387	180	131	71	29	15
Barley.....bushels..	32	126	52	35	18	6	6
Crop sales:							
Corn for grain.....bushels..	1		2	1	1		(Z)
Wheat.....bushels..	43	213	69	49	13	1	(Z)
Oats.....bushels..	42	153	77	49	18	9	5
Barley.....bushels..	17	81	31	16	8	2	

Z 0.5 or less.

Table 28.—PERCENT POULTRY FARMS ARE OF ALL COMMERCIAL FARMS, BY SIZE OF FARM, FOR SELECTED POULTRY SUBREGIONS: 1954

Subregion and size of farm	Percent poultry farms are of all commercial farms	Subregion and size of farm	Percent poultry farms are of all commercial farms
United States:		Subregion 20:	
Under 29 acres.....	13.8	Under 29 acres.....	61.7
30 to 69 acres.....	6.6	30 to 69 acres.....	25.5
70 to 139 acres.....	4.0	70 to 139 acres.....	18.7
140 acres and over.....	1.5	140 acres and over.....	13.5
Subregion 2:		Subregion 33:	
Under 29 acres.....	64.4	Under 29 acres.....	24.4
30 to 69 acres.....	43.4	30 to 69 acres.....	19.5
70 to 139 acres.....	27.1	70 to 139 acres.....	21.3
140 acres and over.....	11.9	140 acres and over.....	18.2
Subregion 3:		Subregion 42:	
Under 29 acres.....	54.8	Under 29 acres.....	22.9
30 to 69 acres.....	30.7	30 to 69 acres.....	21.8
70 to 139 acres.....	12.1	70 to 139 acres.....	18.5
140 acres and over.....	6.7	140 acres and over.....	10.3
Subregion 4:		Subregion 82:	
Under 29 acres.....	56.5	Under 29 acres.....	58.2
30 to 69 acres.....	33.4	30 to 69 acres.....	30.8
70 to 139 acres.....	16.1	70 to 139 acres.....	15.4
140 acres and over.....	7.8	140 acres and over.....	7.2
Subregion 5:		Subregion 115:	
Under 29 acres.....	53.7	Under 29 acres.....	32.1
30 to 69 acres.....	33.0	30 to 69 acres.....	5.8
70 to 139 acres.....	17.9	70 to 139 acres.....	6.8
140 acres and over.....	4.2	140 acres and over.....	4.5
Subregion 14:		Subregion 116:	
Under 29 acres.....	50.5	Under 29 acres.....	16.0
30 to 69 acres.....	14.3	30 to 69 acres.....	3.1
70 to 139 acres.....	5.5	70 to 139 acres.....	1.3
140 acres and over.....	4.7	140 acres and over.....	1.1
Subregion 15:		Subregion 117:	
Under 29 acres.....	74.1	Under 29 acres.....	33.8
30 to 69 acres.....	32.7	30 to 69 acres.....	10.4
70 to 139 acres.....	18.5	70 to 139 acres.....	3.6
140 acres and over.....	8.4	140 acres and over.....	2.4
Subregion 18:		Subregion 119:	
Under 29 acres.....	53.2	Under 29 acres.....	30.1
30 to 69 acres.....	18.8	30 to 69 acres.....	13.1
70 to 139 acres.....	7.1	70 to 139 acres.....	8.3
140 acres and over.....	2.8	140 acres and over.....	4.9

Table 29.—PERCENT DISTRIBUTION OF OPERATORS OF POULTRY FARMS IN EACH ECONOMIC CLASS, BY AGE, FOR SELECTED POULTRY SUBREGIONS: 1954

Subregion and age group	Percent distribution of operators in each economic class of farm						
	Total	I	II	III	IV	V	VI
United States:							
Total.....	100	100	100	100	100	100	100
Under 25 years.....	1	1	1	1	1	1	(Z)
25 to 34 years.....	10	17	15	12	9	8	2
35 to 44 years.....	20	30	26	24	19	16	6
45 to 54 years.....	22	29	28	24	25	20	11
55 to 64 years.....	24	17	21	25	26	25	24
65 years and over.....	24	6	9	14	20	30	57
Subregion 2:							
Total.....	100	100	100	100	100	100	100
Under 25 years.....	1			1	2		
25 to 34 years.....	11	16	15	9	11	9	2
35 to 44 years.....	20	27	25	24	22	7	5
45 to 54 years.....	26	34	27	25	25	31	10
55 to 64 years.....	22	15	23	25	23	18	20
65 years and over.....	20	8	10	16	17	34	63
Subregion 3:							
Total.....	100	100	100	100	100	100	100
Under 25 years.....	(Z)		1			1	
25 to 34 years.....	9	13	14	7	8	10	4
35 to 44 years.....	21	28	29	20	21	17	
45 to 54 years.....	19	29	28	20	15	17	2
55 to 64 years.....	27	24	20	32	28	29	26
65 years and over.....	24	6	8	21	28	28	68
Subregion 4:							
Total.....	100	100	100	100	100	100	100
Under 25 years.....	1	1	2		1		
25 to 34 years.....	10	16	14	4	10	4	3
35 to 44 years.....	22	35	25	23	20	12	6
45 to 54 years.....	25	16	24	33	28	20	16
55 to 64 years.....	24	26	25	25	22	23	22
65 years and over.....	18	6	10	15	19	32	53
Subregion 5:							
Total.....	100	100	100	100	100	100	100
Under 25 years.....	3	1	1	2	1	4	
25 to 34 years.....	8	20	7	10	3	7	4
35 to 44 years.....	17	29	22	13	11	13	16
45 to 54 years.....	26	23	35	21	33	21	7
55 to 64 years.....	28	19	24	35	35	25	25
65 years and over.....	18	8	11	18	17	30	48
Subregion 14:							
Total.....	100	100	100	100	100	100	100
Under 25 years.....	11	27	19	6	5		
25 to 34 years.....	18	24	14	16	33	11	
35 to 44 years.....	27	46	24	26	42	13	11
45 to 54 years.....	28	18	24	43	21	33	11
55 to 64 years.....	28	9	10	11	16	21	67
65 years and over.....	16						
Subregion 15:							
Total.....	100	100	100	100	100	100	100
Under 25 years.....	1	1	(Z)	2			
25 to 34 years.....	8	15	9	5	6	3	2
35 to 44 years.....	22	29	25	23	13	13	7
45 to 54 years.....	28	31	31	30	28	18	7
55 to 64 years.....	22	18	23	23	27	24	24
65 years and over.....	19	6	12	17	26	42	60
Subregion 18:							
Total.....	100	100	100	100	100	100	100
Under 25 years.....	3	2	8	3		2	1
25 to 34 years.....	17	29	20	19	18	15	3
35 to 44 years.....	20	30	33	28	14	16	8
45 to 54 years.....	20	27	21	20	22	21	12
55 to 64 years.....	17	4	9	21	18	23	13
65 years and over.....	23	8	9	9	28	23	63
Subregion 18:							
Total.....	100	100	100	100	100	100	100
Under 25 years.....	2	6	2		1		
25 to 34 years.....	14	14	20	16	13	12	2
35 to 44 years.....	25	29	20	31	31	23	2
45 to 54 years.....	23	30	29	34	16	16	10
55 to 64 years.....	21	18	24	13	20	24	37
65 years and over.....	15	3	5	6	19	24	49
Subregion 20:							
Total.....	100	100	100	100	100	100	100
Under 25 years.....	(Z)				1		
25 to 34 years.....	12	14	15	18	7	12	
35 to 44 years.....	26	25	25	26	28	25	12
45 to 54 years.....	22	34	20	25	24	14	21
55 to 64 years.....	23	19	25	14	29	28	24
65 years and over.....	17	8	15	17	11	21	43
Subregion 33:							
Total.....	100	100	100	100	100	100	100
Under 25 years.....	1	3		3	1	1	
25 to 34 years.....	13	14	19	12	12	13	8
35 to 44 years.....	27	37	36	30	20	28	17
45 to 54 years.....	26	21	22	27	28	24	24
55 to 64 years.....	18	14	14	19	20	18	21
65 years and over.....	15	11	9	9	19	16	30

Z Less than 0.5 percent.

Table 29.—PERCENT DISTRIBUTION OF OPERATORS OF POULTRY FARMS IN EACH ECONOMIC CLASS, BY AGE, FOR SELECTED POULTRY SUBREGIONS: 1954—Continued

Subregion and age group	Percent distribution of operators in each economic class of farm						
	Total	I	II	III	IV	V	VI
Subregion 42:							
Total.....	100	100	100	100	100	100	100
Under 25 years.....	1	(Z)	1	2	1	2	.....
25 to 34 years.....	14	16	15	17	15	11	4
35 to 44 years.....	29	39	37	26	25	26	10
45 to 54 years.....	25	31	26	27	24	25	8
55 to 64 years.....	19	6	17	19	19	21	31
65 years and over.....	12	8	4	9	16	15	47
Subregion 82:							
Total.....	100	100	100	100	100	100	100
Under 25 years.....	1				2		.....
25 to 34 years.....	12	18	15	15	10	7	.....
35 to 44 years.....	23	37	31	25	14	10	12
45 to 54 years.....	25	27	28	26	27	19	8
55 to 64 years.....	24	13	20	23	28	29	42
65 years and over.....	15	5	6	11	19	35	38
Subregion 115:							
Total.....	100	100	100	100	100	100	100
Under 25 years.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	.....
25 to 34 years.....	9	12	11	6	10	6	.....
35 to 44 years.....	20	28	23	15	18	19	11
45 to 54 years.....	26	33	32	23	22	19	22
55 to 64 years.....	28	23	24	30	32	30	30
65 years and over.....	17	4	10	26	18	24	37
Subregion 116:							
Total.....	100	100	100	100	100	100	100
Under 25 years.....	1		1	1		2	.....
25 to 34 years.....	11	14	12	10	7	13	5
35 to 44 years.....	19	21	24	20	17	8	5
45 to 54 years.....	24	31	27	23	20	14	22
55 to 64 years.....	27	21	22	30	39	33	26
65 years and over.....	18	13	14	16	17	30	42
Subregion 117:							
Total.....	100	100	100	100	100	100	100
Under 25 years.....	1		1				.....
25 to 34 years.....	9	12	14	5	7	6	8
35 to 44 years.....	20	26	27	15	15	21	.....
45 to 54 years.....	27	34	27	28	29	17	24
55 to 64 years.....	26	20	26	34	29	20	8
65 years and over.....	17	8	5	18	20	36	60
Subregion 119:							
Total.....	100	100	100	100	100	100	100
Under 25 years.....	1		1	1	1	1	.....
25 to 34 years.....	8	9	10	9	7	8	2
35 to 44 years.....	17	15	29	21	15	12	5
45 to 54 years.....	26	41	28	28	23	25	8
55 to 64 years.....	27	29	23	20	30	28	28
65 years and over.....	21	6	9	15	24	26	67

Z Less than 0.5 percent.

Table 30.—SOURCE OF LABOR ON POULTRY FARMS, BY ECONOMIC CLASS OF FARM, FOR SELECTED POULTRY SUBREGIONS: 1954

Subregion and item	Economic class of farm						
	Total	I	II	III	IV	V	VI
United States:							
Man-equivalent per farm, total.....	1.16	2.71	1.43	1.13	0.94	0.77	0.81
Operator.....	0.65	0.83	0.77	0.67	0.59	0.51	0.65
Unpaid family labor.....	0.29	0.36	0.38	0.36	0.30	0.24	0.14
Hired labor.....	0.21	1.62	0.27	0.10	0.05	0.02	0.01
Subregion 2:							
Man-equivalent per farm, total.....	1.29	2.79	1.39	1.00	0.87	0.66	0.78
Operator.....	0.66	0.77	0.70	0.61	0.56	0.48	0.66
Unpaid family labor.....	0.22	0.28	0.28	0.26	0.20	0.13	0.07
Hired labor.....	0.41	1.74	0.32	0.13	0.11	0.06	0.05
Subregion 3:							
Man-equivalent per farm, total.....	1.40	3.90	1.84	1.12	0.89	0.74	0.80
Operator.....	0.64	0.89	0.77	0.66	0.50	0.45	0.66
Unpaid family labor.....	0.28	0.42	0.34	0.24	0.27	0.26	0.12
Hired labor.....	0.48	2.59	0.73	0.22	0.12	0.03	0.02
Subregion 4:							
Man-equivalent per farm, total.....	1.30	2.55	1.28	1.13	0.90	0.72	0.81
Operator.....	0.66	0.89	0.75	0.64	0.55	0.42	0.61
Unpaid family labor.....	0.31	0.28	0.32	0.39	0.32	0.25	0.20
Hired labor.....	0.33	1.38	0.21	0.10	0.03	0.05	(Z)
Subregion 5:							
Man-equivalent per farm, total.....	1.39	2.69	1.61	1.24	1.03	0.82	0.76
Operator.....	0.68	0.82	0.79	0.71	0.68	0.50	0.66
Unpaid family labor.....	0.37	0.60	0.43	0.37	0.34	0.28	0.18
Hired labor.....	0.34	1.37	0.39	0.16	0.11	0.06	0.02

Z 0.005 or less.

Table 30.—SOURCE OF LABOR ON POULTRY FARMS, BY ECONOMIC CLASS OF FARM, FOR SELECTED POULTRY SUBREGIONS: 1954—Continued

Subregion and item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Subregion 14:							
Man-equivalent per farm, total.....	1.22	2.40	1.52	1.02	0.78	0.76	0.53
Operator.....	0.68	0.88	0.83	0.64	0.49	0.44	0.53
Unpaid family labor.....	0.30	0.47	0.33	0.33	0.21	0.29	
Hired labor.....	0.24	1.05	0.36	0.05	0.08	0.03	
Subregion 15:							
Man-equivalent per farm, total.....	1.50	3.03	1.50	1.10	0.96	0.75	0.77
Operator.....	0.71	0.82	0.79	0.66	0.58	0.52	0.60
Unpaid family labor.....	0.31	0.31	0.38	0.33	0.27	0.22	0.09
Hired labor.....	0.48	1.90	0.33	0.11	0.11	0.01	0.02
Subregion 16:							
Man-equivalent per farm, total.....	1.13	3.22	1.51	1.04	0.84	0.72	0.76
Operator.....	0.61	0.84	0.75	0.69	0.52	0.44	0.61
Unpaid family labor.....	0.29	0.32	0.44	0.29	0.27	0.26	0.14
Hired labor.....	0.23	2.06	0.32	0.06	0.05	0.02	0.01
Subregion 18:							
Man-equivalent per farm, total.....	1.15	2.57	1.26	0.96	0.82	0.64	0.83
Operator.....	0.62	0.77	0.84	0.58	0.51	0.43	0.71
Unpaid family labor.....	0.25	0.34	0.27	0.28	0.26	0.19	0.11
Hired labor.....	0.28	1.46	0.15	0.10	0.05	0.02	0.01
Subregion 26:							
Man-equivalent per farm, total.....	1.03	1.74	1.20	1.06	0.94	0.83	0.79
Operator.....	0.63	0.85	0.69	0.60	0.62	0.57	0.65
Unpaid family labor.....	0.31	0.48	0.33	0.38	0.27	0.25	0.13
Hired labor.....	0.09	0.41	0.18	0.08	0.05	0.01	0.01
Subregion 33:							
Man-equivalent per farm, total.....	1.09	1.90	1.30	1.06	0.99	0.89	1.04
Operator.....	0.70	0.82	0.77	0.69	0.64	0.64	0.80
Unpaid family labor.....	0.31	0.40	0.39	0.33	0.31	0.23	0.24
Hired labor.....	0.08	0.68	0.14	0.04	0.04	0.02	(Z)
Subregion 42:							
Man-equivalent per farm, total.....	1.06	1.92	1.33	1.03	0.83	0.75	0.93
Operator.....	0.65	0.74	0.74	0.67	0.56	0.55	0.75
Unpaid family labor.....	0.28	0.30	0.40	0.29	0.24	0.18	0.17
Hired labor.....	0.13	0.88	0.19	0.07	0.03	0.02	0.01
Subregion 82:							
Man-equivalent per farm, total.....	1.14	2.11	1.27	1.07	0.97	0.79	0.85
Operator.....	0.70	0.78	0.75	0.72	0.65	0.52	0.76
Unpaid family labor.....	0.31	0.24	0.41	0.30	0.30	0.26	0.09
Hired labor.....	0.13	1.09	0.11	0.05	0.02	0.01	(Z)
Subregion 115:							
Man-equivalent per farm, total.....	1.31	2.63	1.31	1.08	0.88	0.83	1.05
Operator.....	0.67	0.93	0.75	0.60	0.51	0.52	0.79
Unpaid family labor.....	0.36	0.37	0.39	0.37	0.34	0.30	0.24
Hired labor.....	0.28	1.33	0.17	0.11	0.03	0.01	0.02
Subregion 116:							
Man-equivalent per farm, total.....	1.49	2.53	1.43	1.11	1.02	0.86	1.11
Operator.....	0.73	0.83	0.82	0.64	0.65	0.57	0.79
Unpaid family labor.....	0.33	0.31	0.33	0.39	0.35	0.28	0.24
Hired labor.....	0.43	1.39	0.28	0.08	0.02	0.01	0.08
Subregion 117:							
Man-equivalent per farm, total.....	1.27	2.17	1.50	1.12	0.83	0.68	0.95
Operator.....	0.68	0.82	0.84	0.66	0.50	0.42	0.69
Unpaid family labor.....	0.36	0.34	0.47	0.38	0.30	0.25	0.23
Hired labor.....	0.23	1.01	0.19	0.08	0.03	0.01	0.03
Subregion 119:							
Man-equivalent per farm, total.....	1.18	2.72	1.49	1.15	0.93	0.80	0.84
Operator.....	0.66	0.87	0.80	0.67	0.60	0.52	0.69
Unpaid family labor.....	0.35	0.49	0.46	0.42	0.30	0.27	0.14
Hired labor.....	0.17	1.36	0.23	0.06	0.03	0.01	0.01

Z 0.005 or less.

Broiler production in poultry subregions.—There are great differences between the distribution of broiler production and the production of eggs within the 16 selected poultry subregions. More than half (53 percent) of the value of broilers sold came from the 16 poultry subregions in 1954, whereas only 32 percent of the eggs were sold from these 16 areas. Five of these subregions (15, 42, 82, 115, and 116) are among the outstanding centers of broiler production in the entire country. Sussex County in Delaware, in subregion 15, is by far the leading county. Of the 3,229 farms in that county, 1,299 produced broilers in 1954 and the average number sold per farm exceeded 40,000.

Labor use and gross sales per man-equivalent.—Poultry farms in general are somewhat more than one-man operations. The average poultry farm requires one and one-sixth men. The labor requirement declines rather sharply with reduced sales per farm. The man-equivalent per farm for Class I farms was almost four times that required for Class V and VI farms.

The average gross sales per man-equivalent was \$8,300 for all poultry farms. Both the gross sales and the income above specified expenses decreased with the decrease in size of operation, as measured by economic class of farm. For all poultry farms in the United States, the average gross income per man-equivalent for farms in each economic class from I to VI was, in that order—\$19,000; \$11,000; \$6,500; \$4,000; \$2,400; and \$800. These ratios were similar in the separate subregions. For comparison, the sales per man-equivalent for farms in Classes I and VI for subregion 15 were \$20,000 and \$800; in subregion 82, \$21,000 and \$900.

Table 31.—AVERAGE NUMBER OF LIVESTOCK AND POULTRY PER FARM, FOR POULTRY FARMS, BY ECONOMIC CLASS OF FARM, FOR SELECTED POULTRY SUBREGIONS: 1954

Subregions and item	Average number per farm by economic class of farm						
	Total	I	II	III	IV	V	VI
United States:							
Horses and mules.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
All cattle and calves.....	7	17	10	7	6	6	4
Milk cows.....	2	3	2	2	2	1	1
Hogs and pigs.....	4	11	5	4	3	2	1
Chickens 4 months old and over.....	696	1,993	1,157	706	493	326	181
Subregion 2:							
Horses and mules.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
All cattle and calves.....	3	4	5	2	2	2	2
Milk cows.....	1	2	2	1	1	1	1
Hogs and pigs.....	1	1	2	(Z)	(Z)	(Z)	(Z)
Chickens 4 months old and over.....	1,484	4,514	1,539	963	703	494	179
Subregion 3:							
Horses and mules.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
All cattle and calves.....	1	2	1	2	1	(Z)	1
Milk cows.....	(Z)	1	(Z)	1	(Z)	(Z)	(Z)
Hogs and pigs.....	1	(Z)	(Z)	(Z)	(Z)	(Z)	5
Chickens 4 months old and over.....	1,091	2,840	1,814	1,042	618	308	202
Subregion 4:							
Horses and mules.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
All cattle and calves.....	3	7	3	2	1	2	1
Milk cows.....	1	3	2	1	(Z)	1	1
Hogs and pigs.....	(Z)	1	(Z)	(Z)	(Z)	(Z)	(Z)
Chickens 4 months old and over.....	1,178	2,504	1,509	981	601	377	219
Subregion 5:							
Horses and mules.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	1
All cattle and calves.....	1	2	1	2	1	1	1
Milk cows.....	1	1	(Z)	1	(Z)	1	1
Hogs and pigs.....	1	1	(Z)	(Z)	1	1	(Z)
Chickens 4 months old and over.....	1,965	4,563	2,948	1,520	918	526	298
Subregion 14:							
Horses and mules.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
All cattle and calves.....	(Z)	(Z)	(Z)	1	(Z)	(Z)	(Z)
Milk cows.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
Hogs and pigs.....	1	4	(Z)	(Z)	1	(Z)	(Z)
Chickens 4 months old and over.....	1,324	725	2,332	1,234	752	643	170
Subregion 15:							
Horses and mules.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
All cattle and calves.....	2	5	2	1	2	2	1
Milk cows.....	1	1	1	(Z)	1	1	(Z)
Hogs and pigs.....	4	7	4	3	2	3	1
Chickens 4 months old and over.....	1,308	1,711	1,763	1,183	650	467	240
Subregion 16:							
Horses and mules.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
All cattle and calves.....	7	33	14	6	4	2	2
Milk cows.....	2	6	5	1	1	1	1
Hogs and pigs.....	5	9	7	5	5	3	2
Chickens 4 months old and over.....	839	3,004	1,366	906	551	366	175
Subregion 18:							
Horses and mules.....	(Z)	1	1	(Z)	(Z)	(Z)	(Z)
All cattle and calves.....	14	38	22	10	8	4	3
Milk cows.....	3	5	5	3	2	1	2
Hogs and pigs.....	6	10	9	5	4	3	2
Chickens 4 months old and over.....	208	426	229	174	155	139	140

Z 0.5 or less.

Table 31.—AVERAGE NUMBER OF LIVESTOCK AND POULTRY PER FARM, FOR POULTRY FARMS, BY ECONOMIC CLASS OF FARM, FOR SELECTED POULTRY SUBREGIONS: 1954—Continued

Subregions and item	Average number per farm by economic class of farm						
	Total	I	II	III	IV	V	VI
Subregion 26:							
Horses and mules.....	1	1	1	1	1	1	1
All cattle and calves.....	11	32	16	10	7	6	3
Milk cows.....	2	3	2	3	3	2	2
Hogs and pigs.....	5	10	7	5	4	3	2
Chickens 4 months old and over.....	123	149	149	149	102	90	81
Subregion 33:							
Horses and mules.....	1	1	1	1	1	1	1
All cattle and calves.....	5	14	7	5	5	4	4
Milk cows.....	2	3	2	2	2	2	2
Hogs and pigs.....	4	5	5	3	3	3	3
Chickens 4 months old and over.....	423	2,036	577	317	327	262	258
Subregion 42:							
Horses and mules.....	1	1	1	1	1	1	1
All cattle and calves.....	8	23	12	6	5	4	6
Milk cows.....	2	4	2	2	1	1	2
Hogs and pigs.....	4	5	5	3	3	2	2
Chickens 4 months old and over.....	285	819	349	228	214	202	167
Subregion 82:							
Horses and mules.....	(Z)	(Z)	(Z)	(Z)	1	(Z)	1
All cattle and calves.....	11	15	14	11	9	6	5
Milk cows.....	4	4	6	4	4	2	2
Hogs and pigs.....	3	10	2	3	1	1	2
Chickens 4 months old and over.....	90	61	34	112	105	153	113
Subregion 115:							
Horses and mules.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
All cattle and calves.....	1	3	(Z)	(Z)	1	1	1
Milk cows.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
Hogs and pigs.....	(Z)	1	(Z)	(Z)	(Z)	1	(Z)
Chickens 4 months old and over.....	1,892	4,686	2,273	1,313	782	522	332
Subregion 116:							
Horses and mules.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
All cattle and calves.....	5	11	4	4	2	1	3
Milk cows.....	1	2	1	1	(Z)	(Z)	1
Hogs and pigs.....	1	1	1	(Z)	(Z)	(Z)	(Z)
Chickens 4 months old and over.....	1,358	1,843	1,911	1,174	797	636	318
Subregion 117:							
Horses and mules.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
All cattle and calves.....	3	5	4	4	2	1	1
Milk cows.....	1	(Z)	1	1	(Z)	(Z)	(Z)
Hogs and pigs.....	1	3	(Z)	2	(Z)	(Z)	(Z)
Chickens 4 months old and over.....	1,758	3,972	2,327	1,303	696	517	371
Subregion 118:							
Horses and mules.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
All cattle and calves.....	6	19	7	6	4	4	3
Milk cows.....	2	3	2	2	2	1	1
Hogs and pigs.....	1	1	1	2	1	1	(Z)
Chickens 4 months old and over.....	824	2,131	1,335	939	529	325	301

Z 0.5 or less.

Work off farm.—About three-fifths of the operators of poultry farms spent full-time on their farms. Of the operators of Class I farms, three-fourths reported no work other than on their own farms but of the operators of Class V farms, more than half reported work off their farm. Differences among subregions are pronounced in this respect. The proportion reporting no off-farm work was highest in subregions 5 and 116 where it exceeded two-thirds, with less than one-fifth of the operators of Class I farms reporting no off-farm work. At the other extreme were subregions 18 and 26 where full-time operators represented little more than half of all operators.

Farm mechanization and home conveniences.—Poultry farms are preeminently single-enterprise farms engaged in some phase of the production of poultry or eggs. Generally, feed is bought ready to use and little home-grown feed is provided. Therefore, machinery for preparing soil and harvesting crops is not the large item on poultry farms that it is on many other types of farms. About half the poultry farms have tractors and motortrucks; three-fourths have automobiles.

Table 32.—GROSS SALES AND SPECIFIED EXPENDITURES PER FARM, FOR POULTRY FARMS, BY ECONOMIC CLASS OF FARM, FOR SELECTED POULTRY SUBREGIONS: 1954

Subregion and item	Average per farm by economic class of farm (dollars)						
	Total	I	II	III	IV	V	VI
United States:							
Gross sales.....	9,634	49,400	15,727	7,359	3,808	1,878	666
Selected expenses, total.....	7,100	35,094	11,589	5,635	3,043	1,462	581
Feed for livestock and poultry.....	6,336	31,024	10,556	5,080	2,686	1,248	464
Hired labor.....	418	2,961	524	204	103	44	22
Machine hire.....	58	129	77	64	54	39	21
Gasoline and other petroleum products.....	182	672	270	165	120	79	44
Fertilizer.....	97	281	148	104	73	47	27
Lime.....	9	27	14	9	8	5	3
Gross sales minus selected expenses.....	2,534	14,306	4,138	1,724	765	416	85
Subregion 2:							
Gross sales.....	14,731	53,174	16,242	7,051	3,869	1,803	617
Selected expenses, total.....	10,844	36,818	11,496	6,007	3,896	1,916	1,091
Feed for livestock and poultry.....	9,806	32,771	10,500	5,000	3,560	1,750	936
Hired labor.....	800	3,405	625	249	210	97	91
Machine hire.....	26	53	30	24	16	17	8
Gasoline and other petroleum products.....	180	520	210	101	104	37	42
Fertilizer.....	29	64	36	28	6	15	13
Lime.....	3	5	5	5	(Z)	(Z)	1
Gross sales minus selected expenses.....	3,887	16,356	4,746	1,044	-27	-113	-474
Subregion 3:							
Gross sales.....	10,353	42,086	16,517	7,257	3,822	1,806	723
Selected expenses, total.....	9,036	34,290	14,272	6,343	4,101	1,818	1,181
Feed for livestock and poultry.....	7,884	28,705	12,570	5,724	3,821	1,680	1,081
Hired labor.....	894	4,769	1,335	401	213	57	29
Machine hire.....	30	74	24	18	56	6	14
Gasoline and other petroleum products.....	200	666	297	160	95	71	52
Fertilizer.....	25	68	38	38	4	3	5
Lime.....	3	8	8	2	2	1	(Z)
Gross sales minus selected expenses.....	1,317	7,796	2,245	914	-369	-12	-468
Subregion 4:							
Gross sales.....	15,370	51,370	15,580	6,992	3,838	2,190	763
Selected expenses, total.....	11,753	36,766	11,787	7,150	3,840	1,888	741
Feed for livestock and poultry.....	10,785	33,064	11,048	6,797	3,661	1,709	886
Hired labor.....	675	2,810	436	214	72	108	6
Machine hire.....	33	60	44	20	21	19	13
Gasoline and other petroleum products.....	210	649	218	102	73	42	24
Fertilizer.....	42	153	34	14	12	7	12
Lime.....	8	30	7	3	1	3	-----
Gross sales minus selected expenses.....	3,617	14,604	3,793	-158	-2	302	22
Subregion 5:							
Gross sales.....	12,417	43,762	16,140	7,643	3,941	2,158	757
Selected expenses, total.....	10,748	35,040	14,017	7,024	4,334	2,069	1,023
Feed for livestock and poultry.....	9,586	30,790	12,689	6,307	3,904	1,734	846
Hired labor.....	789	3,216	925	383	260	146	42
Machine hire.....	46	97	59	48	23	21	12
Gasoline and other petroleum products.....	224	671	234	205	104	83	62
Fertilizer.....	90	237	96	73	34	77	49
Lime.....	13	20	14	8	9	8	12
Gross sales minus selected expenses.....	1,669	8,722	2,123	619	-393	89	-206
Subregion 14:							
Gross sales.....	10,661	25,118	16,902	8,050	3,885	1,896	633
Selected expenses, total.....	8,462	30,971	11,039	5,272	3,255	1,892	465
Feed for livestock and poultry.....	7,644	27,972	9,857	4,895	2,935	1,767	389
Hired labor.....	468	2,048	705	102	158	53	3
Machine hire.....	50	119	58	48	49	5	-----
Gasoline and other petroleum products.....	197	622	252	157	57	55	50
Fertilizer.....	92	182	150	68	46	8	21
Lime.....	11	28	17	2	10	4	2
Gross sales minus selected expenses.....	2,199	-5,853	5,863	2,778	630	4	108
Subregion 15:							
Gross sales.....	18,046	61,511	16,213	7,772	3,921	1,910	654
Selected expenses, total.....	15,043	47,018	13,418	7,205	3,880	1,700	914
Feed for livestock and poultry.....	13,581	42,116	12,225	6,761	3,377	1,501	745
Hired labor.....	895	3,526	610	213	211	24	36
Machine hire.....	76	112	85	49	68	32	68
Gasoline and other petroleum products.....	287	754	291	145	118	74	40
Fertilizer.....	184	456	187	98	99	66	18
Lime.....	21	55	20	9	16	3	7
Gross sales minus selected expenses.....	3,603	14,493	2,795	507	32	210	-260

Z 50 cents or less.

Table 32.—GROSS SALES AND SPECIFIED EXPENDITURES PER FARM, FOR POULTRY FARMS, BY ECONOMIC CLASS OF FARM, FOR SELECTED POULTRY SUBREGIONS: 1954—Continued

Subregion and item	Average per farm by economic class of farm (dollars)						
	Total	I	II	III	IV	V	VI
Subregion 18:							
Gross sales.....	9,240	53,116	16,133	7,297	3,904	1,850	678
Selected expenses, total.....	8,288	34,298	10,024	5,404	3,144	1,593	674
Feed for livestock and poultry.....	5,463	20,572	8,761	4,835	2,695	1,399	555
Hired labor.....	365	3,248	499	103	75	33	20
Machine hire.....	88	224	144	88	92	39	22
Gasoline and other petroleum products.....	177	595	285	201	121	72	31
Fertilizer.....	178	602	317	158	143	68	44
Lime.....	17	57	18	19	18	12	2
Gross sales minus selected expenses.....	2,952	18,818	6,109	1,893	760	257	4
Subregion 18:							
Gross sales.....	12,381	47,001	15,374	7,339	4,052	1,893	649
Selected expenses, total.....	8,136	31,875	9,209	4,808	2,651	1,296	524
Feed for livestock and poultry.....	7,383	28,666	8,551	4,412	2,379	1,170	468
Hired labor.....	390	2,050	208	139	77	27	14
Machine hire.....	62	153	81	56	44	21	17
Gasoline and other petroleum products.....	200	764	236	116	75	28	11
Fertilizer.....	94	234	125	80	63	38	21
Lime.....	7	8	8	5	13	3	3
Gross sales minus selected expenses.....	4,245	15,126	6,165	2,531	1,401	597	125
Subregion 28:							
Gross sales.....	8,979	42,051	15,693	7,548	3,801	1,967	650
Selected expenses, total.....	6,252	29,695	11,352	5,197	2,422	1,179	371
Feed for livestock and poultry.....	5,006	28,511	10,808	4,873	2,193	1,061	277
Hired labor.....	151	643	283	130	77	12	23
Machine hire.....	36	53	43	43	31	25	16
Gasoline and other petroleum products.....	101	346	138	97	75	43	24
Fertilizer.....	49	118	69	43	40	34	30
Lime.....	9	24	11	11	6	4	1
Gross sales minus selected expenses.....	2,727	12,356	4,341	2,351	1,379	788	279
Subregion 33:							
Gross sales.....	7,747	41,855	15,333	7,287	3,771	2,086	831
Selected expenses, total.....	5,425	25,964	10,706	5,240	3,009	1,475	778
Feed for livestock and poultry.....	5,117	24,481	10,236	4,993	2,789	1,307	640
Hired labor.....	111	945	192	61	60	32	7
Machine hire.....	30	54	44	34	22	24	11
Gasoline and other petroleum products.....	81	342	141	65	55	43	32
Fertilizer.....	79	125	86	82	76	61	83
Lime.....	7	17	7	5	7	8	5
Gross sales minus selected expenses.....	2,322	15,891	4,627	2,047	762	611	63
Subregion 42:							
Gross sales.....	9,746	42,886	15,367	7,422	4,007	1,998	691
Selected expenses, total.....	6,611	29,125	10,061	5,002	2,925	1,587	830
Feed for livestock and poultry.....	6,155	27,073	9,422	4,638	2,735	1,440	719
Hired labor.....	174	1,179	252	96	36	20	9
Machine hire.....	35	114	37	37	24	18	13
Gasoline and other petroleum products.....	112	378	176	98	49	38	25
Fertilizer.....	127	357	164	126	77	65	68
Lime.....	8	24	10	7	4	6	6
Gross sales minus selected expenses.....	3,135	13,761	5,306	2,420	1,082	411	-139
Subregion 82:							
Gross sales.....	10,713	44,630	15,104	7,741	3,836	1,776	765
Selected expenses, total.....	8,300	35,412	11,716	5,719	3,078	1,310	586
Feed for livestock and poultry.....	7,807	32,713	11,179	5,395	2,900	1,215	494
Hired labor.....	224	1,879	192	83	27	11	5
Machine hire.....	73	189	93	69	46	28	24
Gasoline and other petroleum products.....	142	497	182	116	78	39	39
Fertilizer.....	50	121	66	50	26	17	23
Lime.....	4	13	4	6	1	-----	1
Gross sales minus selected expenses.....	2,413	9,218	3,388	2,022	757	466	179
Subregion 115:							
Gross sales.....	15,332	52,819	15,943	7,607	3,986	1,933	761
Selected expenses, total.....	12,558	40,037	13,121	7,364	3,953	2,036	1,396
Feed for livestock and poultry.....	11,314	34,772	12,250	6,804	3,674	1,871	1,194
Hired labor.....	948	4,491	590	361	96	40	76
Machine hire.....	48	103	38	35	45	40	8
Gasoline and other petroleum products.....	240	645	239	161	128	87	115
Fertilizer.....	8	26	4	3	10	3	3
Lime.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	-----
Gross sales minus selected expenses.....	2,774	12,782	2,822	243	33	-73	-635

Z 50 cents or less.

Table 32.—GROSS SALES AND SPECIFIED EXPENDITURES PER FARM, FOR POULTRY FARMS, BY ECONOMIC CLASS OF FARM, FOR SELECTED POULTRY SUBREGIONS: 1954—Continued

Subregion and item	Average per farm by economic class of farm (dollars)						
	Total	I	II	III	IV	V	VI
Subregion 116:							
Gross sales.....	23,265	67,891	17,822	7,908	4,224	2,284	835
Selected expenses, total.....	17,355	49,567	13,681	5,913	3,775	2,105	1,192
Feed for livestock and poultry.....	15,534	43,979	12,398	5,416	3,594	2,011	775
Hired labor.....	1,366	4,443	908	251	64	41	265
Machine hire.....	108	219	80	103	28	63	11
Gasoline and other petroleum products.....	302	783	259	132	79	49	149
Fertilizer.....	44	138	26	11	10	1	2
Lime.....	1	5	1				
Gross sales minus selected ex- penses.....	5,910	18,324	4,141	1,995	449	119	-357
Subregion 117:							
Gross sales.....	15,442	54,048	16,332	7,497	3,721	2,440	773
Selected expenses, total.....	12,925	41,800	14,123	6,998	4,028	2,283	1,385
Feed for livestock and poultry.....	11,969	38,244	13,208	6,548	3,803	2,160	1,235
Hired labor.....	695	3,017	576	228	104	41	101
Machine hire.....	41	62	76	25	16	11	11
Gasoline and other petroleum products.....	214	462	259	190	102	68	37
Fertilizer.....	6	14	4	7	3	3	1
Lime.....	(Z)	1	(Z)			(Z)	
Gross sales minus selected ex- penses.....	2,517	12,248	2,209	499	-307	157	-612
Subregion 119:							
Gross sales.....	9,098	47,813	15,034	6,826	3,573	1,832	886
Selected expenses, total.....	6,695	30,538	11,125	5,946	2,894	1,563	966
Feed for livestock and poultry.....	6,018	26,272	10,143	5,548	2,661	1,460	858
Hired labor.....	402	3,246	561	147	64	30	33
Machine hire.....	54	157	83	48	43	19	30
Gasoline and other petroleum products.....	178	646	283	154	114	71	36
Fertilizer.....	37	184	53	40	10	12	8
Lime.....	6	33	2	9	2	1	1
Gross sales minus selected ex- penses.....	2,403	17,275	3,909	880	679	239	-80

Z 50 cents or less.

Practically all poultry farms have electricity and a high proportion have piped running water. Roughly two-thirds have telephones, about half television sets, and somewhat less than half, home freezers. About two-thirds of the farms in Class I have television sets and home freezers compared with less than one-third of the farms in Class VI.

Production expenses.—Expenditures on poultry farms are high. Expenses were particularly high in relation to income in 1954, as compared with earlier years, because of the relatively low prices for broilers. The total of specified expenses in 1954 generally ranged from 60 to 90 percent of the sales reported among the areas and classes of farms. Cost of feed is the largest item of expense. Of the six items included in the 1954 Census, feed represented 89 percent of the total expense for all poultry farms in the country. The other specified costs were; hired labor, 6 percent; gasoline and other petroleum fuel and oil, 2.6 percent; cost of machine hire, fertilizer, and lime, 2.4 percent. In some cases the total of specified expenses exceeded gross sales, in 1954. This situation sometimes arose when the number of farms in the group was very small and one or more of the farms in the group were just starting in the poultry business that year, and when the gross sales of poultry products were not fully reported. On some of the farms in Classes V and VI, expenditures exceeded gross sales because considerable quantities of poultry products were consumed on farms.

The six specified expenditures do not, of course, represent all of the costs on poultry farms. It is significant, however, that the proportion that feed is of the total specified expenditures varies little with the size of operation as measured by economic class of farm. Feed represents between 80 and 90 percent of the total in each economic class. Hired labor, the next largest item, ranges from 8 percent for Class I farms to 3 percent for the poultry farms with the smallest gross sales.

Table 33.—WORK OFF THE FARM AND OTHER INCOME FOR POULTRY FARMS, BY ECONOMIC CLASS OF FARM, FOR SELECTED POULTRY SUBREGIONS: 1954

Subregion and item	Economic class of farm						
	Total	I	II	III	IV	V	VI
United States:							
Percent of farms reporting:							
No off-farm work.....	60.6	74.2	63.7	55.4	49.6	47.1	81.3
1 to 99 days of off-farm work.....	13.1	10.0	15.3	13.6	12.7	11.6	13.7
100 to 199 days of off-farm work.....	5.2	3.3	5.2	6.7	7.4	7.4	-----
200 days or more of off-farm work.....	18.9	11.0	14.7	22.5	28.5	31.8	-----
Income of operator and members of family greater than value of all farm products sold.....	23.3	9.8	16.0	25.7	34.7	45.5	-----
Subregion 2:							
Percent of farms reporting:							
No off-farm work.....	60.1	72.4	69.0	50.0	44.6	49.3	82.3
1 to 99 days of off-farm work.....	12.2	5.2	12.9	13.8	14.5	10.4	17.7
100 to 199 days of off-farm work.....	3.7	2.6	2.6	6.4	6.0	3.0	-----
200 days or more of off-farm work.....	22.2	19.8	15.5	25.5	31.3	35.8	-----
Income of operator and members of family greater than value of all farm products sold.....	25.3	10.4	15.5	20.2	38.6	67.2	-----
Subregion 3:							
Percent of farms reporting:							
No off-farm work.....	65.5	91.3	68.6	67.7	54.8	41.3	93.6
1 to 99 days of off-farm work.....	5.3	-----	6.9	5.0	3.2	8.2	6.4
100 to 199 days of off-farm work.....	3.6	-----	6.9	4.0	1.1	5.9	-----
200 days or more of off-farm work.....	23.1	4.3	16.7	18.2	37.6	43.4	-----
Income of operator and members of family greater than value of all farm products sold.....	24.9	4.8	13.7	14.1	40.9	57.7	-----
Subregion 4:							
Percent of farms reporting:							
No off-farm work.....	64.6	86.2	68.2	58.0	53.5	48.0	84.4
1 to 99 days of off-farm work.....	5.0	4.9	7.0	6.8	4.0	2.0	3.1
100 to 199 days of off-farm work.....	4.3	2.0	7.0	5.7	3.0	3.9	-----
200 days or more of off-farm work.....	24.0	4.9	17.2	29.5	39.4	41.2	-----
Income of operator and members of family greater than value of all farm products sold.....	24.0	3.0	17.2	25.0	32.3	53.9	-----
Subregion 5:							
Percent of farms reporting:							
No off-farm work.....	68.9	82.4	75.2	73.5	52.5	52.4	76.4
1 to 99 days of off-farm work.....	5.5	2.3	7.0	3.0	8.6	6.0	3.6
100 to 199 days of off-farm work.....	3.0	-----	3.7	1.8	4.3	6.0	-----
200 days or more of off-farm work.....	17.2	11.7	8.4	21.1	28.8	29.8	-----
Income of operator and members of family greater than value of all farm products sold.....	17.0	2.6	5.6	19.9	34.5	36.9	-----

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Table 33.—WORK OFF THE FARM AND OTHER INCOME FOR POULTRY FARMS, BY ECONOMIC CLASS OF FARM, FOR SELECTED POULTRY SUBREGIONS: 1954—Continued

Subregion and item	Economic class of farm:						
	Total	I	II	III	IV	V	VI
Subregion 14:							
Percent of farms reporting:							
No off-farm work.....	66.2	83.3	70.1	62.9	47.4	40.0	77.8
1 to 99 days of off-farm work.....	5.3	8.3	4.7	2.9	5.3	6.7	11.1
100 to 199 days of off-farm work.....	3.8		7.0	2.9		6.7	
200 days or more of off-farm work.....	21.1	8.3	9.3	22.9	42.1	46.7	
Income of operator and members of family greater than value of all farm products sold.....	20.3		4.7	37.1	31.6	40.0	
Subregion 15:							
Percent of farms reporting:							
No off-farm work.....	67.7	74.4	71.8	60.9	55.0	56.7	85.1
1 to 99 days of off-farm work.....	9.5	7.7	10.0	8.9	8.3	11.7	12.6
100 to 199 days of off-farm work.....	5.3	3.6	5.6	5.7	8.9	5.0	
200 days or more of off-farm work.....	16.2	12.5	12.0	22.4	26.0	25.8	
Income of operator and members of family greater than value of all farm products sold.....	18.9	11.3	14.1	22.8	37.9	33.3	
Subregion 16:							
Percent of farms reporting:							
No off-farm work.....	52.9	70.2	60.8	48.9	51.2	35.6	72.4
1 to 99 days of off-farm work.....	15.6	14.7	16.8	22.3	9.4	11.5	22.4
100 to 199 days of off-farm work.....	5.1	7.4	4.8	5.0	4.4	8.0	
200 days or more of off-farm work.....	23.3	7.4	14.4	22.3	30.6	42.0	
Income of operator and members of family greater than value of all farm products sold.....	23.3	5.5	10.4	18.7	28.8	50.0	
Subregion 18:							
Percent of farms reporting:							
No off-farm work.....	43.8	62.2	53.0	34.8	34.3	30.1	65.9
1 to 99 days of off-farm work.....	21.6	13.8	33.7	19.6	17.6	16.9	34.1
100 to 199 days of off-farm work.....	6.8	3.2	7.2	6.5	11.8	7.2	
200 days or more of off-farm work.....	27.3	20.9	4.8	39.1	37.3	43.4	
Income of operator and members of family greater than value of all farm products sold.....	29.6	13.5	14.5	42.4	44.1	41.0	
Subregion 28:							
Percent of farms reporting:							
No off-farm work.....	45.8	65.5	52.0	38.7	44.1	38.3	63.6
1 to 99 days of off-farm work.....	24.4	20.2	20.9	28.2	18.0	27.2	27.3
100 to 199 days of off-farm work.....	5.7		8.9	6.5	7.8	3.7	
200 days or more of off-farm work.....	18.5	8.3	12.8	18.5	25.6	27.2	
Income of operator and members of family greater than value of all farm products sold.....	27.0	25.5	19.1	27.6	34.5	37.0	
Subregion 33:							
Percent of farms reporting:							
No off-farm work.....	59.0	77.1	63.2	52.0	53.4	54.5	82.6
1 to 99 days of off-farm work.....	14.4	8.9	16.1	15.2	15.0	11.5	15.1
100 to 199 days of off-farm work.....	6.4	2.8	4.5	10.0	7.8	6.1	
200 days or more of off-farm work.....	19.7	11.2	15.6	22.4	23.8	27.3	
Income of operator and members of family greater than value of all farm products sold.....	29.5	16.8	21.2	29.5	37.3	46.1	
Subregion 42:							
Percent of farms reporting:							
No off-farm work.....	52.7	60.8	57.4	51.9	46.9	46.2	76.0
1 to 99 days of off-farm work.....	12.9	11.1	14.6	14.1	11.0	8.0	25.0
100 to 199 days of off-farm work.....	7.1	10.0	6.0	8.2	6.0	8.5	
200 days or more of off-farm work.....	27.5	18.1	22.0	26.3	35.8	37.2	
Income of operator and members of family greater than value of all farm products sold.....	37.0	23.7	24.8	37.0	45.3	59.3	
Subregion 82:							
Percent of farms reporting:							
No off-farm work.....	54.7	70.3	50.7	54.0	53.0	47.5	78.6
1 to 99 days of off-farm work.....	18.2	4.8	25.2	18.6	15.7	13.5	17.9
100 to 199 days of off-farm work.....	8.9	10.0	6.8	9.9	10.4	12.1	
200 days or more of off-farm work.....	17.5	12.4	17.3	16.1	20.0	26.9	
Income of operator and members of family greater than value of all farm products sold.....	27.3	12.4	23.9	27.9	27.0	57.9	
Subregion 115:							
Percent of farms reporting:							
No off-farm work.....	64.2	88.4	68.6	62.1	46.1	48.8	81.5
1 to 99 days of off-farm work.....	5.8	5.7	7.1	3.9	3.3	7.7	18.5
100 to 199 days of off-farm work.....	5.2	2.5	3.4	6.6	8.9	6.2	
200 days or more of off-farm work.....	24.6	3.4	20.9	27.4	41.7	35.8	
Income of operator and members of family greater than value of all farm products sold.....	28.4	5.7	22.5	28.6	47.2	60.5	
Subregion 116:							
Percent of farms reporting:							
No off-farm work.....	69.4	82.3	78.3	58.9	54.2	58.7	85.7
1 to 99 days of off-farm work.....	9.5	6.0	9.3	9.2	14.5	9.5	14.3
100 to 199 days of off-farm work.....	2.9	1.5	2.3	4.1	6.0	1.6	
200 days or more of off-farm work.....	17.7	8.7	10.8	26.2	26.5	28.6	
Income of operator and members of family greater than value of all farm products sold.....	19.7	7.2	11.6	24.5	39.8	33.3	
Subregion 117:							
Percent of farms reporting:							
No off-farm work.....	64.4	74.7	76.1	62.8	43.2	47.9	88.5
1 to 99 days of off-farm work.....	7.6	10.4	7.0	8.0	8.0	2.8	11.5
100 to 199 days of off-farm work.....	4.6	1.4	4.1	4.4	9.0	5.6	
200 days or more of off-farm work.....	23.2	13.5	12.8	24.1	39.8	43.7	
Income of operator and members of family greater than value of all farm products sold.....	26.4	5.6	10.5	27.0	54.8	59.2	
Subregion 119:							
Percent of farms reporting:							
No off-farm work.....	56.7	72.9	62.3	54.1	51.3	42.6	85.5
1 to 99 days of off-farm work.....	16.0	16.2	22.3	15.1	13.5	14.9	14.5
100 to 199 days of off-farm work.....	7.1	5.4	3.8	7.5	10.3	9.2	
200 days or more of off-farm work.....	20.2	5.4	11.5	23.3	24.9	33.3	
Income of operator and members of family greater than value of all farm products sold.....	26.6	10.8	14.6	23.3	35.7	47.5	

POULTRY PRODUCERS AND POULTRY PRODUCTION

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TABLE 34.—SELECTED FACILITIES AND EQUIPMENT FOR POULTRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE UNITED STATES AND FOR SELECTED POULTRY SUBREGIONS: 1954

Subregion and item	Economic class of farm						
	Total	I	II	III	IV	V	VI
United States:							
Average number per farm:							
Automobiles.....	0.9	1.5	1.0	0.9	0.9	0.9	0.7
Motortrucks.....	0.5	1.2	0.7	0.6	0.5	0.4	0.2
Tractors.....	0.7	1.3	0.9	0.6	0.7	0.6	0.4
Percent of farms reporting:							
Automobiles.....	75.0	89.3	80.9	75.7	74.4	75.0	61.8
Motortrucks.....	47.4	76.1	63.8	54.4	46.0	35.9	23.1
Tractors.....	53.6	70.6	61.3	57.1	55.8	51.6	33.6
Telephones.....	65.8	82.6	72.5	64.4	63.3	63.7	56.8
Electricity.....	97.6	98.9	99.3	98.3	97.8	97.5	94.3
Television sets.....	48.3	65.6	57.5	51.8	46.8	44.8	32.1
Piped running water.....	83.9	96.3	93.8	91.2	85.4	79.8	62.6
Home freezers.....	39.7	60.1	47.5	40.8	38.7	35.2	26.7
Subregion 2:							
Average number per farm:							
Automobiles.....	1.0	1.4	0.9	1.0	0.8	0.8	0.8
Motortrucks.....	0.8	1.3	0.9	0.7	0.7	0.7	0.3
Tractors.....	0.7	1.0	0.8	0.7	0.5	0.4	0.4
Percent of farms reporting:							
Automobiles.....	81.3	88.3	86.2	84.0	77.1	70.1	75.7
Motortrucks.....	62.7	79.2	72.4	61.7	59.0	55.2	29.2
Tractors.....	51.2	60.9	62.1	48.9	50.6	34.3	38.1
Telephones.....	88.4	96.1	87.1	90.4	88.0	79.1	88.9
Electricity.....	99.2	100.0	100.0	98.9	97.6	98.5	100.0
Television sets.....	65.4	75.3	69.0	70.2	63.9	59.7	40.3
Piped running water.....	96.9	100.0	98.3	97.9	96.4	92.6	93.4
Home freezers.....	41.0	55.5	43.1	36.2	43.4	32.8	29.2
Subregion 3:							
Average number per farm:							
Automobiles.....	1.0	1.6	1.0	0.9	0.9	1.2	0.7
Motortrucks.....	0.6	1.5	1.0	0.6	0.4	0.4	0.2
Tractors.....	0.5	1.4	0.6	0.4	0.4	0.4	0.3
Percent of farms reporting:							
Automobiles.....	79.9	91.3	84.3	81.8	73.1	82.4	63.8
Motortrucks.....	50.5	84.8	75.5	48.5	36.6	34.3	23.4
Tractors.....	36.5	65.4	48.0	28.3	28.0	34.3	21.3
Telephones.....	89.4	95.7	95.1	90.9	92.5	81.0	76.6
Electricity.....	98.5	100.0	100.0	100.0	98.9	92.7	100.0
Television sets.....	80.1	91.3	83.3	82.8	78.5	75.1	68.1
Piped running water.....	93.8	93.5	98.0	97.0	89.2	89.2	95.7
Home freezers.....	41.5	63.2	53.9	40.4	35.5	31.7	25.5
Subregion 4:							
Average number per farm:							
Automobiles.....	1.1	1.5	1.1	1.1	0.9	1.0	0.7
Motortrucks.....	0.7	1.2	0.9	0.6	0.6	0.5	0.2
Tractors.....	0.6	1.0	0.6	0.6	0.6	0.5	0.2
Percent of farms reporting:							
Automobiles.....	85.8	97.8	88.5	86.4	81.8	79.4	65.6
Motortrucks.....	57.9	78.3	68.8	55.7	47.5	44.1	21.9
Tractors.....	46.4	63.6	44.7	44.3	47.5	41.2	18.8
Telephones.....	94.7	98.0	96.2	95.5	96.0	88.2	90.6
Electricity.....	99.3	100.0	100.0	100.0	100.0	98.0	93.8
Television sets.....	73.3	78.3	75.8	75.0	68.7	74.5	50.0
Piped running water.....	96.7	99.0	98.1	98.9	99.0	89.2	93.8
Home freezers.....	46.7	63.6	47.2	50.0	36.4	39.2	37.5
Subregion 5:							
Average number per farm:							
Automobiles.....	1.1	1.5	1.1	1.1	1.1	1.0	1.0
Motortrucks.....	0.7	1.3	0.8	0.7	0.5	0.6	0.5
Tractors.....	0.8	0.9	0.7	0.7	0.7	0.9	0.7
Percent of farms reporting:							
Automobiles.....	82.6	91.6	85.5	82.5	83.5	70.2	74.5
Motortrucks.....	60.4	83.4	66.4	62.0	48.2	52.4	40.0
Tractors.....	52.6	68.5	49.1	49.4	54.7	63.1	45.5
Telephones.....	95.0	97.7	96.7	96.4	95.0	91.7	85.5
Electricity.....	99.9	98.8	100.0	100.0	100.0	100.0	100.0
Television sets.....	82.8	89.5	86.0	81.3	84.2	76.2	70.9
Piped running water.....	98.1	98.8	97.7	100.0	99.3	100.0	87.3
Home freezers.....	47.5	54.3	49.5	49.4	46.0	36.9	43.6
Subregion 14:							
Average number per farm:							
Automobiles.....	1.0	1.3	1.0	0.9	1.1	0.7	0.4
Motortrucks.....	0.7	1.4	0.7	0.6	0.5	0.6	0.6
Tractors.....	0.7	1.1	0.7	0.7	0.7	0.8	0.3
Percent of farms reporting:							
Automobiles.....	80.5	91.7	81.4	80.0	94.7	73.3	44.4
Motortrucks.....	56.4	91.7	58.1	54.3	42.1	53.3	44.4
Tractors.....	51.1	75.0	48.8	51.4	52.6	46.7	33.3
Telephones.....	90.2	75.0	97.7	88.6	89.5	100.0	66.7
Electricity.....	99.2	100.0	100.0	100.0	94.7	100.0	100.0
Television sets.....	85.7	100.0	81.4	81.4	78.9	86.7	77.8
Piped running water.....	90.2	100.0	95.3	88.6	89.5	93.3	55.6
Home freezers.....	33.8	25.0	30.2	34.3	26.3	16.7	22.2
Subregion 15:							
Average number per farm:							
Automobiles.....	1.0	1.5	1.0	0.9	0.9	0.7	0.6
Motortrucks.....	0.7	1.2	0.7	0.5	0.5	0.4	0.2
Tractors.....	0.7	1.2	0.8	0.6	0.6	0.5	0.3
Percent of farms reporting:							
Automobiles.....	80.0	94.3	83.7	76.9	75.7	65.0	57.5
Motortrucks.....	52.1	70.5	55.5	48.8	43.8	39.2	24.1
Tractors.....	50.6	65.4	52.0	48.4	45.0	41.7	31.0
Telephones.....	85.0	95.3	92.1	85.1	78.7	65.8	51.7
Electricity.....	98.9	99.8	99.6	98.6	97.6	100.0	94.3
Television sets.....	67.1	74.0	73.0	66.2	61.5	58.3	37.9
Piped running water.....	93.5	98.3	97.7	94.3	89.9	88.3	65.5
Home freezers.....	41.7	61.3	42.6	29.2	37.9	44.2	25.3
Subregion 16:							
Average number per farm:							
Automobiles.....	1.1	2.1	1.3	1.1	1.0	1.0	0.8
Motortrucks.....	0.4	1.1	0.7	0.4	0.4	0.3	0.2
Tractors.....	1.1	2.1	1.8	1.2	1.0	0.8	0.5
Percent of farms reporting:							
Automobiles.....	84.3	94.5	92.8	85.6	80.0	86.8	68.4
Motortrucks.....	38.4	68.7	57.6	41.7	36.2	27.6	15.3
Tractors.....	71.2	92.6	90.4	78.4	71.9	62.6	38.8
Telephones.....	66.2	92.6	77.6	64.7	58.1	62.6	58.2
Electricity.....	95.6	98.2	99.2	92.1	95.6	97.1	91.8
Television sets.....	44.4	44.9	47.2	44.6	45.6	47.1	33.7
Piped running water.....	88.4	100.0	99.2	95.0	85.6	85.6	68.4
Home freezers.....	56.9	73.9	68.8	54.7	57.5	55.7	36.7
Subregion 18:							
Average number per farm:							
Automobiles.....	1.1	1.7	1.1	0.9	1.0	0.9	0.7
Motortrucks.....	0.6	1.3	0.7	0.6	0.4	0.2	0.2
Tractors.....	1.0	1.6	1.4	0.9	0.8	0.5	0.5
Percent of farms reporting:							
Automobiles.....	81.1	91.4	88.0	78.3	82.3	77.1	61.0
Motortrucks.....	47.5	81.4	62.6	51.1	40.2	24.1	17.1
Tractors.....	64.7	78.5	66.7	66.3	58.8	47.0	43.9
Telephones.....	71.5	88.3	78.3	73.9	68.6	66.3	41.5
Electricity.....	96.4	95.7	98.8	93.5	99.0	96.4	92.7
Television sets.....	38.2	47.0	37.3	35.9	37.3	39.8	29.3
Piped running water.....	69.6	80.7	83.1	69.6	61.8	51.8	63.4
Home freezers.....	37.3	67.9	48.2	29.3	36.3	21.7	14.6
Subregion 26:							
Average number per farm:							
Automobiles.....	0.7	1.3	0.8	0.7	0.5	0.6	0.4
Motortrucks.....	0.6	1.4	0.6	0.5	0.6	0.4	0.4
Tractors.....	0.7	1.5	0.8	0.8	0.5	0.4	0.4
Percent of farms reporting:							
Automobiles.....	62.5	89.0	75.0	65.6	48.8	60.5	39.4
Motortrucks.....	51.5	82.8	59.2	48.4	56.3	38.3	36.4
Tractors.....	47.6	80.7	50.0	47.1	41.0	34.6	27.3
Telephones.....	34.1	47.6	36.0	29.0	32.5	33.3	42.4
Electricity.....	95.8	100.0	98.7	92.7	96.4	96.3	93.9
Television sets.....	23.5	51.7	23.7	18.2	23.4	23.5	18.2
Piped running water.....	61.2	99.3	74.2	58.9	52.8	48.1	60.6
Home freezers.....	23.2	50.3	35.2	19.7	16.9	18.5	12.1
Subregion 33:							
Average number per farm:							
Automobiles.....	0.5	1.0	0.7	0.5	0.5	0.4	0.2
Motortrucks.....	0.6	1.1	0.8	0.6	0.5	0.5	0.5
Tractors.....	0.3	0.1	0.4	0.3	0.3	0.3	0.3
Percent of farms reporting:							
Automobiles.....	46.2	72.1	61.0	46.2	44.2	41.2	22.1
Motortrucks.....	55.5	77.7	69.6	56.2	49.1	47.9	47.7
Tractors.....	31.1	57.5	37.3	32.4	26.8	24.2	29.1
Telephones.....	15.9	32.4	23.0	14.7	14.1	12.1	10.5
Electricity.....	97.1	97.2	98.8	96.7	97.1	95.8	97.7
Television sets.....	33.3	60.3	40.4	37.7	31.0	23.0	23.3
Piped running water.....	74.9	94.4	82.5	75.7	75.8	66.7	64.0
Home freezers.....	18.0	51.4	21.7	15.8	16.5	13.9	14.0
Subregion 42:							
Average number per farm:							
Automobiles.....	0.7	1.1	0.8	0.7	0.7	0.7	0.6
Motortrucks.....	0.6	0.9	0.7	0.6	0.5	0.4	0.4
Tractors.....	0.4	0.9	0.6	0.4	0.3	0.3	0.3
Percent of farms reporting:							
Automobiles.....	64.2	79.1	67.0	62.1	61.0	63.8	59.6
Motortrucks.....	51.4	59.5	61.6	53.5	45.0	41.2	34.6
Tractors.....	38.2	6					

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TABLE 34.—SELECTED FACILITIES AND EQUIPMENT FOR POULTRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE UNITED STATES AND FOR SELECTED POULTRY SUBREGIONS: 1954—Continued

Subregion and item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Subregion 82:							
Average number per farm:							
Automobiles.....	0.7	1.2	0.8	0.7	0.6	0.6	0.3
Motortrucks.....	0.6	0.9	0.7	0.6	0.5	0.4	0.5
Tractors.....	0.6	0.9	0.6	0.6	0.5	0.3	0.3
Percent of farms reporting:							
Automobiles.....	63.3	73.7	70.8	64.0	57.4	61.3	32.1
Motortrucks.....	55.0	66.5	62.8	57.8	44.3	42.8	50.0
Tractors.....	50.3	71.3	58.8	55.3	43.5	25.0	25.0
Telephones.....	53.2	72.7	61.2	51.6	40.0	57.6	35.7
Electricity.....	98.2	95.2	100.0	98.1	96.5	98.3	100.0
Television sets.....	23.2	44.5	31.9	19.9	13.0	17.2	17.9
Piped running water.....	82.3	88.0	93.9	84.5	72.2	76.1	64.3
Home freezers.....	27.5	56.5	25.4	20.8	20.0	27.3	14.3
Subregion 115:							
Average number per farm:							
Automobiles.....	1.2	1.7	1.2	1.2	1.2	1.1	0.9
Motortrucks.....	0.5	1.0	0.5	0.3	0.4	0.3	0.2
Tractors.....	0.3	0.6	0.3	0.2	0.2	0.3	0.3
Percent of farms reporting:							
Automobiles.....	91.3	93.6	92.3	92.7	88.3	89.9	77.8
Motortrucks.....	38.2	64.1	40.6	28.3	32.2	31.9	22.2
Tractors.....	26.5	41.1	25.5	22.1	20.0	28.8	25.0
Telephones.....	82.2	85.7	87.4	81.0	79.4	76.8	55.6
Electricity.....	99.0	99.7	100.0	98.8	96.7	100.0	96.3
Television sets.....	81.4	82.8	83.7	81.4	80.0	77.4	74.1
Piped running water.....	98.6	99.9	99.7	98.5	96.7	97.7	96.3
Home freezers.....	44.4	60.0	46.8	35.5	42.8	40.4	37.0
Subregion 116:							
Average number per farm:							
Automobiles.....	1.3	1.8	1.2	1.1	1.0	1.0	1.0
Motortrucks.....	0.7	1.2	0.7	0.6	0.4	0.3	0.3
Tractors.....	0.8	1.3	0.8	0.6	0.5	0.4	0.3
Subregion 118—Continued							
Percent of farms reporting:							
Automobiles.....	88.0	90.9	90.7	86.9	84.3	88.9	71.4
Motortrucks.....	56.3	76.5	61.3	55.8	42.2	31.7	28.6
Tractors.....	54.5	70.8	62.1	53.4	41.0	33.3	28.6
Telephones.....	80.6	88.0	89.9	76.1	69.9	69.8	76.2
Electricity.....	99.6	99.2	100.0	100.0	100.0	98.4	100.0
Television sets.....	51.9	66.0	53.6	53.4	38.6	41.3	28.6
Piped running water.....	99.1	97.0	100.0	100.0	100.0	100.0	95.2
Home freezers.....	46.6	57.7	53.6	50.1	27.7	33.3	28.6
Subregion 117:							
Average number per farm:							
Automobiles.....	1.2	1.7	1.3	1.1	1.0	1.0	0.9
Motortrucks.....	0.8	1.5	0.9	0.7	0.6	0.5	0.5
Tractors.....	0.6	0.9	0.6	0.5	0.4	0.4	0.4
Percent of farms reporting:							
Automobiles.....	87.7	95.3	92.4	87.6	81.9	81.7	69.5
Motortrucks.....	63.7	88.7	70.2	60.6	53.2	43.7	40.6
Tractors.....	45.3	60.3	49.1	45.3	36.3	35.2	31.3
Telephones.....	85.4	92.1	94.2	83.9	76.1	71.8	64.7
Electricity.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Television sets.....	60.4	64.1	65.3	64.2	51.0	60.6	51.3
Piped running water.....	98.5	100.0	99.4	98.5	95.0	98.6	100.0
Home freezers.....	45.5	55.8	48.7	43.1	41.2	47.9	12.2
Subregion 119:							
Average number per farm:							
Automobiles.....	1.0	1.4	1.1	0.9	1.0	0.9	0.7
Motortrucks.....	0.7	1.3	0.8	0.8	0.6	0.4	0.4
Tractors.....	1.0	1.8	1.3	1.1	0.9	0.8	0.6
Percent of farms reporting:							
Automobiles.....	80.3	94.6	88.5	81.1	79.5	75.2	62.0
Motortrucks.....	56.6	88.2	68.9	64.2	51.4	39.0	33.0
Tractors.....	71.9	94.6	80.8	76.1	65.9	65.2	54.8
Telephones.....	75.6	92.8	86.9	79.9	71.4	68.1	64.8
Electricity.....	99.2	100.0	100.0	100.0	100.0	97.2	96.8
Television sets.....	43.6	63.9	49.2	49.1	40.5	34.8	29.0
Piped running water.....	98.0	100.0	98.5	98.7	98.9	95.7	95.2
Home freezers.....	41.7	62.1	50.0	39.6	36.2	38.3	35.5

Measures of efficiency levels of the poultry business.—Because of the conditions affecting poultry income in 1954 and the nature of the poultry business, available economic measures are of limited usefulness in gauging levels of efficiency and income on poultry farms in various economic classes. In general, these measures indicate more efficient use of capital and labor on larger farms and higher degree of specialization and poultry production. Gross sales

per farm averaged \$9,600 for all poultry farms, and ranged from \$49,000 for Class I farms to less than \$700 for Class VI farms. However, the margin of sales over total cash expenditures is probably smaller for poultry farms than for any other type of farming. For all poultry farms in the United States, in 1954, this margin of gross sales over the total of six specified cash expenditures was \$2,500.

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TABLE 35.—SELECTED MEASURES OF EFFICIENCY FOR POULTRY FARMS, BY ECONOMIC CLASS OF FARM, FOR SELECTED POULTRY SUBREGIONS:
1954

Subregion and item	Economic class of farm						
	Total	I	II	III	IV	V	VI
United States:							
Gross sales per man-equivalent.....dollars	8,305	18,229	10,998	6,512	4,051	2,439	822
Gross sales per \$1,000 of capital invested.....dollars	546	1,100	647	422	270	160	87
Capital invested per \$100 of gross sales.....dollars	133	91	155	237	371	626	1,154
Capital invested per man-equivalent.....dollars	15,199	16,571	17,010	15,411	15,047	15,185	9,534
Expenditure for feed per \$100 gross sales.....dollars	66	63	67	69	71	66	66
Percent of gross sales from poultry and poultry products.....percent	89.7	92.1	90.1	87.6	83.8	81.8	78.5
Subregion 2:							
Gross sales per man-equivalent.....dollars	11,419	19,059	11,685	7,051	4,447	2,732	791
Gross sales per \$1,000 of capital invested.....dollars	775	1,437	706	415	276	150	62
Capital invested per \$100 of gross sales.....dollars	130	70	140	243	367	675	1,608
Capital invested per man-equivalent.....dollars	14,859	13,260	10,349	17,260	10,000	18,418	12,832
Expenditure for feed per \$100 gross sales.....dollars	67	62	65	79	91	97	156
Percent of gross sales from poultry and poultry products.....percent	96.4	97.9	94.3	95.1	95.8	91.5	87.8
Subregion 3:							
Gross sales per man-equivalent.....dollars	7,395	10,791	8,977	6,479	4,294	2,441	904
Gross sales per \$1,000 of capital invested.....dollars	545	1,266	706	427	273	120	66
Capital invested per \$100 of gross sales.....dollars	183	101	138	234	362	859	1,513
Capital invested per man-equivalent.....dollars	13,584	10,857	12,343	15,268	15,464	20,896	13,239
Expenditure for feed per \$100 gross sales.....dollars	76	68	76	78	101	93	154
Percent of gross sales from poultry and poultry products.....percent	96.5	97.1	96.0	95.1	97.6	98.6	94.2
Subregion 4:							
Gross sales per man-equivalent.....dollars	11,823	20,145	12,172	6,188	4,264	3,042	942
Gross sales per \$1,000 of capital invested.....dollars	699	1,352	649	350	240	146	64
Capital invested per \$100 of gross sales.....dollars	146	75	157	280	418	701	1,494
Capital invested per man-equivalent.....dollars	17,299	15,033	19,137	17,375	17,637	21,429	14,753
Expenditure for feed per \$100 gross sales.....dollars	70	64	71	97	96	78	86
Percent of gross sales from poultry and poultry products.....percent	95.5	95.2	95.9	97.1	96.8	91.6	92.5
Subregion 5:							
Gross sales per man-equivalent.....dollars	8,933	16,268	10,025	6,164	3,826	2,632	996
Gross sales per \$1,000 of capital invested.....dollars	388	717	425	283	179	103	42
Capital invested per \$100 of gross sales.....dollars	257	140	233	354	574	948	2,219
Capital invested per man-equivalent.....dollars	22,939	22,832	23,301	21,727	21,726	25,430	23,353
Expenditure for feed per \$100 gross sales.....dollars	77	70	79	83	100	79	106
Percent of gross sales from poultry and poultry products.....percent	96.5	97.2	97.2	93.7	95.4	93.2	94.0
Subregion 14:							
Gross sales per man-equivalent.....dollars	8,739	10,466	11,120	7,892	4,981	2,495	1,194
Gross sales per \$1,000 of capital invested.....dollars	395	405	604	350	162	85	32
Capital invested per \$100 of gross sales.....dollars	254	248	168	280	608	1,159	3,391
Capital invested per man-equivalent.....dollars	22,252	25,924	18,670	22,231	30,410	28,972	38,391
Expenditure for feed per \$100 gross sales.....dollars	71	111	58	61	75	93	65
Percent of gross sales from poultry and poultry products.....percent	96.7	96.9	97.4	95.4	93.3	98.8	93.0
Subregion 15:							
Gross sales per man-equivalent.....dollars	12,431	20,301	10,809	7,065	4,084	2,547	849
Gross sales per \$1,000 of capital invested.....dollars	811	1,577	624	432	280	159	9
Capital invested per \$100 of gross sales.....dollars	125	64	162	228	351	653	1,039
Capital invested per man-equivalent.....dollars	15,467	13,021	17,487	15,927	14,264	16,544	9,447
Expenditure for feed per \$100 gross sales.....dollars	73	68	75	87	87	79	106
Percent of gross sales from poultry and poultry products.....percent	93.5	94.4	92.8	92.5	90.1	87.4	89.0
Subregion 16:							
Gross sales per man-equivalent.....dollars	8,177	16,496	10,684	7,016	4,648	2,569	892
Gross sales per \$1,000 of capital invested.....dollars	456	949	550	405	279	168	85
Capital invested per \$100 of gross sales.....dollars	207	105	183	244	353	556	1,087
Capital invested per man-equivalent.....dollars	16,893	17,361	19,460	17,479	10,411	14,664	100
Expenditure for feed per \$100 gross sales.....dollars	69	56	54	66	69	76	79
Percent of gross sales from poultry and poultry products.....percent	79.7	82.2	76.3	79.5	77.3	84.0	79.3
Subregion 18:							
Gross sales per man-equivalent.....dollars	10,766	18,288	12,202	7,645	4,941	2,958	782
Gross sales per \$1,000 of capital invested.....dollars	688	1,175	699	524	338	237	81
Capital invested per \$100 of gross sales.....dollars	141	85	148	190	299	397	1,342
Capital invested per man-equivalent.....dollars	15,242	15,553	17,689	14,441	14,967	11,795	9,700
Expenditure for feed per \$100 gross sales.....dollars	60	61	56	60	58	62	76
Percent of gross sales from poultry and poultry products.....percent	87.3	88.9	84.6	87.4	83.6	85.3	76.4
Subregion 26:							
Gross sales per man-equivalent.....dollars	8,717	24,167	13,078	7,121	4,044	2,370	823
Gross sales per \$1,000 of capital invested.....dollars	748	1,237	1,046	629	475	246	108
Capital invested per \$100 of gross sales.....dollars	136	81	58	164	219	419	590
Capital invested per man-equivalent.....dollars	11,906	19,503	12,789	11,589	8,848	10,105	7,887
Expenditure for feed per \$100 gross sales.....dollars	66	68	69	65	68	53	46
Percent of gross sales from poultry and poultry products.....percent	91.0	94.5	92.5	88.9	85.6	81.0	63.7
Subregion 33:							
Gross sales per man-equivalent.....dollars	7,107	22,029	11,795	6,875	3,809	2,344	799
Gross sales per \$1,000 of capital invested.....dollars	775	1,674	1,179	810	419	268	138
Capital invested per \$100 of gross sales.....dollars	124	59	84	120	233	332	760
Capital invested per man-equivalent.....dollars	8,788	13,005	9,926	8,281	8,953	7,937	5,769
Expenditure for feed per \$100 gross sales.....dollars	66	58	67	68	73	62	80
Percent of gross sales from poultry and poultry products.....percent	94.6	97.6	95.6	94.2	90.6	89.3	79.0

FARMERS AND FARM PRODUCTION

TABLE 35.—SELECTED MEASURES OF EFFICIENCY FOR POULTRY FARMS, BY ECONOMIC CLASS OF FARM, FOR SELECTED POULTRY SUBREGIONS:
1954—Continued

Subregion and item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Subregion 42:							
Gross sales per man-equivalent.....dollars..	9,194	22,336	11,554	7,206	4,828	2,604	743
Gross sales per \$1,000 of capital invested.....dollars..	886	1,865	1,098	742	501	250	99
Capital invested per \$100 of gross sales.....dollars..	112	54	89	138	200	382	1,038
Capital invested per man-equivalent.....dollars..	10,236	12,136	10,316	9,915	9,652	10,185	7,815
Expenditure for feed per \$100 gross sales.....dollars..	63	63	61	63	68	72	103
Percent of gross sales from poultry and poultry products.....percent..	94.0	95.7	94.3	92.9	92.2	89.8	77.1
Subregion 82:							
Gross sales per man-equivalent.....dollars..	9,397	21,152	11,893	7,235	3,954	2,246	900
Gross sales per \$1,000 of capital invested.....dollars..	824	1,488	944	704	479	222	128
Capital invested per \$100 of gross sales.....dollars..	117	67	105	139	217	434	752
Capital invested per man-equivalent.....dollars..	10,989	14,144	12,496	9,980	8,500	9,890	7,076
Expenditure for feed per \$100 gross sales.....dollars..	73	73	74	70	76	68	62
Percent of gross sales from poultry and poultry products.....percent..	90.7	95.1	91.1	86.9	83.4	83.5	67.6
Subregion 115:							
Gross sales per man-equivalent.....dollars..	11,704	20,083	12,170	7,044	4,530	2,365	725
Gross sales per \$1,000 of capital invested.....dollars..	529	927	531	304	210	109	54
Capital invested per \$100 of gross sales.....dollars..	188	107	188	323	471	905	1,763
Capital invested per man-equivalent.....dollars..	21,955	21,549	22,766	22,733	21,407	21,802	13,430
Expenditure for feed per \$100 gross sales.....dollars..	74	66	77	90	92	94	149
Percent of gross sales from poultry and poultry products.....percent..	96.3	95.8	97.4	97.0	94.5	94.3	95.8
Subregion 116:							
Gross sales per man-equivalent.....dollars..	15,614	26,834	12,463	7,124	4,141	2,656	752
Gross sales per \$1,000 of capital invested.....dollars..	776	1,113	660	395	248	176	84
Capital invested per \$100 of gross sales.....dollars..	127	90	150	250	393	572	1,206
Capital invested per man-equivalent.....dollars..	19,887	24,191	18,711	17,759	16,197	15,298	9,332
Expenditure for feed per \$100 gross sales.....dollars..	67	65	70	69	86	87	97
Percent of gross sales from poultry and poultry products.....percent..	92.2	92.9	91.3	88.5	91.3	92.3	91.4
Subregion 117:							
Gross sales per man-equivalent.....dollars..	12,159	24,907	10,888	6,694	4,483	3,588	814
Gross sales per \$1,000 of capital invested.....dollars..	515	948	441	312	196	153	45
Capital invested per \$100 of gross sales.....dollars..	196	106	224	314	524	649	2,098
Capital invested per man-equivalent.....dollars..	23,722	26,455	24,348	21,038	23,358	22,897	17,416
Expenditure for feed per \$100 gross sales.....dollars..	78	71	81	87	103	90	154
Percent of gross sales from poultry and poultry products.....percent..	95.9	97.4	94.0	95.2	94.0	94.8	93.6
Subregion 119:							
Gross sales per man-equivalent.....dollars..	7,710	17,578	10,090	5,936	3,842	2,280	1,055
Gross sales per \$1,000 of capital invested.....dollars..	618	1,034	569	373	243	165	66
Capital invested per \$100 of gross sales.....dollars..	159	98	177	266	409	624	1,615
Capital invested per man-equivalent.....dollars..	17,535	19,386	10,700	17,337	16,695	15,589	13,460
Expenditure for feed per \$100 gross sales.....dollars..	66	55	68	82	74	81	95
Percent of gross sales from poultry and poultry products.....percent..	90.6	91.7	92.4	88.9	87.0	83.2	91.2

U. S. Department of Agriculture
Ezra Taft Benson, *Secretary*

Agricultural Research Service
Byron T. Shaw, *Administrator*

U. S. Department of Commerce
Sinclair Weeks, *Secretary*

Bureau of the Census
Robert W. Burgess, *Director*

United States Census of Agriculture: 1954

Volume III SPECIAL REPORTS

Part 9

Farmers and Farm Production in the United States (A Cooperative Report)

Chapter V

Dairy Producers and Dairy Production

CHARACTERISTICS OF FARMERS and FARM PRODUCTION •
PRINCIPAL TYPES OF FARMS •



BUREAU OF THE CENSUS
ROBERT W. BURGESS, *Director*

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AGRICULTURAL RESEARCH SERVICE
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SUGGESTED IDENTIFICATION

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PREFACE

The purpose of this report is to present an analysis of the characteristics of farmers and farm production for the most important types of farms as shown by data for the 1954 Census of Agriculture. The analysis deals with the relative importance, pattern of resource use, some measures of efficiency, and problems of adjustment and change for the principal types of farms.

The data given in the various chapters of this report have been derived largely from the special tabulation of data for each type of farm, by economic class, for the 1954 Census of Agriculture. The detailed statistics for each type of farm for the United States and the principal subregions appear in Part 8 of Volume III of the reports for the 1954 Census of Agriculture.

This cooperative report was prepared under the direction of Ray Hurley, Chief of the Agriculture Division of the Bureau of the Census, U. S. Department of Commerce, and Kenneth L. Bachman, Head, Production, Income, and Costs Section, Production Economics Research Branch, Agricultural Research Service of the U. S. Department of Agriculture.

Jackson V. McElveen, Agricultural Economist, Production, Income, and Costs Section, Production Economics Research Branch, Agricultural Research Service of the U. S. Department of Agriculture, supervised a large part of the detailed planning and analysis for the various chapters.

The list of chapters and the persons preparing each chapter are as follows:

Chapter I-----	Wheat Producers and Wheat Production A. W. Epp, University of Nebraska.	Chapter VI-----	Western Stock Ranches and Livestock Farms Mont H. Saunderson, Western Ranching and Lands Consultant, Bozeman, Mont.
Chapter II-----	Cotton Producers and Cotton Production Robert B. Glasgow, Production Economics Research Branch, Agricultural Research Service, United States Department of Agriculture.	Chapter VII-----	Cash-grain and Livestock Producers in the Corn Belt Edwin G. Strand, Production Economics Research Branch, Agricultural Research Service, United States Department of Agriculture.
Chapter III-----	Tobacco and Peanut Producers and Production R. E. L. Greene, University of Florida.	Chapter VIII-----	Part-time Farming H. G. Halcrow, University of Connecticut.
Chapter IV-----	Poultry Producers and Poultry Production William P. Mortenson, University of Wisconsin.	Chapter IX-----	Agricultural Producers and Production in the United States—A General View Jackson V. McElveen, Production Economics Research Branch, Agricultural Research Service, United States Department of Agriculture.
Chapter V-----	Dairy Producers and Dairy Production P. E. McNall, University of Wisconsin.		

The editorial work for this report was performed by Caroline B. Sherman, and the preparation of the statistical tables was supervised by Margaret Wood.

December 1956

UNITED STATES CENSUS OF AGRICULTURE: 1954

REPORTS

Volume I.—Counties and State Economic Areas. Statistics for counties include number of farms, acreage, value, and farm operators; farms by color and tenure of operator; facilities and equipment; use of commercial fertilizer; farm labor; farm expenditures; livestock and livestock products; specified crops harvested; farms classified by type of farm and by economic class; and value of products sold by source.

Data for State economic areas include farms and farm characteristics by tenure of operator, by type of farm, and by economic class. Volume I is published in 33 parts.

Volume II.—General Report. Statistics by Subjects, United States Census of Agriculture, 1954. Summary data and analyses of the data for States, for Geographic Divisions, and for the United States by subjects.

Volume III.—Special Reports

Part 1.—Multiple-Unit Operations. This report will be similar to Part 2 of Volume V of the reports for the 1950 Census of Agriculture. It will present statistics for approximately 900 counties and State economic areas in 12 Southern States and Missouri for the number and characteristics of multiple-unit operations and farms in multiple units.

Part 2.—Ranking Agricultural Counties. This special report will present statistics for selected items of inventory and agricultural production for the leading counties in the United States.

Part 3.—Alaska, Hawaii, Puerto Rico, District of Columbia, and U. S. Possessions. These areas were not included in the 1954 Census of Agriculture. The available current data from various Government sources will be compiled and published in this report.

Part 4.—Agriculture, 1954, a Graphic Summary. This report will present graphically some of the significant facts regarding agriculture and agricultural production as revealed by the 1954 Census of Agriculture.

Part 5.—Farm-Mortgage Debt. This will be a cooperative study by the Agricultural Research Service of the U. S. Department of Agriculture and the Bureau of the Census. It will present, by States, data based on the 1954 Census of Agriculture and a special mail survey conducted in January 1956, on the number of mortgaged farms, the amount of mortgage debt, and the amount of debt held by principal lending agencies.

Part 6.—Irrigation in Humid Areas. This cooperative report by the Agricultural Research Service of the U. S. Department of Agriculture and the Bureau of the Census will present data obtained by a mail survey of operators of irrigated farms in 28 States on the source of water, method of applying water, number of pumps used, acres of crops irrigated in 1954 and 1955, the number of times each crop was irrigated, and the cost of irrigation equipment and the irrigation system.

Part 7.—Popular Report of the 1954 Census of Agriculture. This report is planned to be a general, easy-to-read publication for the general public on the status and broad characteristics of United States agriculture. It will seek to delineate such aspects of agriculture as the geographic distribution and differences by size of farm for such items as farm acreage, principal crops, and important kinds of livestock, farm facilities, farm equipment, use of fertilizer, soil conservation practices, farm tenure, and farm income.

Part 8.—Size of Operation by Type of Farm. This will be a cooperative special report to be prepared in cooperation with the Agricultural Research Service of the U. S. Department of Agriculture. This report will contain data for 119 economic sub-

regions (essentially general type-of-farming areas) showing the general characteristics for each type of farm by economic class. It will provide data for a current analysis of the differences that exist among groups of farms of the same type. It will furnish statistical basis for a realistic examination of production of such commodities as wheat, cotton, and dairy products in connection with actual or proposed governmental policies and programs.

Part 9.—Farmers and Farm Production in the United States. The purpose of this report is to present an analysis of the characteristics of farmers and farm production for the most important types of farms as shown by data for the 1954 Census of Agriculture. The analysis deals with the relative importance, pattern of resource use, some measures of efficiency, and problems of adjustment and change for the principal types of farms. The report was prepared in cooperation with the Agricultural Research Service of the U. S. Department of Agriculture.

The list of chapters (published separately only) and title for each chapter are as follows:

Chapter I—*Wheat Producers and Wheat Production*

II—*Cotton Producers and Cotton Production*

III—*Tobacco and Peanut Producers and Production*

IV—*Poultry Producers and Poultry Production*

V—*Dairy Producers and Dairy Production*

VI—*Western Stock Ranches and Livestock Farms*

VII—*Cash-Grain and Livestock Producers in the Corn Belt*

VIII—*Part-Time Farming*

IX—*Agricultural Producers and Production in the United States—A General View*

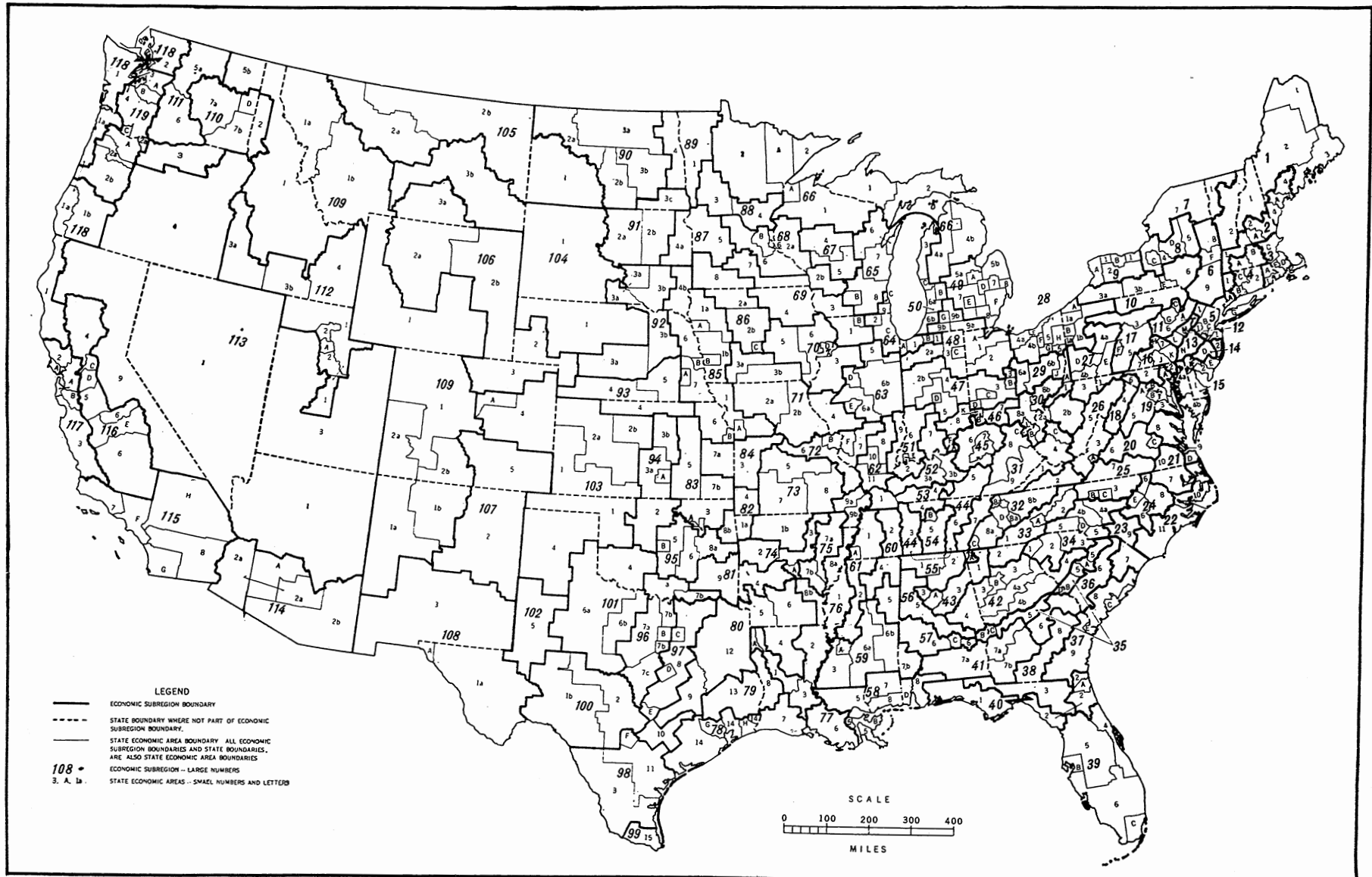
Part 10.—Use of Fertilizer and Lime. The purpose of this report is to present in one publication most of the detailed data compiled for the 1954 Census of Agriculture regarding the use of fertilizer and lime. The report presents data for counties, State economic areas, and generalized type-of-farming areas regarding the quantity used, acreage on which used, and expenditures for fertilizer and lime. The Agricultural Research Service cooperated with the Bureau of the Census in the preparation of this report.

Part 11.—Farmers' Expenditures. This report presents detailed data on expenditures for a large number of items used for farm production in 1955, and on the living expenditures of farm operators' families. The data were collected and compiled cooperatively by the Agricultural Marketing Service of the U. S. Department of Agriculture and the Bureau of the Census.

Part 12.—Methods and Procedures. This report contains an outline and a description of the methods and procedures used in taking and compiling the 1954 Census of Agriculture.

INTRODUCTION

ECONOMIC SUBREGIONS AND STATE ECONOMIC AREAS



INTRODUCTION

Purpose and scope.—American agriculture is exceedingly diverse and is undergoing revolutionary changes. Farmers and their families obtain their income by producing a large variety of products under a large variety of conditions as well as from sources other than farming. The organization of production, type of farming, productivity, income, expenditures, size, and characteristics of operators of the 4.8 million farms in the United States vary greatly. Agriculture has been a dynamic, moving, adjusting part of our economy. Basic changes in farming have been occurring and will continue to be necessary. Adjustments brought by technological change, by changing consumer wants, by growth of population, and by changes in the income of nonfarm people, have been significant forces in changing agriculture since World War II. The transition from war to an approximate peacetime situation has also made it necessary to reduce the output of some farm products. Some of the adjustments in agriculture have not presented relatively difficult problems as they could be made by the transfer of resources from the production of one product to another. Others require substantial shifts in resources and production.

Moreover, a considerable number of farm families, many of whom are employed full time in agriculture, have relatively low incomes. Most of these families operate farms that are small when compared with farms that produce higher incomes. The acreage of land and the amount of capital controlled by the operators of these small farms are too small to provide a very high level of income. In recent years, many farm families on these small farms have made adjustments by leaving the farm to earn their incomes elsewhere, by discontinuing their farm operations, and by earning more non-farm income while remaining on the farm or on the place they farmed formerly.

One objective of this report is to describe and analyze some of the existing differences and recent adjustments in the major types of farming and farm production. For important commodities and groups of farms, the report aims to make available, largely from the detailed data for the 1954 Census of Agriculture but in a more concise form, facts regarding the size of farms, capital, labor, and land resources on farms, amounts and sources of farm income and expenditures, combinations of crop and livestock enterprises, adjustment problems, operator characteristics, and variation in use of resources and in size of farms by areas and for widely differing production conditions. Those types of farms on which production of surplus products is important have been emphasized. The report will provide a factual basis for a better understanding of the widespread differences among farms in regard to size, resources, and income. It will also provide a basis for evaluating the effects of existing and proposed farm programs on the production and incomes of major types and classes of farms.

Income from nonfarm sources is important on a large number of farms. About 1.4 million of the 4.8 million farm-operator families, or about 3 in 10, obtain more income from off-farm sources than from the sale of agricultural products. More than three-fourths of a million farm operators live on small-scale part-time farms and ordinarily are not dependent on farming as the main source of family income. These part-time farmers have a quite different relation to adjustments, changes, and farm problems than do commercial farmers. A description of and facts regarding these part-time farms and the importance of nonfarm income for commercial farms are presented in Chapter 8.

Except for Chapter 8, this report deals with commercial farms (see economic class of farm). The analysis is limited to the major types of agricultural production and deals primarily with geographic areas in which each of the major types of agricultural production has substantial significance.

Source of data.—Most of the data presented in this report are from special compilations made for the 1954 Census of Agriculture, although pertinent data from research findings and surveys of the U. S. Department of Agriculture, State Agricultural Colleges, and other agencies have been used to supplement Census data. The detailed Census data used for this report are contained in Part 8 of Volume III of the reports of the 1954 Census of Agriculture. Reference should be made to that report for detailed explanations and definitions and statements regarding the characteristics and reliability of the data.

Areas for which data are presented.—Data are presented in this report primarily for selected economic subregions and for the United States. The boundaries of the 119 subregions used for the compilation of data on which this report is based are indicated by the map on page vi. These subregions represent primarily general type-of-farming areas. Many of them extend into two or more States. (For a more detailed description of economic subregions, see the publication "Economic Subregions of the United States, Series Census BAE; No. 19, published cooperatively by the Bureau of the Census, and the Bureau of Agricultural Economics, U. S. Department of Agriculture, July 1953.)

DEFINITIONS AND EXPLANATIONS

Definitions and explanations are given only for some of the more important items. For more detailed definitions and explanations, reference can be made to Part 8 of Volume III and to Volume II of the reports of the 1954 Census of Agriculture.

A farm.—For the 1954 Census of Agriculture, places of 3 or more acres were counted as farms if the annual value of agricultural products, exclusive of home-garden products, amounted to \$150 or more. The agricultural products could have been either for home use or for sale. Places of less than 3 acres were counted as farms only if the annual value of sales of agricultural products amounted to \$150 or more. Places for which the value of agricultural products for 1954 was less than these minima because of crop failure or other unusual conditions, and places operated at the time of the Census for the first time were counted as farms if normally they could be expected to produce these minimum quantities of agricultural products.

All the land under the control of one person or partnership was included as one farm. Control may have been through ownership, or through lease, rental, or cropping arrangement.

Farm operator.—A "farm operator" is a person who operates a farm, either performing the labor himself or directly supervising it. He may be an owner, a hired manager, or a tenant, renter, or sharecropper. If he rents land to others or has land cropped for him by others, he is listed as the operator of only that land which he retains. In the case of a partnership, only one partner was included as the operator. The number of farm operators is considered the same as the number of farms.

Farms reporting or operators reporting.—Figures for farms reporting or operators reporting, based on a tabulation of all farms, represent the number of farms, or farm operators, for which the specified item was reported. For example, if there were 11,922 farms in a subregion and only 11,465 had chickens over 4 months old on hand, the number of farms reporting chickens would be 11,465. The difference between the total number of farms and the number of farms reporting an item represents the number of farms not having that item, provided the inquiry was answered completely for all farms.

Farms by type.—The classification of commercial farms by type was made on the basis of the relationship of the value of sales from a particular source, or sources, to the total value of all farm products sold from the farm. In some cases, the type of farm was determined on the basis of the sale of an individual farm product, such as cotton, or on the basis of the sales of closely related products, such as dairy products. In other cases, the type of farm was determined on the basis of sales of a broader group of products, such as grain crops including corn, sorghums, all small grains, field peas, field beans, cowpeas, and soybeans. In order to be classified as a particular type, sales or anticipated sales of a product or group of products had to represent 50 percent or more of the total value of products sold.

The types of commercial farms for which data are shown, together with the product or group of products on which the classification is based are:

Type of farm	Product or group of products amounting to 50 percent or more of the value of all farm products sold
Cash-grain-----	Corn, sorghum, small grains, field peas, field beans, cowpeas, and soybeans.
Cotton-----	Cotton (lint and seed).
Other field-crop-----	Peanuts, Irish potatoes, sweet-potatoes, tobacco, sugarcane, sugar beets for sugar, and other miscellaneous crops.
Vegetable-----	Vegetables.
Fruit-and-nut-----	Berries and other small fruits, and tree fruits, nuts, and grapes.
Dairy-----	Milk and other dairy products. The criterion of 50 percent of the total sales was modified in the case of dairy farms. A farm for which the value of sales of dairy products represented less than 50 percent of the total value of farm products sold was classified as a dairy farm if— (a) Milk and other dairy products accounted for 30 percent or more of the total value of products sold, and (b) Milk cows represented 50 percent or more of all cows, and (c) Sales of dairy products, together with the sales of cattle and calves, amounted to 50 percent or more of the total value of farm products sold.
Poultry-----	Chickens, eggs, turkeys, and other poultry products.
Livestock farms other than dairy and poultry.	Cattle, calves, hogs, sheep, goats, wool, and mohair, provided the farm did not qualify as a dairy farm.

Type of farm

General-----	<p><i>Product or group of products amounting to 50 percent or more of the value of all farm products sold</i></p> <p>Farms were classified as general when the value of products from one source or group of sources did not represent as much as 50 percent of the total value of all farm products sold. Separate figures are given for three kinds of general farms:</p> <p>(a) Primarily crop. (b) Primarily livestock. (c) Crop and livestock.</p> <p><i>Primarily crop farms</i> are those for which the sale of one of the following crops or groups of crops—vegetables, fruits and nuts, cotton, cash grains, or other field crops—did not amount to 50 percent or more of the value of all farm products sold, but for which the value of sales for all these groups of crops represented 70 percent or more of the value of all farm products sold.</p> <p><i>Primarily livestock farms</i> are those which could not qualify as dairy farms, poultry farms, or livestock farms other than dairy and poultry, but on which the sale of livestock and poultry and livestock and poultry products amounted to 70 percent or more of the value of all farm products sold.</p> <p><i>General crop and livestock farms</i> are those which could not be classified as either crop farms or livestock farms, but on which the sale of all crops amounted to at least 30 percent but less than 70 percent of the total value of all farm products sold.</p> <p><i>Miscellaneous</i>----- This group of farms includes those that had 50 percent or more of the total value of products accounted for by sale of horticultural products, or sale of horses, or sale of forest products.</p>
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Farms by economic class.—A classification of farms by economic class was made for the purpose of segregating groups of farms that are somewhat alike in their characteristics and size of operation. This classification was made in order to present an accurate description of the farms in each class and in order to provide basic data for an analysis of the organization of agriculture.

The classification of farms by economic class was made on the basis of three factors; namely, total value of all farm products sold, number of days the farm operator worked off the farm, and the relationship of the income received from nonfarm sources by the operator and members of his family to the value of all farm products sold. Farms operated by institutions, experiment stations, grazing associations, and community projects were classified as abnormal, regardless of any of the three factors.

For the purpose of determining the code for economic class and type of farm, it was necessary to obtain the total value of farm products sold as well as the value of some individual products sold.

The total value of farm products sold was obtained by adding the reported or estimated values for all products sold from the farm. The value of livestock, livestock products except wool and mohair, vegetables, nursery and greenhouse products, and forest

products was obtained by the enumerator from the farm operator for each farm. The enumerator also obtained from the farm operator the quantity sold for corn, sorghums, small grains, bays, and small fruits. The value of sales for these crops was obtained by multiplying the quantity sold by State average prices.

The quantity sold was estimated for all other farm products. The entire quantity produced for wool, mohair, cotton, tobacco, sugar beets for sugar, sugarcane for sugar, broomcorn, hops, and mint for oil was estimated as sold. To obtain the value of each product sold, the quantity sold was multiplied by State average prices.

In making the classification of farms by economic class, farms were grouped into two major groups, namely, commercial farms and other farms. In general, all farms with a value of sales of farm products amounting to \$1,200 or more were classified as commercial. Farms with a value of sales of \$250 to \$1,199 were classified as commercial only if the farm operator worked off the farm less than 100 days or if the income of the farm operator and members of his family received from nonfarm sources was less than the total value of all farm products sold.

Land in farms according to use.—Land in farms was classified according to the use made of it in 1954. The classes of land are mutually exclusive, i. e., each acre of land was included only once even though it may have had more than one use during the year.

The classes referred to in this report are as follows:

Cropland harvested.—This includes land from which crops were harvested; land from which hay (including wild hay) was cut; and land in small fruits, orchards, vineyards, nurseries, and greenhouses. Land from which two or more crops were reported as harvested was to be counted only once.

Cropland used only for pasture.—In the 1954 Census, the enumerator's instructions stated that rotation pasture and all other cropland that was used only for pasture were to be included under this class. No further definition of cropland pastured was given the farm operator or enumerator. Permanent open pasture may, therefore, have been included under this item or under "other pasture," depending on whether the enumerator or farm operator considered it as cropland.

Cropland not harvested and not pastured.—This item includes idle cropland, land in soil-improvement crops only, land on which all crops failed, land seeded to crops for harvest after 1954, and cultivated summer fallow.

In the Western States, this class was subdivided to show separately the acres of cultivated summer fallow. In these States, the acreage not in cultivated summer fallow represents largely crop failure. There are very few counties in the Western States in which there is a large acreage of idle cropland or in which the growing of soil-improvement crops is an important use of the land.

In the States other than the Western States, this general class was subdivided to show separately the acres of idle cropland (not used for crops or for pasture in 1954). In these States, the incidence of crop failure is usually low. It was expected that the acreage figure that excluded idle land would reflect the acreage in soil-improvement crops. However, the 1954 crop year was one of low rainfall in many Eastern and Southern States and, therefore, in these areas the acreage of cropland not harvested and not pastured includes more land on which all crops failed than would usually be the case.

Cultivated summer fallow.—This item includes cropland that was plowed and cultivated but left unseeded for several months to control weeds and conserve moisture. No land from which crops were harvested in 1954 was to be included under this item.

Cropland, total.—This includes cropland harvested, cropland used only for pasture, and cropland not harvested and not pastured.

Land pastured, total.—This includes cropland used only for pasture, woodland pastured, and other pasture (not cropland and not woodland).

Woodland, total.—This includes woodland pastured and woodland not pastured.

Value of land and buildings.—The value to be reported was the approximate amount for which the land and the buildings on it would sell.

Off-farm work and other income.—Many farm operators receive a part of their income from sources other than the sale of farm products from their farms. The 1954 Agriculture Questionnaire included several inquiries relating to work off the farm and non-farm income. These inquiries called for the number of days worked off the farm by the farm operator; whether other members of the operator's family worked off the farm; and whether the farm operator received income from other sources, such as sale of products from land rented out, cash rent, boarders, old age assistance, pensions, veterans' allowances, unemployment compensation, interest, dividends, profits from nonfarm business, and help from other members of the operator's family. Another inquiry asked whether the income of the operator and his family from off-farm work and other sources was greater than the total value of all agricultural products sold from the farm in 1954. Off-farm work was to include work at nonfarm jobs, businesses, or professions, whether performed on the farm premises or elsewhere; also, work on someone else's farm for pay or wages. Exchange work was not to be included.

Specified facilities and equipment.—Inquiries were made in 1954 to determine the presence or absence of selected items on each place such as (1) telephone, (2) piped running water, (3) electricity, (4) television set, (5) home freezer, (6) electric pig brooder, (7) milking machine, and (8) power feed grinder. Such facilities or equipment were to be counted even though temporarily out of order. Piped running water was defined as water piped from a pressure system or by gravity flow from a natural or artificial source. The enumerator's instructions stated that pig brooders were to include those heated by an electric heating element, by an infrared or heat bulb, or by ordinary electric bulbs. They could be homemade.

The number of selected types of other farm equipment was also obtained for a sample of farms. The selected kinds of farm equipment to be reported were (1) grain combines (for harvesting and threshing grains or seeds in one operation); (2) cornpickers; (3) pickup balers (stationary ones not to be reported); (4) field forage harvesters (for field chopping of silage and forage crops); (5) motortrucks; (6) wheel tractors (other than garden); (7) garden tractors; (8) crawler tractors (tracklaying, caterpillar); (9) automobiles; and (10) artificial ponds, reservoirs, and earth tanks.

Wheel tractors were to include homemade tractors but were not to include implements having built-in power units such as self-propelled combines, powered buck rakes, etc. Pickup and truck-trailer combinations were to be reported as motortrucks. School buses were not to be reported, and jeeps and station wagons were to be included as motortrucks or automobiles, depending on whether used for hauling farm products or supplies, or as passenger vehicles.

Farm labor.—The farm-labor inquiries for 1954, called for the number of persons doing farmwork or chores on the place during a specified calendar week. Since starting dates of the 1954 enumeration varied by areas or States, the calendar week to which the farm-labor inquiries related varied also. The calendar week was September 26–October 2 or October 24–30. States with the September 26–October 2 calendar week were: Arizona, California, Colorado, Connecticut, Florida, Idaho, Kansas, Kentucky, Louisiana, Maine, Massachusetts, Michigan, Minnesota, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico,

New York, North Dakota, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Dakota, Tennessee, Texas, Utah, Vermont, Washington, Wisconsin, and Wyoming. States with the October 24-30 calendar week were: Alabama, Arkansas, Delaware, Georgia, Illinois, Indiana, Iowa, Maryland, Mississippi, Missouri, North Carolina, Ohio, South Carolina, Virginia, and West Virginia. Farmwork was to include any work, chores, or planning necessary to the operation of the farm or ranch business. Housework, contract construction work, and labor involved when equipment was hired (custom work) were not to be included.

The farm-labor information was obtained in three parts: (1) Operators working, (2) unpaid members of the operator's family working, and (3) hired persons working. Operators were considered as working if they worked 1 or more hours; unpaid members of the operator's family, if they worked 15 or more hours; and hired persons, if they worked any time during the calendar week specified. Instructions contained no specifications regarding age of the persons working.

Regular and seasonal workers.—Hired persons working on the farm during the specified week were classed as "regular" workers if the period of actual or expected employment was 150 days or more during the year, and as "seasonal" workers if the period of actual or expected employment was less than 150 days. If the period of expected employment was not reported, the period of employment was estimated for the individual farm after taking into account such items as the basis of payment, wage rate, expenditures for labor in 1954, and the type and other characteristics of the farm.

Specified farm expenditures.—The 1954 Census obtained data for selected farm expense items in addition to those for fertilizer and lime. The expenditures were to include the total specified expenditures for the place whether made by landlord, tenant, or both.

Expenditures for machine hire were to include any labor included in the cost of such machine hire. Machine hire refers to custom machine work such as tractor hire, threshing, combining, silo filling, baling, ginning, plowing, and spraying. If part of the farm products was given as pay for machine hire, the value of the products traded for this service was to be included in the amount of expenditures reported. The cost of trucking, freight, and express was not to be included.

Expenditures for hired labor were to include only cash payments. Expenditures for housework, custom work, and contract construction work were not to be included.

Expenditures for feed were to include the expenditures for pasture, salt, condiments, concentrates, and mineral supplements, as well as those for grain, hay, and mill feeds. Expenditures for grinding and mixing feeds were also to be included. Payments made by a tenant to his landlord for feed grown on the land rented by the tenant were not to be included.

Expenditures for gasoline and other petroleum fuel and oil were to include only those used for the farm business. Petroleum products used for the farmer's automobile for pleasure or used exclusively in the farm home for heating, cooking, and lighting were not to be included.

Crops harvested.—The information on crops harvested refers to the acreage and quantity harvested for the 1954 crop year. An exception was made for land in fruit orchards and planted nut trees. In this case, the acreage represents that in both bearing and nonbearing trees and vines as of October and November 1954.

Hay.—The data for hay includes all kinds of hay except soybean, cowpea, sorghum, and peanut hay.

Livestock and poultry.—The data on the number of livestock and poultry represent the number on hand on the day of enumera-

tion (October-November 1954). The data relating to livestock products and the number of livestock sold relate to the sales made during the calendar year 1954.

LABOR RESOURCES

The data for labor resources available represent estimates based largely on Census data and developed for the purpose of making comparisons among farms of various size of operations. The labor resources available are stated in terms of man-equivalents.

To obtain the man-equivalents the total number of farm operators as reported by the 1954 Census were adjusted for estimated man-years of work off the farm and for the number of farm operators 65 years old and over. The farm operator was taken to represent a full man-equivalent of labor unless he was 65 years or older or unless he worked at an off-farm job in 1954.

The man-equivalent estimated for farm operators reporting specified amounts of off-farm work were as follows:

<i>Days worked off the farm in 1954</i>	<i>Estimated man-equivalent</i>
1-99 days.....	0.85
100-199 days.....	.50
200 days and over.....	.15

The man-equivalent for farm operators 65 years of age and older was estimated at 0.5.

Man-equivalents of members of the farm operator's family were based upon Census data obtained in response to the question "How many members of your family did 15 or more hours of farm work on this place the week of September 26-October 2 (or, in some areas, the week of October 24-30) without receiving cash wages?" Each family worker was considered as 0.5 man-equivalent. This estimate provides allowance for the somewhat higher incidence of women, children, and elderly persons in the unpaid family labor force.

In addition, the number of unpaid family workers who were reported as working 15 or more hours in the week of September 26-October 2 was adjusted to take account of seasonal changes in farm employment. Using published and unpublished findings of the U. S. Department of Agriculture and State Agricultural Colleges, and depending largely upon knowledge and experience with the geographic areas and type of farming, each author determined the adjustment factor needed to correct the number of family workers reported for the week of September 26-October 2 to an annual average basis.

Man-equivalents of hired workers are based entirely upon the expenditure for cash wages and the average wage of permanent hired laborers as reported in the 1954 Census of Agriculture.

Value of or investment in livestock.—Numbers of specified livestock and poultry in each subregion were multiplied by a weighted average value per head. The average values were computed from data compiled for each kind of livestock for the 1954 Census of Agriculture. The total value does not include the value of goats. (For a description of the method of obtaining the value of livestock, see Chapter VI of Volume II of the reports for the 1954 Census of Agriculture.)

Value of investment in machinery and equipment.—The data on value of investment in machinery and equipment were developed for the purpose of making broad comparisons among types and economic classes of farms and by subregions. Numbers of specified machines on farms, as reported by the Census, were multiplied by estimated average value per machine. Then the total values obtained were adjusted upward to provide for the inclusion of items of equipment not included in the Census inventory of farm machinery.

The estimates for average value of specified machines and the proportion of total value of all machinery represented by the value of these machines were based largely on published and unpublished data from the "Farm Costs and Returns" surveys conducted currently by the Agricultural Research Service, U. S. Department of Agriculture.¹ Modifications were made as needed in the individual chapters on the basis of State and local studies. The total estimated value of all machinery for all types and economic classes of farms is approximately equal to the value of all machinery as estimated by the U. S. Department of Agriculture.

Value of farm products sold, or gross sales.—Data on the value of the various farm products sold were obtained for 1954 by two methods. First, the values of livestock and livestock products sold, except wool and mohair; vegetables harvested for sale; nursery and greenhouse products; and forest products were obtained by asking each farm operator the value of sales. Second, the values of all other farm products sold were computed. For the most important crops, the quantity sold or to be sold was obtained for each farm. The entire quantity harvested for cotton and cottonseed, tobacco, sugar beets for sugar, hops, mint for oil, and sugarcane for sugar was considered sold. The quantity of minor crops sold was estimated. The value of sales for each crop was computed by multiplying the quantity sold by State average prices. In the case of wool and mohair, the value of sales was computed by multiplying the quantity shorn or clipped by the State average prices.

Gross sales include the value of all kinds of farm products sold. The total does not include rental and benefit, soil conservation, price adjustment, Sugar Act, and similar payments. The total

does include the value of the landlord's share of a crop removed from a farm operated by a share tenant. In most of the tables, detailed data are presented for only the more important sources of gross sales and the total for the individual farm products or sources will not equal the total as the values for the less important sources or farm products have been omitted. (For a detailed statement regarding the reliability and method of obtaining the value of farm products sold, reference should be made to Chapter IX of Volume II of the reports for the 1954 Census of Agriculture.)

Livestock and livestock products sold.—The value of sales for livestock and livestock products includes the value of live animals sold, dairy products sold, poultry and poultry products sold, and the calculated value of wool and mohair. The value of bees, honey, fur animals, goats, and goat milk is not included.

The value of dairy products includes the value of whole milk and cream sold, but does not include the value of butter and cheese, made on the farm, and sold. The value of poultry and products includes the value of chickens, broilers, chicken eggs, turkeys, turkey eggs, ducks, geese, and other miscellaneous poultry and poultry products sold. The value does not include the value of baby chicks sold.

Crops sold.—Vegetables sold includes the value of all vegetables harvested for sale, but does not include the value of Irish potatoes and sweetpotatoes.

The value of all crops sold includes the value of all crops sold except forest products. The value of field crops sold includes the value of sales of all crops sold except vegetables, small fruits and berries, fruits, and nuts.

¹ Farm Costs and Returns, 1955 (with comparisons), Agriculture Information Bulletin No. 158, Agricultural Research Service, U. S. Department of Agriculture, June 1956.

CHAPTER V
DAIRY PRODUCERS AND DAIRY
PRODUCTION

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DAIRY PRODUCERS AND DAIRY PRODUCTION

P. E. McNALL

INTRODUCTION

Change is continuous in the dairy industry. During one lifetime it has changed from a family-cow business to a concentrated and highly specialized industry. This transformation has developed under a wide range of conditions of production on dairy farms. Some dairy farms are large and highly mechanized units. Others still are small. Some dairy farms are highly specialized. Others have diversified operations. Such variations of conditions are important and must be given close consideration when appraising incomes of dairy farmers and prospective changes in dairy production.

Developments in dairying have not been limited to any one region or area. Dairying is found in every part of the United States. Milk is produced from the northernmost States of Maine, Minnesota, and Washington to Texas and Florida; from the Atlantic Ocean to the Pacific.

Despite this broad geographic dispersion of production some regions have developed into well-recognized dairy areas while in others dairying is secondary to other types of production. Reasons back of these areas of concentrations are almost as varied as are the areas themselves. Both physical and economic factors contribute to differences. Climate, soil, topography, markets, and the possibility of production of other commodities all contribute to the types of production found in different parts of the country. Moreover, the nationality of the local farmers frequently brings to an area definite aptitudes, skills, and knowledge, that partly determine the ultimate type of farming.

Areas now characterized as most important in dairy production usually have a rolling to hilly topography with somewhat limited acreages for the growing of cultivated crops and with considerable acreages that are most useful as pastureland. Soils range from fair to good but crop acreages per farm are not large.

CHANGES CHARACTERIZE THE INDUSTRY

The Northeastern Dairy Region is the oldest in the country and has the longest history. During its early history and well into the 19th century the production of dairy products was essentially for home consumption. Little milk was produced during the winter. During the flush spring and early summer seasons milk was skimmed and churned into butter or was made into cheese. These were mostly home procedures and the products were stored away in cellars, caves, or spring houses for winter use. Dairying was strictly secondary to the production of wheat, beef, sheep, and horses, the market for which was well established and accessible. Partly as a consequence of soil exhaustion with ensuing low yields, depredations of the weevil, and rising land values, and partly as a result of industrial development and improved transportation, the production of wheat declined and beef cattle and sheep were largely replaced by milk cows.

Urban communities continued to grow and the demand for milk so increased that delivery by individual dairymen became no longer possible. Distances to market became so great that daily trips could not be made with horse-drawn vehicles. This led to an

intermediary organization which bought the milk from the individual farmers, bottled it, and later pasteurized it and distributed it to customers.

Small cheese factories and creameries continued to handle milk that was not needed for fluid consumption or that was not conveniently located for transportation. With the development of faster means of transportation, and especially as a result of the development of better methods of handling milk, the so-called urban milk sheds expanded to meet the demands of the ever-growing cities. By the close of the century those local processing plants were mostly replaced by points of fluid milk concentration in order to meet this expanding demand. It was in this way that the Northeastern Dairy Region developed into a fluid-milk region with only a small scattering of local processing plants.

Production on many of the farms in the Great Lakes Region around the close of the 19th century followed the pattern set by the producers in the northeastern part of the country. Early production consisted of wheat, cattle, and horses, which could be delivered to the market during the slack time of the farmers. The few head of milk cows which were brought in by early farmers found plentiful summer feed on the rough meadowland; their numbers increased. The small surpluses of summer milk were made into butter and cheese and stored in cellars or spring houses for winter use or for sale wherever sales could be made.

In the meantime, the opening of the prairies brought the production of vast quantities of wheat, corn, and beef cattle, which so reduced the prices for these commodities that it was no longer profitable for the Great Lakes farmers to continue in their production. Meanwhile, markets for dairy products were developing. These farmers found it to their advantage to raise feed crops for dairy cows rather than to continue in the more extensive type of production of cash grains and beef. They also found the cooler and somewhat damp summer climate conducive to the production of hay which gave feed for winter feeding. The result has been a continued increase in numbers of dairy cattle in those areas where they have an advantage over other types of production.

The fluid or market-milk industry necessarily developed only and concurrently with the growth of large centers of population. Two factors limited the growth of dairying around these centers—the perishability of the product and the necessary transportation to market. As transportation facilities changed from horse-drawn vehicles over rough dirt roads to fast motor-driven trucks over smooth hard-surfaced roads the producing areas expanded. Facilities for handling the larger supplies and for meeting the requirements of surplus production came into existence. Assembling centers, refrigeration, and rapid transportation expanded the market-milk areas from a few miles to a hundred or more.

Other uses for milk and new processes further expanded surplus-producing areas as plants were placed in the centers of production rather than near centers of population. Creameries, cheese factories, condenseries, and dried milk plants were so located as to take advantage of local production and so reduce the costs of transportation on bulky products.

EXPANSION IS CONSISTENT

Dairying has experienced no phenomenal spurts or disastrous setbacks during its development. Its growth has probably been the most consistent of the major agricultural enterprises. Milk cow numbers increased gradually from 17,125,000 on hand January 1, 1910, to a maximum of 27,770,000 on the same date in 1945. From that time there has been a gradual decline until on January 1, 1956, there were only 23,318,000 on hand. The change from year to year has never exceeded 5 percent whereas the number of beef cows—or cows other than milk cows—has varied nearly twice as much. Likewise, the production of milk during any one year has not changed more than 5 percent from the year before, whereas beef production frequently has changed as much as 10 or 12 percent; during 1953 total beef production was practically 25 percent greater than in 1952.

The greater variation in the yearly production of beef is partly due to the sale of cull cows from milking herds and partly to the diverse conditions under which beef cattle are raised and fed. The beef industry has developed in regions of more variable crop-growing conditions and in areas of greater economic flexibility than has dairying. Production conditions in these beef areas are excellent for the grain crops used in the fattening and finishing of beef cattle for market or for hog feeding. The individual grain producer may use either of these classes of livestock for disposing of his feed supplies depending upon the relative costs of animals to be fed and prospective prices for livestock when ready for market; or he may sell the grain as a cash crop.

The result of this interplay of economic situations is a less variable yearly production of all red meats than is the case of either beef or pork alone, but a more variable production pattern than for milk. This situation is reflected in the yearly average

INDEX NUMBERS OF AVERAGE YEARLY PRICES RECEIVED BY FARMERS FOR MILK, CATTLE, AND HOGS: 1944-1954

(1944-1953=100)

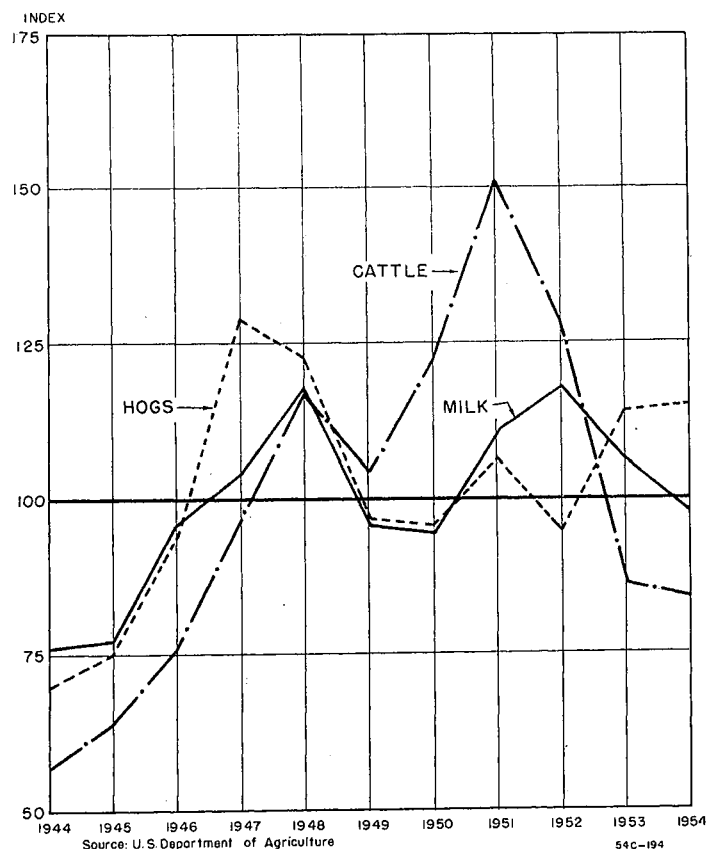


Figure 1.

prices farmers receive for these products (see fig. 1). During the decade ending in 1953, the average yearly prices received by farmers either for cattle or for hogs varied more than did the prices received for milk. A study of prices of dairy products covering several decades shows that milk prices to farmers do not go as high as do prices of other agricultural products when demand is suddenly increased. Neither have they in the past gone as low as other prices when depressed conditions for agriculture prevail. Dairying is one of the most stable of agricultural enterprises.

MARKETING PROBLEMS

Dairy farming meets unusual problems in the marketing of some of its products. No suitable substitute has been found for whole milk as a human food and skim milk products are filling a unique place in meeting certain nutrition needs. Therefore, the market for both continues to expand. The situation is different with butterfat. Other fats and oils compete directly with it in both cooking and baking and as a spread for bread. Competition has been so keen that the place of butter in the diet has been greatly reduced. Although we are using as much edible fats and oils per capita as before, butterfat accounts for a much smaller fraction of this consumption, and a much smaller proportion of milk is used for making butter. During 1925 nearly one-half (44 percent) of all milk was used for this purpose (Table 1). Since then a steady and consistent drop in this use has taken place; during 1955 only 25 percent of all milk was used for butter production—a decrease of nearly 50 percent.

Table 1.—PERCENTAGE DISTRIBUTION OF MILK BY USE, FOR THE UNITED STATES: 1925 TO 1955

Year	Percent of milk used for—					Total
	All butter	Fluid consumption	Manufactured products		Other uses	
			Cheese	Other		
1925.....	44.4	41.1	5.3	6.6	2.6	100.0
1930.....	42.2	40.3	5.0	6.8	5.7	100.0
1935.....	42.9	40.0	6.1	6.9	4.1	100.0
1940.....	40.3	39.2	7.1	9.0	4.4	100.0
1945.....	28.2	43.7	9.2	13.9	5.0	100.0
1950.....	28.1	45.1	10.1	13.2	3.5	100.0
1955.....	24.9	47.2	10.9	13.2	3.8	100.0

Source: Milk, Farm Production, Disposition and Income. 1964-55 U. S. D. A.—A. M. S. 30 (1954-55) April 1956.

The proportion of milk used for most other purposes has increased during this period. The greatest proportionate increase has been in the manufactured products of cheese and condensed and evaporated milk. Milk used for fluid consumption increased from 41 percent of all milk produced in 1925 to 47 percent in 1955. Aggregate milk production increased more than one-third during this period.

The quantity of milk used on farms where produced dropped from 27 million pounds in 1925 to 15 million in 1955. Nine million pounds of this decrease is the result of less farm-churned butter; another 3 million pounds represents the reduction in the consumption of fluid milk and cream by farm families. This decrease in farm use is accounted for partly by a reduction of one-fourth in the number of farms during this 30-year period and partly by the farm family's turning to the use of creamery rather than homemade butter. Even so, there is now being used on farms where produced only 310 pounds milk equivalent per farm family in comparison with 425 pounds 30 years ago.

A current surplus of milk exists even though there are not so many milk cows in this country now as in 1924 and population has increased 46 percent. This is especially striking because the per capita production of milk during this time decreased from 821 pounds to 742 pounds (Table 2).

Table 2.—MILK PRODUCTION AND POPULATION OF THE UNITED STATES: 1924 TO 1955

Year	Average number of milk cows on farms ¹ (thousand)	Population (thousand)	Population per milk cow	Milk production		
				Total (millions of pounds) ¹	Per capita (pounds)	Per cow (pounds)
1924	21,417	114,113	5.3	93,660	821	4,167
1930	22,218	123,077	5.5	102,984	837	4,508
1940	23,071	131,064	5.6	111,512	845	4,622
1945	25,033	132,481	5.3	120,628	910	4,787
1950	21,944	150,697	6.9	117,302	778	5,314
1955	21,232	166,540	7.8	123,554	742	5,815

¹ Source: Dairy Statistics, Statistical Bulletin No. 134, Revised May 1956—U. S. Department of Agriculture.

Current oversupply of dairy products with its ensuing price problem is created not so much by milk producers as by the change in consumer habits. The loss of the butter market to date amounts to an equivalent of 160 pounds of milk per capita.

The Commodity Credit Corporation has bought and disposed of the equivalent of 32 billion pounds of milk since 1949 in its efforts to maintain prices of dairy products.¹

Further changes in consumer habits are reflected in other dairy products. Conspicuous increases in per capita consumption of fluid milk, condensed and evaporated milk, and total cheese and milk products used in frozen desserts, have taken place since 1924. The only decrease in the per capita consumption of dairy products, on the other hand, was in butter, already mentioned. Total civilian consumption of dairy products during 1955 was 700 pounds milk equivalent per capita in comparison with 785 pounds during 1924.

CHANGES IN DAIRY FARMING

The number of farms producing milk and cream is changing with changing economic conditions. Milk cows were reported on 3,648,000 farms, or 68 percent of all farms, in 1950 (Table 3). This number had decreased to 2,956,000 farms, or 62 percent of all farms, 5 years later. Meanwhile, the number of cows increased from 6 cows per farm in 1950 to 7 in 1954.

Table 3.—CHANGES IN NUMBER OF FARMS HAVING MILK COWS AND NUMBER OF COWS PER FARM, FOR THE UNITED STATES: 1910 TO 1954

Year	Number of farms			Milk cows per farm
	Total	With milk cows		
		Number	Percent of total	
1910.....	6,361,502	5,140,869	81	3.3
1920.....	6,448,343	4,461,296	69	4.4
1930.....	6,288,648	4,452,936	71	4.6
1940.....	6,096,799	4,644,317	76	5.2
1950.....	5,382,162	3,648,257	68	5.8
1954.....	4,782,416	2,956,900	62	6.9

Dairy farms have decreased in number. In 1949, there were 602,000; in 1954 there were 549,000—a drop of 9 percent. This is slightly less than the decrease of 10½ percent in the total number of commercial farms during that time (see figs. 2 and 3). Most of this reduction is in the smaller farms. The remaining dairy farms averaged 20 cows per farm in 1954 as compared with 16 as

an average in 1949. The greatest reduction has taken place in areas that have enjoyed the best prices for dairy products; conversely, the areas with the lower prices show less reduction. To some extent these area differences are associated with alternative opportunities, both on the farm and off the farm. The Northeastern Dairy Area, where milk prices are somewhat higher than in the Midwest but where off-farm employment opportunities have been generally good, had a reduction of 11½ percent during the 5-year period. On the other hand, the Lake area, where the prices of dairy products are not so satisfactory as in the East, showed less than half this rate of reduction—5½ percent.

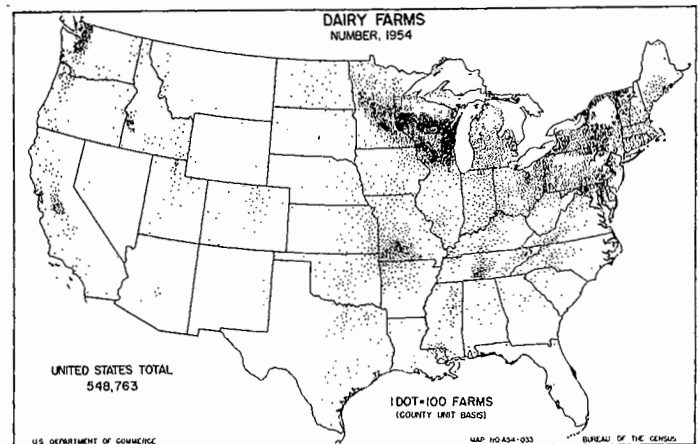


Figure 2.

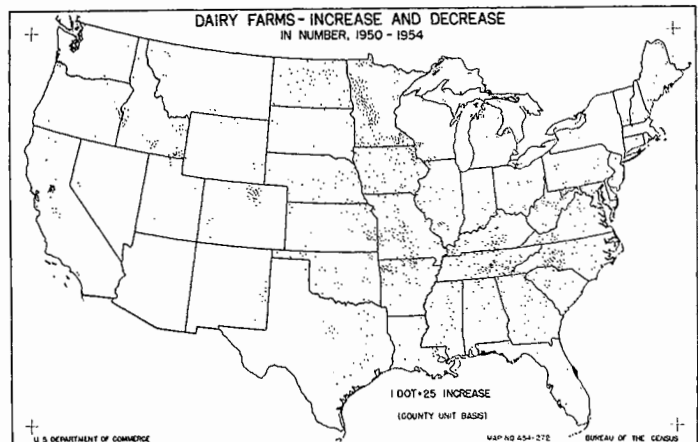


Figure 3.

When the figures for the Lake Area are given by States the picture is confusing. Wisconsin showed a reduction of 8 percent in the number of dairy farms, whereas Minnesota showed less than two-tenths of 1 percent. Most of the increases in number of dairy farms are outside the important dairy areas, whereas the decreases are notably within. These shifts would suggest that some farmers outside the dairy areas are finding price relationships good enough, compared to alternatives, to justify going into the production of milk and cream, whereas the number of dairy farms is decreasing within the dairy belt. That dairying outside the main dairy areas is mostly secondary to other enterprises on the individual farms may help to explain this situation.

¹ See Appendix article "Dairy Products and Price Supports."

FARMERS AND FARM PRODUCTION

A particularly important change taking place in dairy farming is the reduction in the number of very small farms and small herds, and the increase in the number of the larger units. Dairy farms with fewer than 50 acres of land have decreased during this 5-year period from 11 percent of all dairy farms to 9 percent (Table 4). The percentage of dairy farms with more than 180 acres increased from 28.9 percent of all dairy farms in 1949 to 33.8 percent in 1954.

Table 4.—NUMBER OF DAIRY FARMS BY SIZE OF FARM, FOR THE UNITED STATES: 1950 AND 1954

Size of farm	1950		1954	
	Number of farms	Percent distribution	Number of farms	Percent distribution
Total.....	602,003	100.0	548,767	100.0
1 to 9 acres.....	6,363	1.1	5,604	1.0
10 to 29 acres.....	22,068	3.7	16,123	3.0
30 to 49 acres.....	37,562	6.2	28,087	5.1
50 to 69 acres.....	39,415	6.5	30,937	5.6
70 to 99 acres.....	103,489	17.1	84,168	15.3
100 to 139 acres.....	120,905	20.1	105,291	19.2
140 to 179 acres.....	98,516	16.4	93,010	17.0
180 to 219 acres.....	56,404	9.4	57,202	10.4
220 to 259 acres.....	37,926	6.3	38,422	7.0
260 to 499 acres.....	63,542	10.6	71,435	13.0
500 to 999 acres.....	13,294	2.2	15,116	2.8
1,000 acres or more.....	2,009	.4	3,222	.6

Small herds are decreasing as rapidly as small farms (Table 5). In 1950, 82 percent of the farms with milk cows had fewer than 10 cows per herd. By 4 years later this number had been reduced to 78 percent of all farms. Forty-three percent of all milk cows were on these small farms in 1950, but by 1954 the number was 33 percent. On the other hand, there were 60 percent more farms with 20 or more cows in 1954 than in 1950, and they have 39 percent of all milk cows in comparison with 28 percent 4 years earlier. This kind of change makes for a more effective use of resources and for better living conditions for those operators who continue as dairymen.

Another comparison of the change in size of farms is brought out in the classification of dairy farms by economic class. In 1950, 32.8 percent of all dairy farms had gross incomes of less than \$2,500 per farm and 11.9 percent showed gross incomes in excess of \$10,000 per farm (Table 6). In 1954, the percentage of small-income farms had decreased to 27.4 percent of all dairy farms, whereas the number of large-income farms was increased to 16 percent. This type of change can also be beneficial to the remaining dairy farmers.

Table 5.—PERCENTAGE DISTRIBUTION OF MILK COWS AND MILK PRODUCTION BY SIZE OF HERD, FOR THE UNITED STATES: 1954 AND 1950

Size of herd (number of milk cows)	Farms with milk cows		Number of milk cows	
	1954	1950	1954	1950
Total number.....	2,956,900	3,648,257	20,365,450	21,232,573
Percent distribution				
Total.....	100.0	100.0	100.0	100.0
1 to 4.....	60.9	62.5	16.3	20.7
5 to 9.....	18.7	19.4	16.9	22.3
10 to 19.....	14.1	13.1	27.6	29.6
20 to 29.....	5.1	3.3	17.0	12.9
30 to 49.....	2.4	1.3	12.4	7.9
50 or more.....	.8	.5	9.8	6.7

Table 6.—PERCENTAGE DISTRIBUTION OF DAIRY FARMS BY ECONOMIC CLASS OF FARM, FOR THE UNITED STATES: 1954 AND 1950

Year	Number of farms	Percent distribution by economic class of farm					
		I	II	III	IV	V	VI
1954.....	548,767	2.1	13.9	28.5	28.0	18.7	8.7
1950.....	602,003	1.7	10.2	25.0	29.9	22.2	10.6

The average size of the dairy farm when measured by total acres of land in the farm compares favorably with most other farms of the country (fig. 4). Only wheat farms and ranches are conspicuously larger. It is only from the standpoint of amount of harvested cropland that the size appears smaller than many other types of farming (fig. 5).

The average dairy farm in both the Lake and the Northeastern Dairy Areas is between 100 and 199 acres. Most of the counties in the Corn Belt show the same total acreage per farm. When the acreage of these farms is expressed as cropland harvested, it is found that the dairy areas use around 30 percent of their total farm acreage for this purpose while the Corn Belt uses more than twice that, or approximately 70 percent.

Total milk equivalent of milk and cream sold from all farms in 1954 was 95,409 million pounds. The sale of cream accounted for 13 percent of this amount; the remainder was used for fluid-milk consumption and manufacture (Table 7). Slightly less than 2 percent of the total milk-equivalent sales was from noncommercial farms which had 8 percent of all milk cows. Commercial farms accounted for the remaining 98 percent. The nondairy farms within the commercial group had 39 percent of all milk cows and sold 19 percent of the whole milk sold, and 76 percent of the cream.

Table 7.—NUMBER OF MILK COWS AND SALE OF MILK AND CREAM FOR DAIRY, COMMERCIAL, AND OTHER FARMS, FOR THE UNITED STATES: 1954

Item	Dairy farms		United States		All commercial farms		Other farms	
	Total	Percent	Total	Percent	Total	Percent	Total	Percent
Milk cows.....	10,748,440	52.8	20,365,450	100.0	18,671,093	91.7	1,694,357	8.3
Whole milk sold.....	66,170,764,744	79.8	82,915,775,259	100.0	81,676,993,611	98.5	1,238,806,648	1.5
Cream sold.....	92,591,197	20.0	463,025,820	100.0	444,634,420	96.0	18,391,391	4.0
Milk equivalent.....	68,670,612,534	72.0	95,408,549,628	100.0	93,697,698,123	98.2	1,710,851,505	1.8

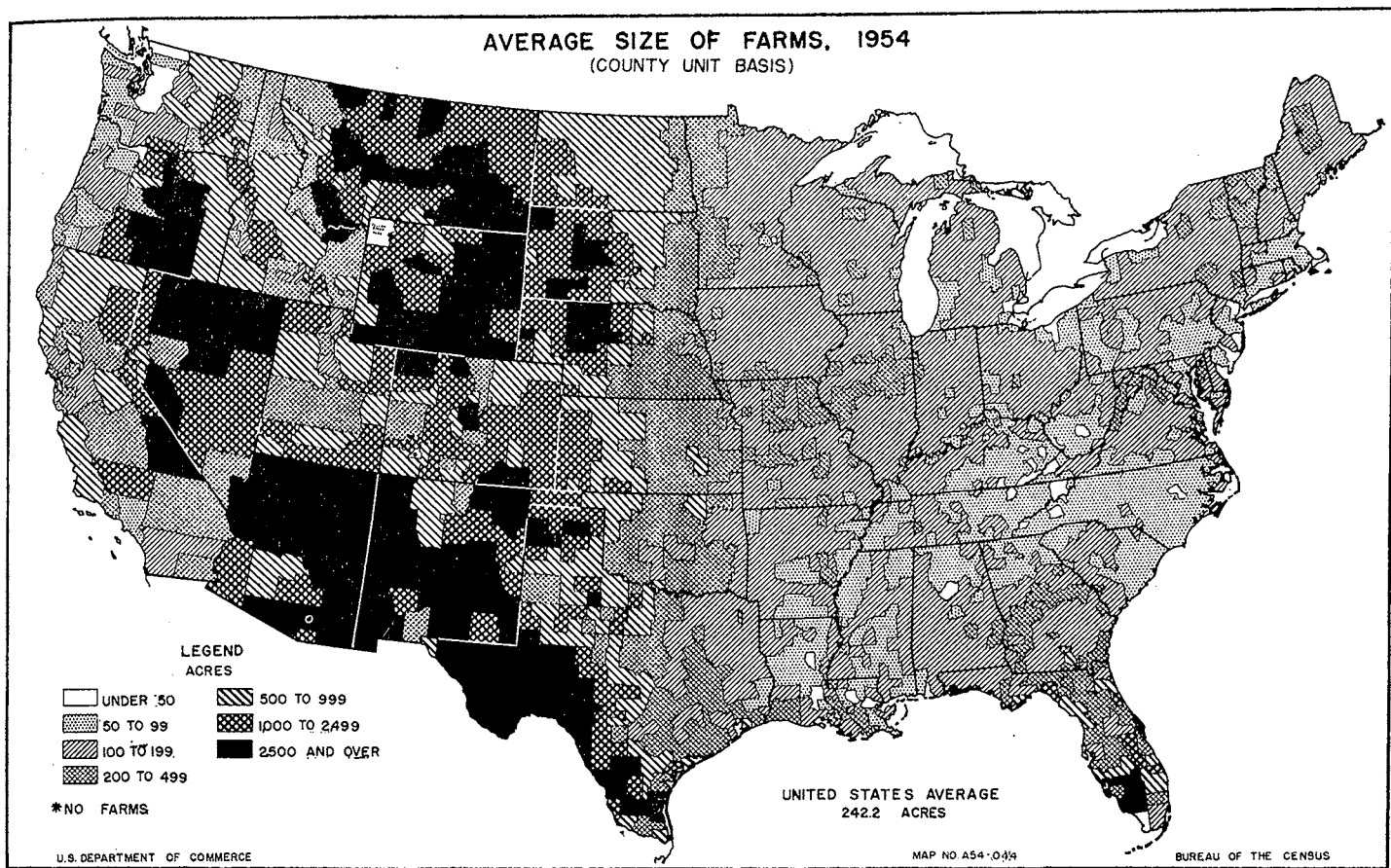


Figure 4.

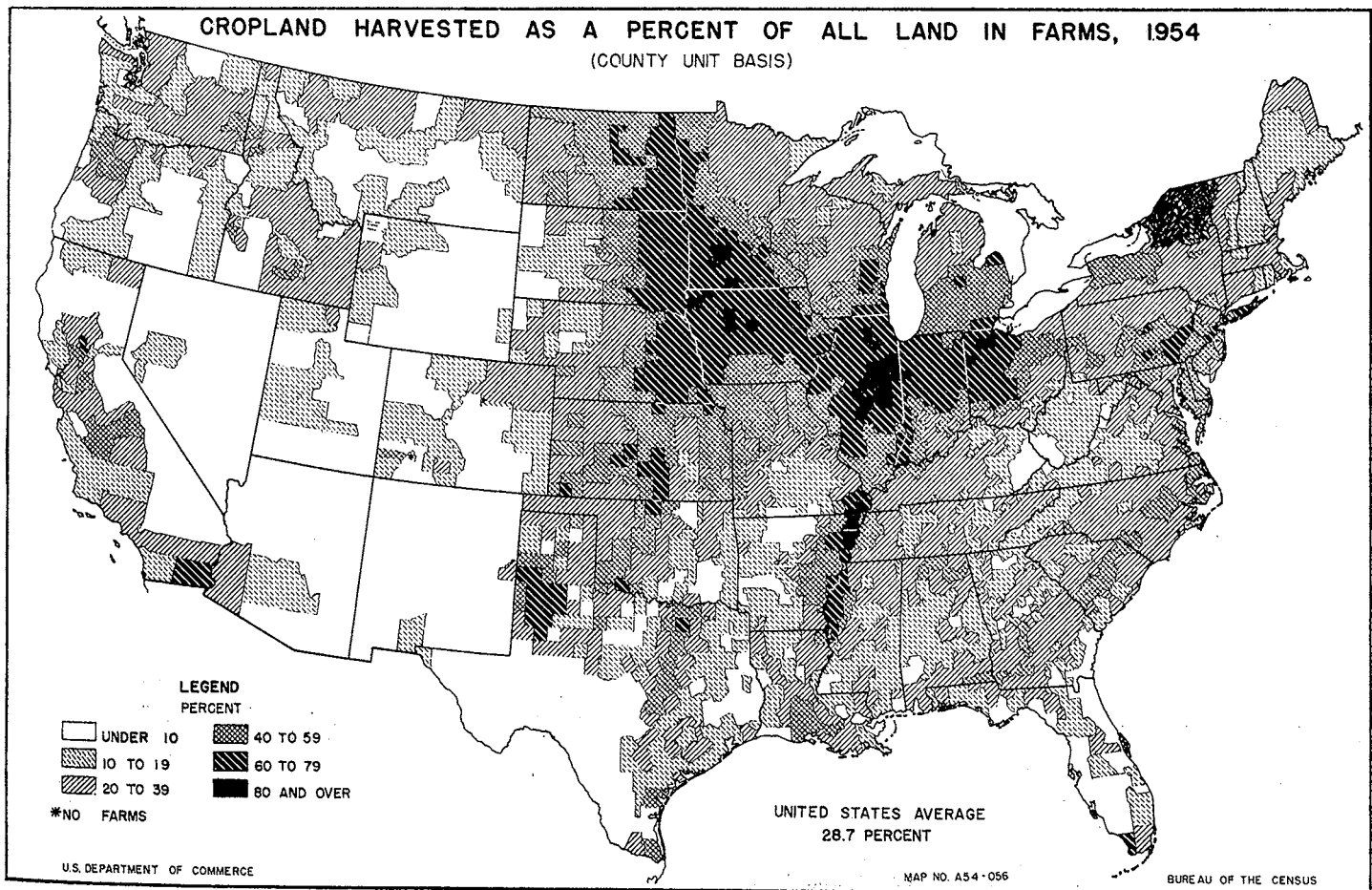


Figure 5.

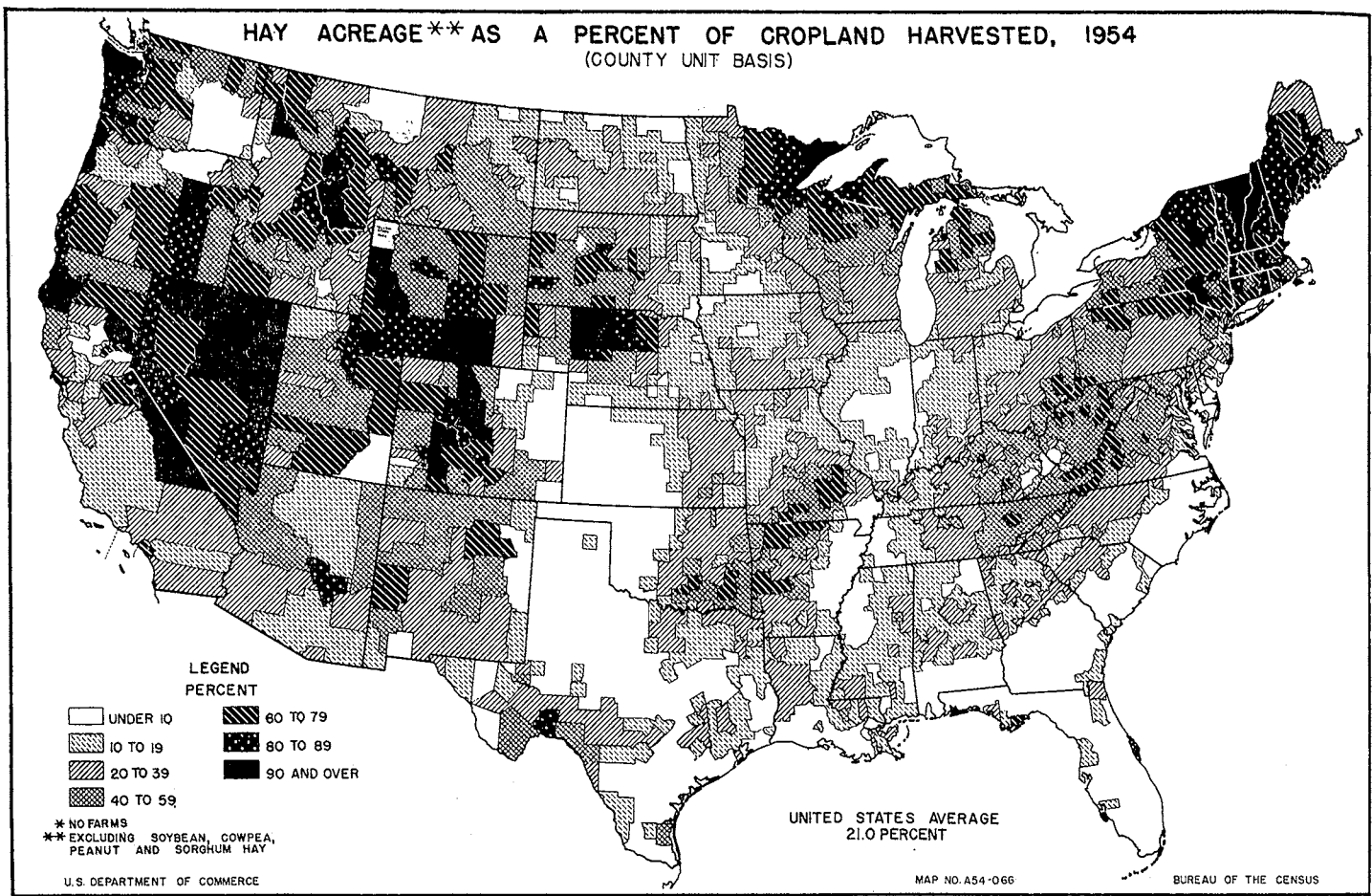


Figure 6.

CHARACTERISTICS OF DAIRY FARMING

Dairy farming may be characterized as an industry that can make use of practically any feed crop grown. Whether it be grain or hay, high-protein feed, or roughage, it can be utilized by milk cows. Basic to any feeding system with cows is the use of hays, other roughages, and pasturage. Dairy cows will produce 100 pounds of milk with the quantity of hay required to produce 110 pounds of beef or 125 pounds of mutton. This is accomplished with less grain than for any other class of livestock except sheep. The cow converts feed, much of which has a limited market, to a food product for which the market is almost universal.

In dairying there is also a greater use of family labor than in a business of similar size in any other livestock venture. This labor is needed day after day. In this way it may make possible the "marketing" of family labor which otherwise would remain unutilized.

The dairy farm produces both milk and meat. A farmer who raises his own replacements will produce one-half as much beef as a farmer with the same number of beef cows. In the aggregate, the sale of these cattle tempers the price of beef but it adds from 10 to 20 percent to the value of sales from the dairy herd.

Another characteristic of dairying is the production of an essential food for the human family that supplies many of the minerals and vitamins needed for satisfactory physical development. Milk is the most nearly universal food for growing children.

Dairy cows are ruminants and for high production must have large quantities of hay and other forages of good quality. One advantage of the major dairy-producing areas is the adaptability to hay production of their soil, topography, and climate. In most of the southern parts of the dairy areas a 3-year rotation of crops

is practiced, of which one-third is hay. Moving north within the area the growing season becomes cooler and shorter. So corn is less practical as a part of the cropping system, and increasing proportion of the cropland is devoted to hay until, in the more northern parts, four-fifths to nine-tenths or more of the harvested cropland is used for hay (fig. 6).

Another way of increasing not only the roughage production of dairy farms but also the feed production per acre is to use the corn crop for silage rather than for grain. Only a small fraction of the large acreage of corn in the Corn Belt is cut for silage but a much larger proportion of a smaller corn acreage is so used in the dairy area (fig. 7).

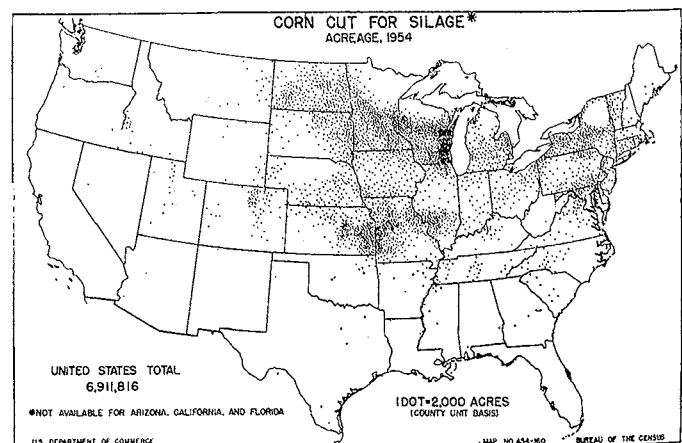


Figure 7.

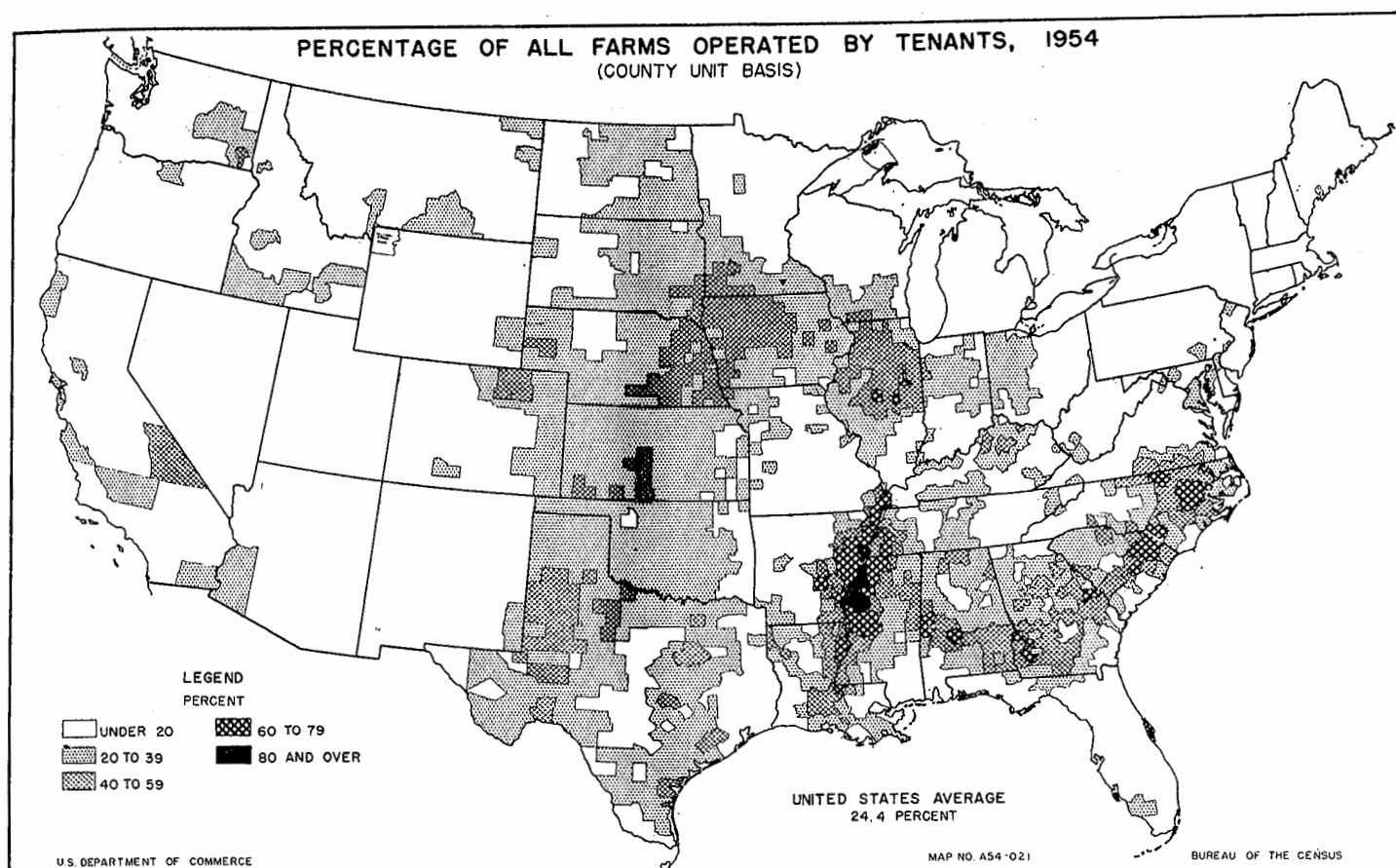


Figure 8.

Most dairy farmers are owner-operators (fig. 8). A dairy farmer with 20 to 30 cows usually finds his net income rather small to divide between two families. Then too, it is difficult to obtain renters with the necessary experience to feed and care properly for a dairy herd that has higher than average production. A third reason mentioned by some operators is the lack of money or credit necessary to carry a renter's share of the dairy herd and feed supply in addition to the machinery needed now for expeditious and effective farm operation. Whatever the reasons, the fact remains that opportunities for young men to begin farming as renters in the dairy areas are more limited than in such areas as the Corn Belt.

Developing a dairy herd through a breeding program may be a lifetime business for any dairyman. This is especially true if he expects to produce his own replacements. Dairy farming is not a flexible business. The main enterprise—milk production—cannot easily or quickly be changed.

Dairying requires a higher quality of labor than does the production of many farm products. Rough treatment or irregular feeding will reduce production. In some situations even the presence of strangers in the barn will temporarily reduce the milk flow.

LOCATION OF DAIRY AREAS

The large numbers of milk cows in the northeastern part of the country and west of Lake Michigan are first of all the results of physical features of climate, topography, and soil which make for a large percentage of the cropland in legumes and grasses. Milk cows can utilize these feeds more effectively than can most other classes of livestock. A second factor leading to this concentration is the competitive situation which reflects many factors, including the heavy consuming population in, or close to, these areas.

In the Great Plains areas and the South there are fewer milk cows than in many other regions. Pasture conditions, markets, and production alternatives have not especially favored milk production in many part of these regions.

The milk equivalent of all dairy-product sales has increased $2\frac{1}{2}$ times since 1909, meanwhile milk sold as whole milk has increased fivefold, but sales of cream and butter have decreased to about one-half the quantity sold in 1909. The center of the whole-milk sales has moved westward from the northeastern to the north-central parts of the country (Table 8). Sales of whole milk from the Middle Atlantic geographic division accounted for nearly 40 percent of all whole-milk sales in 1909; by 1954, this percentage had dropped to 18. The slack was taken up by the geographic divisions to the West and South. The West North Central Division increased its proportion from $7\frac{1}{2}$ percent of whole-milk sales to 13 percent, while the rest of the West and South increased its sales from 10.3 percent to 29.2 percent.

Table 8.—DISTRIBUTION OF WHOLE MILK SOLD, BY GEOGRAPHIC DIVISIONS: 1909 TO 1954

Item	1909	1919	1929	1939	1949	1954
Whole milk sold...million pounds.	16,600	21,752	38,318	46,220	68,529	81,310
Percent sold, by geographic divisions:						
Total.....	100.0	100.0	100.0	100.0	100.0	100.0
New England.....	9.4	8.2	6.7	6.5	5.0	4.8
Middle Atlantic.....	38.7	34.7	25.2	22.8	18.6	18.0
East North Central.....	34.1	37.5	37.6	38.6	37.3	35.0
West North Central.....	7.5	5.2	7.4	7.4	11.8	13.0
South Atlantic.....	2.2	3.2	4.3	4.5	5.5	6.2
East South Central.....	1.2	1.3	2.9	3.2	4.1	4.5
West South Central.....	1.1	1.5	3.0	3.8	4.0	4.3
Mountain.....	1.6	1.9	3.0	3.1	3.2	3.7
Pacific.....	4.2	6.5	9.9	10.1	10.5	10.5

FARMERS AND FARM PRODUCTION

Cream and butter sales remained concentrated in the North Central States (Table 9). In 1909, approximately two-thirds of the sale of these products was from this region and by 1954, it accounted for 85 percent of all sales. Within the region itself notable changes did take place, however, in that the East North Central States reduced their proportion of sales from 29.6 percent of all sales to 10.1 percent, while the portion marketed by the West North Central Region increased from 33.6 percent to 74.9 percent.

Percentage figures alone do not tell the story of the changes that have taken place. Although the New England and the Middle Atlantic geographic divisions showed decreased percentages in sales of both whole milk and cream during this 45-year period, they actually increased total milk-equivalent sales around 50 percent, and the North Central States increased their aggregate sales by 2½ times. These figures show that whereas the sale of whole milk has become more widespread or dispersed over the United States, sales of cream and butter from farms have become more concentrated in the Midwest, especially in that part where dairying is a secondary enterprise on most farms.

The present distribution of the several dairy products emphasizes the importance of the East North Central States in the production of all dairy products, except creamery butter (Table 10).

Most of the butter is found in the West North Central States, as stated earlier, where there are not many dairy farms and milk cows are carried as secondary to other livestock or cash-crop enterprises. This region also is second in American-type cheese, while the Middle Atlantic States is second in foreign types of cheese.

A better picture of the distribution of these products is obtained by listing the States that take a lead in production. Butter is the most widely distributed. Of the total production, 21 States produce appreciable quantities in excess of 1 percent, and the midwestern States of Iowa, Minnesota, Nebraska, and Wisconsin each produces between 5 and 20 percent.

Outside the general dairy regions, small areas of concentration of milk cows are found near some of our larger population centers where economic or regulatory restrictions largely define the areas

of production. Northwestern Washington and northern, central, and southern California are illustrations of areas where considerations of this nature are important. These areas show up more conspicuously when considered as centers of fluid-milk production or as sources of dairy income. They are not as conspicuous as areas of milk cow concentration or numbers of dairy farms because practically none of the milk produced in these special areas is used to make butter or for other manufacturing purposes (figs. 9 and 10).

There are no distinct milk producing areas, however, where limits to production are set by climate, soil, or topography, as is true of such commodities as cotton, peanuts, tobacco, and wheat. Some milk is produced in areas wherever there is adequate feed. It can be produced on grass or hay alone, or on any one of many combinations of grains and roughages. Milk production will be reduced if cows are exposed to excessive heat or extreme cold, but they can be protected from these extremes by suitable shelter or housing. Normal production conditions for dairy cows are varied and are fairly readily controlled.

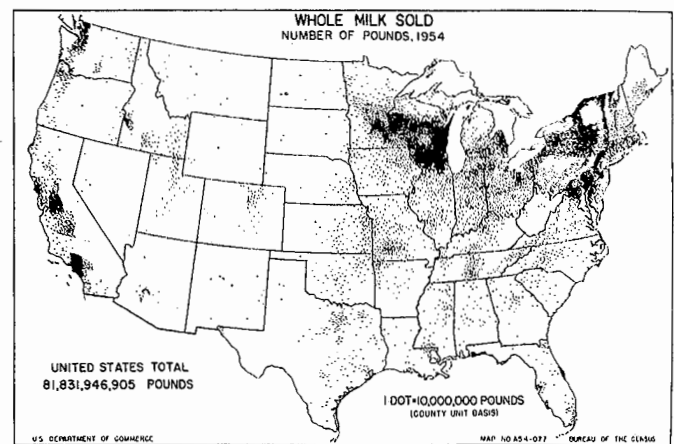


Figure 9.

Table 9.—DISTRIBUTION OF CREAM AND BUTTER SOLD (MILK EQUIVALENT), BY GEOGRAPHIC DIVISIONS: 1909 TO 1954

Item	1909	1919	1929	1939	1949	1954
Cream and butter sold.....	21, 719, 622, 813	25, 338, 498, 676	35, 887, 863, 909	30, 130, 700, 650	15, 478, 918, 639	12, 385, 171, 660
Percent sold, by geographic divisions:						
Total.....	100.0	100.0	100.0	100.0	100.0	100.0
New England.....	6.1	3.7	1.6	0.7	0.3	0.3
Middle Atlantic.....	12.6	6.2	2.6	1.7	1.3	1.3
East North Central.....	29.6	31.8	22.7	21.6	14.1	10.1
West North Central.....	33.6	36.6	48.5	52.2	68.6	74.9
South Atlantic.....	3.6	3.4	3.3	2.6	2.1	1.9
East South Central.....	2.3	3.1	3.8	3.1	3.1	1.7
West South Central.....	3.2	3.5	6.6	8.0	4.5	3.7
Mountain.....	2.0	3.9	5.6	4.8	3.8	4.2
Pacific.....	7.1	7.9	5.4	5.3	2.2	2.0

Table 10.—DISTRIBUTION OF MILK SOLD AND MILK PRODUCTS, FOR THE UNITED STATES AND GEOGRAPHIC DIVISIONS: 1954

Item	United States		Percent distribution by geographic divisions							
	Pounds	Percent	New England	Middle Atlantic	E. N. Central	W. N. Central	South Atlantic	South Central	Mountain	Pacific
Whole milk sold.....	82, 915, 775, 000	100.0	4.8	18.0	35.0	13.0	6.2	8.8	3.7	10.5
Creamery butter.....	1, 448, 688, 000	100.0	.3	3.4	29.9	50.3	1.0	6.1	4.5	5.5
American cheese.....	1, 042, 345, 000	100.0	.5	3.6	59.4	18.2	.4	11.1	3.6	3.2
Other cheese, mostly foreign types.....	340, 759, 000	100.0	2.2	21.7	59.2	5.9	-----	4.2	3.4	3.4
Condensed and evaporated milk.....	3, 729, 792, 000	100.0	.8	8.2	38.2	11.6	7.6	16.0	4.6	13.0

Source: Statistical Bulletin No. 167, 1955, U. S. Department of Agriculture. The uses are not mutually exclusive because some of the whole milk sold from farms was used in making manufactured products.

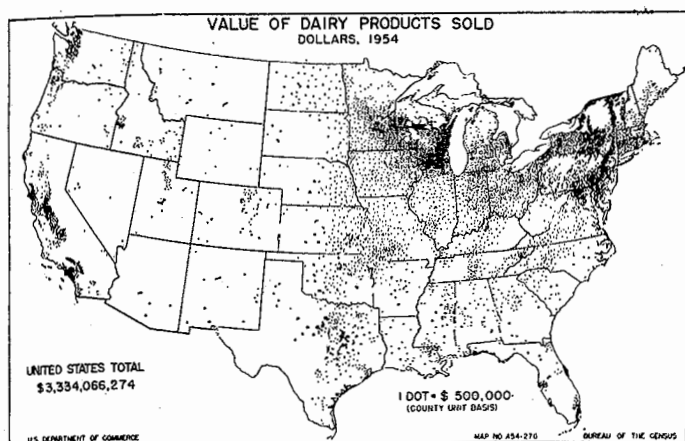


Figure 10.

The conditions that cause one group of farmers to sell fluid milk while another group sells cream or makes cheese must be considered in addition to the factors that make it possible to produce milk.

The areas that sell cream are ordinarily farther from consuming centers. They are no longer found in the central or main milk-producing areas because of the increased commercial utilization of whole milk rather than just the butterfat in the milk (fig. 11). North and South Dakota, Iowa, Missouri, Nebraska, and Kansas now produce more than 50 percent of the cream sold from farms and less than one-sixth of this comes from farms classed as dairy farms. This means that more than five-sixths of the marketed cream from these six States is from farms where the production of milk is secondary to some other crop or livestock enterprise. Fifteen years ago these six States produced 34 percent of the milk that was sold as cream or butter.

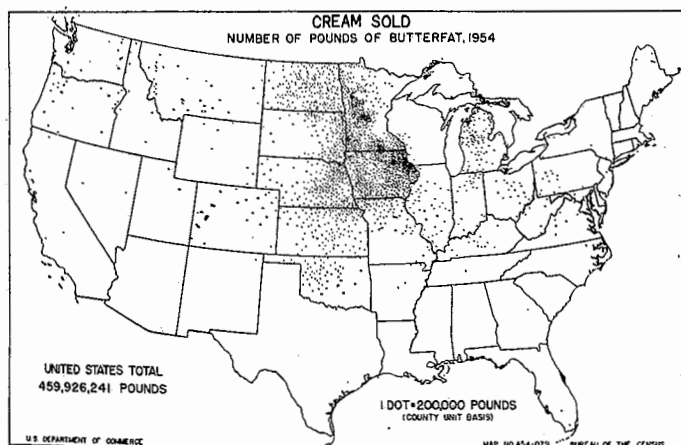


Figure 11.

Usually, considerable numbers of pigs or chickens are found on farms that sell cream. They furnish outlets for the skim milk left on the farm. Condenseries are ordinarily located in areas of heavier milk concentration where they have relatively large supplies of milk currently available and where they can utilize some of the market-milk surplus.

Cheese factories, on the other hand, seem to be set more by the background and habits of local producers than do other phases of dairying. Cheese factories are seldom located to make use of surplus milk from urban centers. The making of different types of foreign cheeses is closely associated with the nationalities that originate them.

The half million dairy farmers were about average in the use of resources. They comprised 16.5 percent of all commercial farms in the United States in 1954 (Table 11). They used but 9 percent of all land in farms and slightly more than 11 percent of harvested cropland, but they sold approximately 15 percent of the value of all farm products. One-fourth of the sale of all livestock and livestock products came from these farms as well as more than four-fifths of all whole milk sales. Only one-fifth the value of all cream sales was credited to these farms—the other four-fifths coming from milk cows on other than dairy farms. Crop sales were very small, amounting to slightly less than 3 percent of all crop sales and 10 percent of total sales from dairy farms.

The dairy farmers used their proportionate share of all farm labor, as well as about the same proportion of total capital investment in land, buildings, farm machinery, and livestock. Total farm real estate values were somewhat less than might have been expected because of the farm buildings required to house the dairy cattle and store feed for the herds during the long barn-feeding period. Total investment in livestock and machinery was higher than the percentage represented by the number of farms, and feed purchases were 50 percent higher.

Table 11.—NUMBER AND USE OF RESOURCES FOR ALL COMMERCIAL FARMS AND FOR ALL DAIRY FARMS IN THE UNITED STATES AND IN SELECTED SUBREGIONS: 1954

Item	All commercial farms	Dairy farms			
		Total	Percent of all commercial farms	Selected sub-regions	
				Total	Percent of all dairy farms
Farms.....number.....	3,327,889	548,767	16.5	385,429	70.2
All land in farms.....thousand acres.....	1,032,493	97,228	9.4	63,685	65.5
Total cropland.....do.....	431,585	51,186	11.9	33,604	65.8
Cropland harvested.....do.....	321,687	37,008	11.5	25,250	68.2
Value of all farm products sold.....million dollars.....	24,299	3,583	14.7	(NA)	(NA)
All crops sold, ¹ total.....do.....	12,076	341	2.8	(NA)	(NA)
All livestock and livestock products sold, total.....million dollars.....	12,223	3,242	26.5	2,263	69.8
Dairy products sold.....do.....	3,330	2,627	78.9	1,859	70.8
Whole milk sold.....do.....	3,077	2,573	83.6	1,815	70.5
Cream sold.....do.....	253	54	21.3	44	81.5
Milk cows.....thousands.....	18,664	10,745	57.6	7,471	69.5
Man-equivalent of labor.....number.....	4,891,935	789,811	16.1	558,820	70.8
Total capital investment.....million dollars.....	110,545	14,611	13.2	10,056	68.8
Land and buildings.....do.....	85,768	10,242	11.9	6,663	65.1
Implements and machinery.....do.....	14,280	2,485	17.4	1,829	73.6
Livestock and poultry.....do.....	10,497	1,884	17.9	1,564	83.0
Total specified expenditures ².....do.....	8,900	1,594	17.9	1,074	67.4
Feed for livestock and poultry.....do.....	3,682	890	24.4	606	67.4

NA Not available.

¹ Includes horticultural and forest products.

² Machine hire, hired labor, feed purchased, gasoline and other petroleum fuel and oil, commercial fertilizer, and lime.

FARMERS AND FARM PRODUCTION

MAJOR DAIRY REGIONS

Clearer understanding of dairy producers and dairy production requires that considerable attention be given to production conditions in several geographic regions and areas and on farms of several sizes. Differences in the technical phases of dairying, in production conditions, levels of income, and the organization of farms, are related to the size of the farms as well as to physical and economic features of the area.

The economic subregion is the basic unit for delineating the production areas. Because of the large number of economic subregions in which dairy farms predominate, those with somewhat similar physical and natural characteristics are combined, forming what will be called dairy regions.

The resources included in the study are only a part of those associated with the dairy industry of the United States. Sixteen percent of all commercial farms in this country were classed as dairy farms in 1954 and 385,429 or 70 percent were in areas covered by the sections analyzing the production situation in the major dairy regions and special dairy areas. They used 65 percent of the land in farms and 68 percent of the harvested cropland.

The dairy regions delineated here cover areas that are both important areas of dairy production and where dairy farms are a major segment of the agriculture.

The portion of the United States covered by the different dairy regions and areas includes approximately 90 percent of the 100 counties that have the largest number of milk cows and also highest total value of dairy products sold.

Some economic subregions have a fair representation of dairy farms which, in some circumstances, might be considered dairy regions but when considered in relation to the total number of farms within the subregion the proportion becomes rather small. Economic Subregion 69, for example, has 5 counties among the 100 leading counties in numbers of milk cows. This subregion has more than 33,000 beef and hog farms, 15,000 dairy farms, 15,000 cash-grain and field-crop farms, and 13,000 general farms. It has only 1 county among the 100 counties with the largest

sale of dairy products. This economic subregion is considered more a part of the cash-grain-livestock region than a dairy area.

There are 20 economic subregions in the Northern Dairy Region of the United States. This belt contains 54 percent of all dairy farms in the United States. In 1954, it accounted for nearly three-fifths of the total milk sales as well as more than two-fifths of all butter sales. It is hoped that a grouping of the 20 economic subregions into five larger areas will result in a clearer picture of the dairy industry than can be obtained through a presentation of the individual subregions (Table 12).

GENERAL CHARACTERISTICS

The topography of the whole Northern Dairy Region was transformed by glacial action which left a rolling to rough terrain, a mixed soil pattern, and a drainage system with some poorly drained spots intermixed with well-drained localities. Any one farm may have soils ranging from rather light and subject to drought, to heavy soils with good water-holding capacities; places with little or no outlet for surface water to well-drained fields; small irregular fields to large, well-laid-out fields where the bigger pieces of machinery can be used effectively; and smooth easily cultivated fields to fields so full of stones and boulders or so rough as to be useful only for grazing.

Throughout this Northern Dairy Region there is somewhat less intense summer heat than in the Corn Belt. It has shorter growing seasons and colder winters. Average annual precipitation is around 25 inches in the western part. It increases somewhat irregularly eastward until 40 inches is recorded from Pennsylvania eastward. All livestock and practically all feed are placed under roof during the long winter. The producer's markets range from an almost completely fluid-milk market in the eastern to butter or other manufactured dairy products on the western edge of the belt. As the higher priced dairy markets are in the east, the surplus production from the western part finds outlets there.

A milking herd is the obvious characteristic common to all dairy farms. A variety of crops, a goodly supply of pastureland, and a considerable amount of family labor, are found on dairy farms of all economic classes. Different secondary or minor enterprises are found in the different subregions but they seem to fit into the organization with little special or unusual demands upon capital or labor.

VARIATION IN FARM CHARACTERISTICS

The smallest herds among the major dairy regions are in the Northern Woods area, Economic Subregion 66, where the average herd has 13 milk cows. More than two-thirds of these farms have fewer than 15 cows and only 14 percent have more than 20 cows. The Northeastern Dairy Region not only has the most cows per herd but it has the fewest small herds and the most large ones. None of the Northern Dairy Regions have as many as one-half percent of the farms with herds in excess of 100 cows per herd.

The range in total incomes as well as per crop acre in 1954 indicates a wide difference in resources and perhaps in the effectiveness with which resources are used (Table 13). The Economic Class I farms had total incomes averaging from \$30,000 to \$36,000 for the different regions or \$95 to \$136 per acre of cropland. Economic Class VI, on the other hand, had total incomes ranging from \$750 to \$903 per farm or \$19 to \$23 per crop acre. The incomes of the other four classes were between these two extremes both in total income per farm and per crop acre.

Table 12.—NUMBER OF MILK COWS ON DAIRY FARMS BY MAJOR DAIRY REGIONS: 1954

Item	[Major dairy region]				
	North-eastern (Subregions 1, 2, 6, 7, 8, 10)	Eastern Ohio- Western Pennsyl- vania (Subregions 17, 27, 28, 29, 30)	Central Michigan- New York Lake Shore (Subregions 9, 49, 50, 64)	Northern Lake (Subregions 65, 67, 68, 88)	Northern Woods (Subregion 66)
Number of farms.....	67,521	40,636	35,605	124,501	28,001
Average number of milk cows per farm..	24	15	18	18	13
Percent distribution of farms by num- ber of milk cows:					
Total.....	100	100	100	100	100
Under 5.....	2	5	4	2	6
5 to 9.....	9	22	19	13	30
10 to 14.....	16	28	24	24	32
15 to 19.....	19	20	19	25	18
20 to 29.....	29	18	21	27	12
30 to 49.....	20	6	11	8	2
50 to 99.....	5	1	2	1	(Z)
100 and over.....	(Z)	(Z)	(Z)	(Z)	(Z)

Z Less than 0.5 percent.

Table 13.—SIZE OF DAIRY FARM BY MAJOR DAIRY REGIONS: 1954

Item	Major dairy region				
	North-eastern (Subregions 1, 2, 6, 7, 8, 10)	Eastern Ohio- Western Pennsyl- vania (Subregions 17, 27, 28, 29, 30)	Central Michigan- New York Lake Shore (Subregions 9, 49, 50, 64)	Northern Lake (Subregions 65, 67, 68, 88)	Northern Woods (Subregion 66)
Number of farms.....	67,521	40,636	35,605	124,501	28,001
Average per farm:					
Land in farms.....	218	153	167	157	186
Cropland har-vested.....	70	62	87	74	57
Gross sales.....	7,266	5,389	7,011	5,299	2,999
Investment in—					
Land and build-ings.....	13,781	15,112	23,136	15,212	8,959
Machinery.....	4,889	4,706	5,897	4,797	3,694
Livestock.....	4,678	3,319	3,759	4,160	2,735
Total.....	23,348	23,137	32,792	24,169	15,388
Man-equivalent.....	1.5	1.4	1.3	1.4	1.3
Number of—					
Milk cows.....	24	15	18	18	13
Animal units.....	32	24	28	30	20
Total investment per milk cow dollars.....	973	1,542	1,822	1,343	1,184

The different levels of income among these dairy areas can be accounted for partly by the difference in milk sales per cow as well as the number of cows per farm (Table 14). Smaller herds sell less milk per cow whether they are in areas with smaller average herds or with the larger ones. This holds for every area and every economic subregion. When farms are grouped by size—economic class—two things show persistently. The economic classes with the lower total incomes have the smaller herds and sell less milk per cow. It is logical to expect smaller farms to have consistently smaller herds. It is not necessary, however, for milk sales per cow to be so much less than for the larger herds. Good sires and proper feeding can be used in production on smaller farms.

Table 14.—MILK AND CREAM SALES FOR DAIRY FARMS, BY MAJOR DAIRY REGIONS: 1954

Item	Major dairy region				
	North-eastern (Subregions 1, 2, 6, 7, 8, 10)	Eastern Ohio- Western Pennsyl- vania (Subregions 17, 27, 28, 29, 30)	Central Michigan- New York Lake Shore (Subregions 9, 49, 50, 64)	Northern Lake (Subregions 65, 67, 68, 88)	Northern Woods (Subregion 66)
Number of farms.....	67,521	40,636	35,605	124,501	28,001
Milk and cream sold per milk cow:					
Total.....	264	251	259	201	174
Whole milk.....	263	249	266	195	150
Cream.....	1	2	3	6	24
Percent of total.....	(Z)	1	1	3	14
Milk equivalent pounds.....	6,526	6,298	7,261	6,594	5,674
Price per cwt. (milk equivalent).....	4.05	3.99	3.57	3.05	3.07

Z Less than 0.5 percent.

The decreased income per cow is the result of lower production (sales) per cow as well as the result of somewhat lower prices for milk. The lower price is not the result of selling cream or butterfat except in Economic Subregion 66. In this area the three groups of smaller farms obtain from 12 to 44 percent of total milk income from the sale of cream. Only in Economic Class VI of the Lake Dairy Region (Economic Subregions 65, 67, 68, and 88) did farmers receive as much as 15 percent of total milk sales from this source. In other subregions of the dairy belt the small farms received about the same percentage of the total milk income from the sale of cream as did the larger farms.

A grouping of dairy farms by economic class is a good measure of the size of business. The number of cows per herd decreases with the economic class until, in most subregions, from 70 to 90 percent of all farms in Economic Classes V and VI have fewer than 15 cows and most of these farms have fewer than 10 cows. These herds are so small that net farm incomes permit only a modest living.

Most of the dairy herds are on family-size farms where the farmer and his family do practically all the farmwork. Although herds are becoming larger over the years, there is little evidence that the family-size dairy farm is passing out of the picture. Improved methods of handling both the crop work and the dairy herds indicate that the so-called family-size herd, even though larger, will continue to be the typical producing unit.

The man-equivalent of these farms also indicates a family-size farm (Table 15). Hired labor equivalent to one-half man or more per year was found on the three classes of farms with the largest incomes. There was 60 percent more hired labor on farms in the Northeastern Dairy Region than in other regions, probably because of more cows. Hired labor exceeds family labor only in Economic Classes I and II of the major dairy regions.

Table 15.—LABOR FORCE ON DAIRY FARMS BY MAJOR DAIRY REGIONS: 1954

Item	Major dairy region				
	North-eastern (Subregions 1, 2, 6, 7, 8, 10)	Eastern Ohio- Western Pennsyl- vania (Subregions 17, 27, 28, 29, 30)	Central Michigan- New York Lake Shore (Subregions 9, 49, 50, 64)	Northern Lake (Subregions 65, 67, 68, 88)	Northern Woods (Subregion 66)
Number of farms.....	67,521	40,636	35,605	124,501	28,001
Total man-equivalent:	1.5	1.4	1.3	1.4	1.3
Operator.....	.7	.7	.7	.7	.7
Unpaid family help..	.4	.5	.3	.5	.5
Hired labor.....	.4	.2	.3	.2	.1
Average per man-equiv- alent:					
Total cropland.....	62	56	88	66	59
Total sales.....	4,837	3,849	5,393	3,785	2,307
Milk cows.....	16	11	14	13	10

To the extent that farm mechanization is measured by the use of specified items of farm machinery and home facilities, some differences are noted among the major dairy regions (Table 16). Most obvious is the use of fewer pieces of the specified items of equipment on farms in the Northern Woods Region. Practically as many farms have automobiles and farm tractors but fewer have such items as pick-up hay balers, motortrucks, and milking machines. Almost as many farms are electrified in this area as in any other of the dairy regions. The lack of comparable net incomes probably accounts for fewer telephones, home freezers, and television sets.

The lowered need for some of the larger items of farm machinery may well account for their disappearance from the lists of machinery on the smaller farms all over the dairy belt. It is much easier to arrange with a neighbor to have 5 or 10 acres of some crop harvested than if the field contained 20 or 30 acres. On the other hand, the number of farms having home conveniences probably is closely associated with net income of the operator.

Table 16.—FARM MECHANIZATION AND HOME CONVENIENCES ON DAIRY FARMS, BY MAJOR DAIRY REGIONS: 1954

Item	Major dairy region				
	North-eastern (Subregions 1, 2, 6, 7, 8, 10)	Eastern Ohio- Western Pennsyl- vania (Subregions 17, 27, 28, 29, 30)	Central Michigan- New York Lake Shore (Subregions 9, 49, 50, 64)	Northern Lake (Subregions 65, 67, 68, 88)	Northern Woods (Subregion 66)
Number of farms.....	67, 521	40, 636	35, 605	124, 501	28, 001
Percent of farms with—					
Milking machine.....	90	72	83	82	62
Power grinder.....	8	29	25	22	20
Electric pig brooder.....	1	3	4	6	2
Farm tractors.....	89	86	95	94	91
Automobiles.....	84	82	92	93	85
Field forage harvest- ers.....	17	12	23	20	7
Motortrucks.....	62	53	55	50	42
Pickup balers.....	35	33	34	18	17
Grain combines.....	13	27	50	21	14
Corn pickers.....	3	21	28	17	3
Telephone.....	83	73	70	68	52
Electricity.....	90	96	99	97	95
Television.....	59	56	66	40	22
Piped running water.....	90	82	89	70	63
Home freezer.....	50	51	54	42	34

There are fewer farm homes with piped running water, home freezers, and television sets on the smaller farms. The levels of family income often will not permit their purchase. The prevalence of electricity on both small and large farms partly reflects the Rural Electrification Administration's program to electrify every farmstead.

The age pattern of dairy-farm operators does not vary greatly among the dairy regions (Table 17). Very few operators under 25 years of age are found in any area of the dairy belt; from 1 to 2 percent is the usual number. The largest number of operators under 25 years of age within any economic subregion does not exceed 3 percent. The 25- to 34-years-old group when considered with these younger men suggests a possible trend away from dairy farming on the part of the young people.

The Northern Dairy Regions as a whole have more dairy farm operators over 65 years old than under 35 years, and four times as many of the older operators as there are of the youngest group. If more young men do not take up dairying we may expect a greater reduction in the number of dairy farms than has already taken place. The obvious alternative is for the older operators to continue farming much beyond the usual retirement age. Most of the young men who are in dairying are not on the smallest farms, Economic Classes V and VI, they are on the middle-sized farms where chances of success are good. The smaller units are mostly in the hands of older operators.

These figures suggest a continuing reduction in the number of dairy farms because some of the older men who drop out will not be replaced by younger men. Larger farms and bigger dairy herds

will doubtless continue to be the tendency so that the industry will be maintained or expanded even though many of the smaller farms disappear.

Table 17.—A DISTRIBUTION OF OPERATORS BY AGE, FOR DAIRY FARMS BY MAJOR DAIRY REGIONS: 1954

Item	Major dairy region				
	North-eastern (Subregions 1, 2, 6, 7, 8, 10)	Eastern Ohio- Western Pennsyl- vania (Subregions 17, 27, 28, 29, 30)	Central Michigan- New York Lake Shore (Subregions 9, 49, 50, 64)	Northern Lake (Subregions 65, 67, 68, 88)	Northern Woods (Subregion 66)
Number of farms.....	67, 521	40, 636	35, 605	124, 501	28, 001
Operators by age:					
Total.....	100	100	100	100	100
Under 25 years.....	2	2	2	2	1
25 to 34 years.....	13	13	13	10	12
35 to 44 years.....	23	23	24	25	24
45 to 54 years.....	25	24	24	26	23
55 to 64 years.....	21	21	21	20	22
65 years and over.....	16	17	16	11	18

The usual cropping patterns of these farms differ from region to region (Table 18). The cropping systems in each are built around the three-crop system of hay, corn, and small grain. The livestock are practically all dairy animals. From 5 to 15 percent of the animal units are hogs, poultry, and sheep; the dairy herd accounts for the remainder.

Table 18.—LAND, USES OF LAND, AND LIVESTOCK ON DAIRY FARMS, BY MAJOR DAIRY REGIONS: 1954

Item	Major dairy region				
	North-eastern (Subregions 1, 2, 6, 7, 8, 10)	Eastern Ohio- Western Pennsyl- vania (Subregions 17, 27, 28, 29, 30)	Central Michigan- New York Lake Shore (Subregions 9, 49, 50, 64)	Northern Lake (Subregions 65, 67, 68, 88)	Northern Woods (Subregion 66)
Number of farms.....	67, 521	40, 636	35, 605	124, 501	28, 001
Average per farm:					
Land in farms.....acres.	218	153	157	167	186
Cropland harvested.....acres.	70	02	87	74	57
Total land pastured.....acres.	97	59	46	59	81
Cropland pastured.....acres.	18	12	22	15	16
Cropland not harvested and not pastured.....acres.	5	4	5	3	5
Total cropland.....do.	93	78	114	92	78
Animal units.....	32	24	28	30	20
Livestock, number—					
All cattle.....	38	27	32	32	24
Milk cows.....	24	15	18	18	13
Chickens.....	53	96	88	109	38
Hogs.....	1	6	6	13	2
Sheep.....	1	3	2	2	2
Percent of cropland harvested in—					
Corn for all purposes.....	12	23	28	27	11
Corn for grain.....	1	17	19	14	4
Small grains.....	12	29	31	32	21
All hay.....	74	45	35	38	65
Other crops.....	2	3	6	3	3

The dairy farms of Eastern Ohio-Western Pennsylvania and the Lake Regions have the greatest diversification in livestock. Each has around one-seventh of the animal units in poultry and hogs. The Northeastern Dairy and the Northern Woods Regions have around one-fifteenth of the livestock classes as other livestock; poultry accounts for most of this. These two regions grow less corn and small grains and more hay than do the others. The northeastern dairymen do this as a matter of choice, finding it to their advantage to ship in the feed grains and raise more hay. Dairymen in the Northern Woods find their growing season and summer temperature best suited for growing hay. The dairymen of the Lake Region have more hogs and poultry than do the other regions. This is the only region of the dairy belt where raising pigs is a sizeable business venture.

Practically all dairy-farm operators hope to become owners and later to clear their farms of debt. This can be done only when there is a surplus from the farm income above that needed to pay farm expenses and meet the cost of family living. Differing rule-of-thumb procedures have been set up in the past to help prospective purchasers determine the possibility of paying-out once the farm is bought. One of the simplest of these, though not the most accurate, is to express the investment cost of the farm in terms of the yearly gross income. Table 19 shows some of these relationships for the dairy farms of the various regions of the Northern Dairy Belt in terms of the 1954 situation.

Table 19.—NUMBER OF YEARS REQUIRED FOR GROSS INCOME TO EQUAL TOTAL INVESTMENT FOR DAIRY FARMS, FOR MAJOR DAIRY REGIONS: 1954

Item	Major dairy region				
	North-eastern (Subregions 1, 2, 6, 7, 8, 10)	Eastern Ohio- Western Pennsyl- vania (Subregions 17, 27, 28, 29, 30)	Central Michigan- New York Lake Shore (Subregions 9, 49, 50, 64)	Northern Lake (Subregions 65, 67, 68, 88)	Northern Woods (Subregion 66)
Number of farms.....	67, 521	40, 636	35, 605	124, 501	28, 001
Years required for gross income to equal investment in—					
Land and build- ings.....	1.9	2.8	3.3	2.9	3.0
Total investment..	3.2	4.3	4.7	4.6	5.1

The Central Michigan-Northern New York Lake Shore Region has the highest real estate value per farm. This area also shows the most years required for total incomes to equal real estate values. It compares favorably with the Northern Lake Region, however, in terms of ratio of income to total investment. The region with the largest number of years required for gross income to equal total investment is Economic Subregion 66 which has both the lowest real estate value and smallest total farm income.

Unusually small farms must necessarily have larger incomes in terms of real estate values if there is to be any surplus for payment of debt. The operators of small farms ordinarily have as many

children as those who operate larger farms and their basic living costs are usually just as high. On the other hand, operators of the larger farms can pay-out with a smaller yearly income in terms of real estate values.

The trend throughout the whole Northern Dairy Belt is definitely toward fewer and bigger farms and larger herds. For example, there were only 130,000 farms in Wisconsin in 1954 with some milk cows in comparison with 143,000 in 1950. The size of herds during this 4-year period increased from 14 to 17. The same trend is found in Minnesota where the number of farms with milk cows decreased from 143,000 to 123,000 and the average number of cows per farm increased from 9 to 11. In New York, which may well be called the center of the eastern part of the dairy belt, the number of farms with milk cows dropped from 85,600 in 1950 to 71,800 in 1954 and the average number of cows per farm increased from 14 to 18. The trend toward fewer farms and more milk cows per farm may well continue.

Most dairy farms are not large when expressed in terms of dollars invested or in physical units. The 296,000 dairy farms in the Northern Dairy Regions show an average real estate value of approximately \$15,000 and a total estimated value of \$27,000 for land, buildings, machinery, and livestock. Their productive capacity in terms of harvested cropland, number of livestock or man-equivalent, also shows the average farm to be of modest size. If a dairy farmer averages \$100 total income per acre of harvested cropland he is doing well. Income larger than this indicates a farmer with crop production that is better-than-average or a highly productive herd, or an especially good market for milk.

SIZE OF BUSINESS

Size of business is important because it affects the income available for family living and savings. A small volume of business, whether it be in dairying, other livestock, or crops, has only one advantage over larger units—losses are small. By the same token savings are also small.

Size may be measured in any of several ways. The acreage of land used for crop production, the number of milk cows on a dairy farm, or the capital invested in the business, are measures of size in different situations. Gross farm sales were used in the 1954 Census for grouping farms into economic classes. Six classes were established with gross farm incomes ranging from \$25,000 or more for Economic Class I to the smallest income group with \$250 to \$1,199, Economic Class VI.

Notable differences are shown among the five major dairy regions when grouped by economic class. The Northeastern Dairy Region has the fewest small farms in Economic Classes V and VI, being 12 and 3 percent, respectively. On the other hand, 53 percent of the farms in the Northern Woods Region are in the two smallest classes, while less than 2 percent are in the two largest classes. The number of farms of the three remaining major dairy regions are between these two extremes. They have more farms in the medium-sized groups, Economic Classes III and IV.

NORTHEASTERN DAIRY AREA

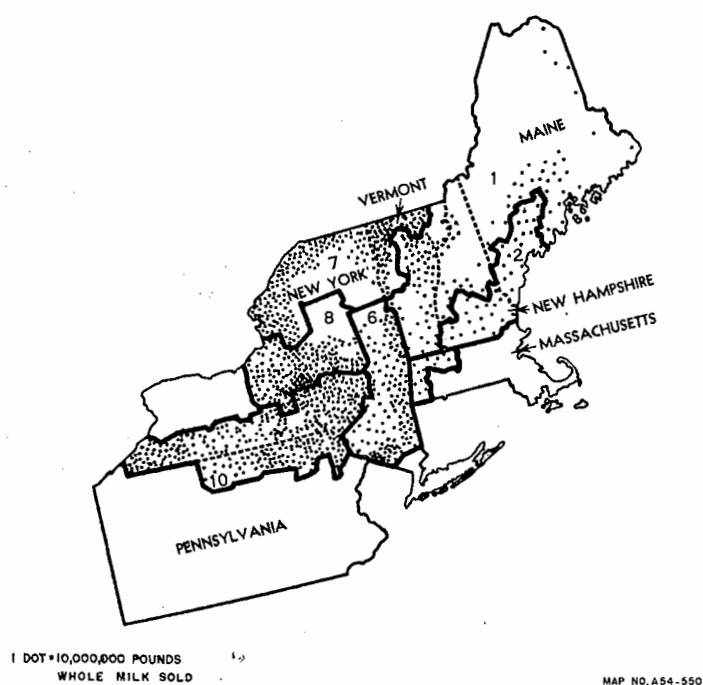


Figure 12.

THE NORTHEASTERN DAIRY REGION
(Economic Subregions 1, 2, 6, 7, 8, 10)

This region, comprises Maine, New Hampshire, Vermont, most of New York, and parts of Pennsylvania and Massachusetts. It is the oldest dairy region of the United States. The soils are generally classed as lacking in natural fertility although they respond well to the use of farmyard manure and commercial fertilizers. Frequent summer rains, however, make it difficult to put up hay of the best quality. The topography generally is rolling to hilly so the fields for harvested crops are fairly small and much land is best suited for pasture.

The region has about two-fifths of the farmland in harvested crops and one-third in pasture. Occasional small localities are found where cash crops or poultry are more important sources of income than dairy. Aroostook County, Maine, is definitely a potato county with only 7 percent dairy farms. Five counties—in southern Maine, in New Hampshire, and in Vermont—have more poultry than dairy farms and in each of these counties the total sale of poultry products was greater than the sale of milk in 1954. In none of these localities does the poultry flock compete seriously with the dairy herd for land. Both types of farms depend on feeds shipped in from other parts of the country and the poultry flock uses very little land. The lake shore country of western New York has a concentration of fruit and vegetable farms and much of the resources is represented by these farms.

By and large, however, every part of the Northeastern Dairy Region is devoted to dairying.

The movement in this area away from the production of other livestock and cash crops and into the production of milk for fluid consumption, is explained by the fact that the whole eastern part of the country has become highly urbanized. There are so many milk cows that the local feed supplies can meet only a part of the requirements even though the production of harvested crops and grass has been increased through the use of fertilizers. Dairymen ship in most of the grain and concentrates used. Thus, the size of business is increased by the purchase of feeds from the Midwest.

The region still produces around one-fifth of the foreign types of cheese and cream cheeses of the country. One-half of that produced here is cream cheese. The region produces less than 4 percent of the butter and American types of cheese and about 8 percent of the condensed and evaporated milk. Milk cow numbers increased from 1.6 million in 1950 to 1.7 million in 1954 whereas, the number of dairy farms decreased from 75,494 to 67,521. Fewer and larger farms seem to be the trend throughout. Approximately one-seventh of the whole-milk sales of the United States are from this region.

The organization of these farms as reflected by income and expenses shows a great deal of comparability throughout the region. Maine and New Hampshire—Economic Subregion 1—have the smallest farm incomes both per farm and per acre of total cropland, averaging \$6,473 per farm and \$80 per acre of cropland. The largest incomes are in Economic Subregion 4 in the Hudson River Valley, where the average total value of sales is \$10,632. Every economic subregion of the area shows the extreme specialization of the dairy farms. Economic Subregion 1 not only has the smallest average income but it shows slightly more tendency to diversify its income, with 82 percent of the total income from the sale of milk, whereas all the other subregions show from 84 to 88 percent. Crop sales from dairy farms amount to less than 5 percent in every part of the area. Dairy farmers in central New York obtained 4.3 percent of their income from these sources while those in northern New York obtained the least, 1.7 percent.

The wide range in size as shown by economic class tabulation suggests that nearly 15 percent of the dairy farmers of this region are accepting modest incomes while 20 percent are making good incomes, Economic Classes I and II. There is little tendency for the smaller farms to diversify more than the larger except for those in Economic Class VI. Only 71 percent of the income of this group is from milk sales in comparison to an average of 86 percent for the other classes. Yet no one enterprise other than sales of cattle accounted for more than a minor part of the other income. (Tables 20 and 21.)

Feed purchases accounted for three-fifths or more of the specified expenses for every economic subregion and for most economic classes of the area. This amounts to \$25 per acre of total cropland, or \$97 per cow, and emphasizes the point already made that this is a feed-deficit region. The producing of this quantity of feed would require practically double the present cropland. The range in specified expenses of the different economic classes is as wide as the range in income.

DAIRY PRODUCERS AND DAIRY PRODUCTION

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Table 20.—SOURCES OF FARM INCOME ON DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE NORTHEASTERN DAIRY REGION: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	67,521	1,215	12,525	24,658	19,447	7,965	1,711
Gross sales—							
Per farm.....dollars..	7,256	36,282	14,181	7,163	3,809	2,005	903
Per crop acre.....do..	78	136	98	76	56	39	21
Percent of gross sales from dairy products.....	85	84	85	86	86	83	71
Sales per farm:							
Milk.....dollars.....	6,202	30,500	12,096	6,175	3,273	1,657	645
Cattle and calves.....do..	498	2,987	944	465	267	163	108
Hogs.....do.....	13	48	25	14	7	6	7
Poultry products except eggs.....dollars.....	30	312	81	36	14	8	4
Eggs.....do.....	157	822	357	143	66	33	24
Sheep.....do.....	7	75	11	6	3	2	5
Other livestock and livestock products.....dollars.....	6	20	9	7	4	6	3
Total, livestock and livestock products.....dollars.....	6,922	34,773	13,523	6,846	3,634	1,875	790
Field crops.....do.....	166	886	374	153	68	36	21
Other crops.....do.....	98	421	168	90	58	67	70
Total crops.....do.....	264	1,307	542	243	126	103	91

¹ Includes horticultural and forest products.

Table 21.—SPECIFIED FARM EXPENDITURES ON DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE NORTHEASTERN DAIRY REGION: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	67,521	1,215	12,525	24,658	19,447	7,965	1,711
Average per farm:							
Machine hire.....dollars..	119	185	149	132	104	78	49
Hired labor.....do.....	664	7,023	1,570	500	186	83	24
Feed.....do.....	2,332	10,269	4,398	2,323	1,315	791	431
Gas and oil.....do.....	368	1,402	633	376	238	146	75
Fertilizer.....do.....	191	993	409	183	86	48	24
Lime.....do.....	52	255	109	52	24	12	11
Total.....do.....	3,726	20,117	7,268	3,566	1,953	1,158	614
Average per crop acre:							
Machine hire.....do.....	1	1	1	1	2	2	1
Hired labor.....do.....	7	26	11	5	3	2	1
Feed.....do.....	25	38	30	25	19	16	10
Gas and oil.....do.....	4	5	4	4	3	3	2
Fertilizer.....do.....	2	4	3	2	1	1	1
Lime.....do.....	1	1	1	1	(Z)	(Z)	(Z)
Total.....do.....	40	75	50	38	28	24	15

Z Less than 0.50.

The net incomes are larger than they would be if the specified expenses were expanded to include other necessary items and cost (Table 22). Further, the average income for the area does not fully reflect the variation in effectiveness in the use of resources. The dairymen in Economic Subregion 1, with an average net income of \$2,871, have only two-thirds the income of the dairymen in Hudson Valley, Subregion 6, and Central New York, Economic Subregion 8. To the extent that net income is a measure of efficiency or effectiveness in the use of resources, the farmers of these two economic subregions are using to good advantage the resources at their command. Another indication

of effectiveness in the use of resources is the total investment in terms of gross sales. Economic Class I farmers used a total investment of \$221 to obtain \$100 income. This ratio was increased with the smaller units until farmers in Economic Class VI used \$1,039 of capital investment to obtain \$100 total income.

Table 22.—MEASURES OF INCOME AND EFFICIENCY LEVELS FOR DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE NORTHEASTERN DAIRY REGION: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	67,521	1,215	12,525	24,658	19,447	7,965	1,711
Gross sales per farm.....dollars..	7,256	36,282	14,181	7,163	3,809	2,005	903
Specified expenses per farm.....do..	3,726	20,117	7,268	3,566	1,953	1,158	614
Gross sales less specified expenses per farm.....dollars..	3,530	16,165	6,913	3,597	1,856	847	289
Gross sales per man-equivalent.....	4,837	6,846	6,446	4,775	3,463	2,228	1,003
Total investment—							
Per farm.....dollars.....	23,348	80,128	37,759	23,399	16,383	12,625	9,347
Per man-equivalent.....do.....	15,595	15,118	17,163	15,599	14,894	14,028	10,386
Per \$100 gross sales.....do.....	320	221	266	325	431	631	1,039
Percent of sales of dairy products from cream.....	(Z)	(Z)	(Z)	(Z)	(Z)	2	12
Milk sales per cow:							
Dollars.....	264	405	309	254	204	160	89
Pounds (milk equivalent).....	6,526	8,036	7,549	6,441	5,361	4,361	2,782

Z Less than 0.5 percent.

From three-fifths to three-fourths of the farms in the different economic subregions used fertilizer, the smallest number being in Northern New York, Economic Subregion 7, while in Economic Subregions 8 and 10, 77 percent used some fertilizer. Some fertilizer was applied to 28 percent of the harvested cropland.²

Table 23.—USE OF FERTILIZER AND LIME ON DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE NORTHEASTERN DAIRY REGION: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	67,521	1,215	12,525	24,658	19,447	7,965	1,711
Fertilizer:							
Percent of farms using.....	71	90	88	79	62	46	32
Tons used per farm reporting.....	5	21	9	4	3	2	1
Acres upon which used per farm reporting.....	28	107	47	25	16	12	8
Average per acre fertilized:							
Pounds.....	360	400	380	360	360	360	360
Cost.....dollars.....	9.50	10.29	9.83	9.24	8.90	8.99	8.89
Lime:							
Percent of farms using.....	39	67	59	45	29	19	15
Acres upon which used per farm reporting.....	15	37	20	13	10	9	7
Average per acre limed:							
Pounds.....	2,900	3,020	2,980	2,900	2,700	2,700	2,500
Cost.....dollars.....	8.98	10.19	9.46	8.84	7.84	7.64	9.97

The larger farms fertilized a few percentage points more of its cropland than the smaller farms, but the rate of application was practically the same for large and small farms. Slightly more than one-half as many farms used lime as used fertilizer. Nominal applications of 350 to 400 pounds per acre were used (Table 23).

² Including cropland pastured.

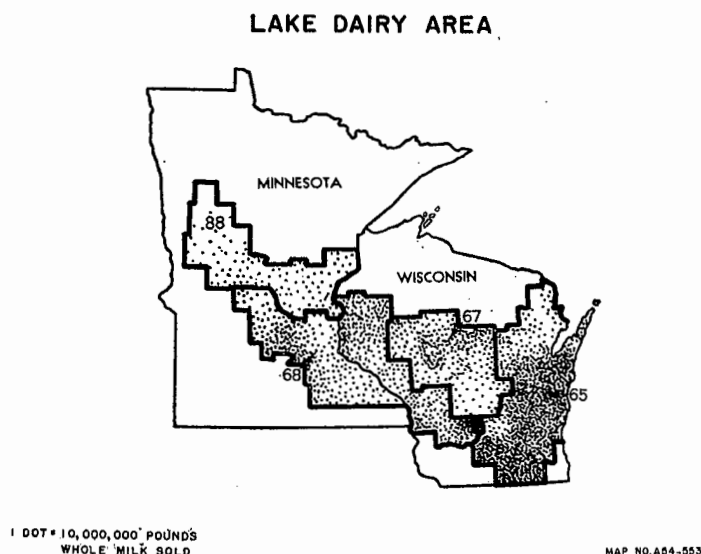


Figure 13.

THE NORTHERN LAKE REGION (Economic Subregions 65, 67, 68, 88)

Here, as in the Northeastern Dairy Region, are the glacial soils, shallow and lacking in natural fertility. They probably are somewhat more fertile than the former and respond to good cultural practices. Some of the lighter soils ordinarily yield one-half to three-fourths of the production of the heavier soils. Summer rainfall and temperatures favor the production of hays and other roughages, so one-third of the total cropland is used for these purposes. Only the Northern Woods Region and the Northeastern Dairy Region exceed this proportion, with one-half or more of the total cropland used for hays.

Within the last generation this area has greatly increased the quantity of milk marketed as fluid milk but it has not changed the proportion of its income from dairying. It still has about the same proportion of the income from crops, poultry, and other livestock.

The different market outlets for milk when compared with those in the Northeastern Dairy Region are shown by the proportions of such products as butter and cheese sold from the respective areas. The Northern Lake Region produces approximately twice as much milk as the Northeastern Region. Yet it markets 10 times as much milk in the form of butter and more than 16 times as much cheese. Even so, the fluid-milk market is taking a continuously increasing share of milk production of the area.

Although the averages of these economic subregions show considerable uniformity, the number of farms in the two extreme economic classes varies greatly. Economic Subregion 65 has the most large farms, 14 percent, and the fewest small farms, 13 percent, Economic Subregion 88 has only 2 percent large farms and nearly 40 percent very small farms. This difference between the two subregions is to be expected, since Subregion 65 encompasses most of the eastern Wisconsin industrial concentration with its better local markets and higher land values, while Subregion 88 is a border area between the Northern Woods and the more completely agricultural area to the South.

The usual cropping system of farms in the Northern Lake Region consists of corn, small grains, and hay. The larger farms grow more corn and small grains while the smaller farms have a greater proportion of hay. The change is gradual from the larger to the

smaller farms. A reduction in the portion of the cropland used for corn from 37 percent for Economic Class I farms to 20 percent for Class VI farms is accompanied by a smaller change in the total acreage of small grains and an increase in the hay acreage from 32 to 53 percent of the harvested cropland.

The small farms average 6 to 7 cows per farm in the different economic subregions while there is a wide range in the number of cows per herd on the larger farms. Economic Subregion 88 has 46 milk cows per farm on Economic Class I farms; Economic Subregion 65 has an average of 75 cows.

The different proportions of various crops are also geographic to a considerable extent. The southeastern part of the area has a heavy concentration of canning crops. Wisconsin has a greater acreage devoted to canning crops than any other State. These crops are grown as secondary enterprises on dairy farms. Each farmer produces only a few acres of canning peas or sweet corn and this reduces small grain or corn acreages to a like extent. Potatoes are grown in the eastern part of Subregion 67. A much larger acreage was grown earlier when the light soils were newly broken and before the organic matter was reduced. Much of this acreage is now in a rotation with feed grains and hay but an increasing number of farms grow potatoes as the important or only crop. Overhead irrigation from local subsurface sources supplies most water for the irrigation of potatoes, although a few of the operators pump directly from small streams. A large percentage of barley used for brewing is raised in the eastern part of the area, centering around the three important bodies of water—Lake Winnebago, the Four Lakes, and the Horicon Marsh. Practically all the rye grown in the area is found on the light soil of Economic Subregion 67.

Here, as in other dairy areas, the farm depends upon the farm family for most of its labor force, and since from three-fifths to four-fifths of all farm work is chore labor—and most of this with the dairy herd—the number of milk cows may well determine the labor used. The amount of family labor available for farm work remains fairly constant both among subregions and within economic classes.

So far as the age of dairy-farm operators is concerned, this area differs slightly from the three major dairy areas to the east. It has 3 percentage points, 20 percent, more operators under 35 years old and around 7 percentage points, 20 percent, fewer operators over 55 years. This means that a few more young men are taking up dairying than in the areas to the east and more of the older men are dropping out. One interpretation of this situation is that dairy farming in the Northern Lake Region offers a somewhat better opportunity for young men when expressed in terms of local alternatives than is true in other major dairy regions.

The modest incomes received by most dairymen in this region is shown by the average total farm income as well as by the income minus specified expenses.

Fifty-eight percent of these dairy farmers have less than \$5,000 total income per farm and 20 percent have less than \$2,500 (Table 24). The smallest average income among them is in Economic Subregion 88 where average total value of sales is \$3,533, or only 57 percent of the income received by dairy farmers of Economic Subregion 65. The net income of \$2,342 is more than half the average net income of Subregion 65, and, if total rather than specified expenses were subtracted from the total income, the net would be about half the present figure. The problem of buying capital items, meeting living expenses, and laying anything aside for emergencies, is burdensome indeed for operators with such small incomes. This again is a real problem with the farmers in Economic Classes IV, V, and VI. The size tabulation emphasizes the importance of volume of business if incomes are to be increased.

Table 24.—SOURCES OF FARM INCOME ON DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE NORTHERN LAKE REGION: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	124, 501	425	10, 548	41, 266	46, 789	20, 843	4, 630
Gross sales—							
Per farm.....dollars..	5, 270	34, 271	13, 002	6, 918	3, 764	1, 924	851
Per crop acre.....do....	58	95	78	63	48	35	21
Percent of gross sales from dairy products.....	67	65	63	67	71	72	72
Sales per farm:							
Milk.....dollars.....	3, 563	22, 428	8, 184	4, 647	2, 654	1, 387	613
Cattle and calves.....do....	553	3, 733	1, 267	896	417	244	115
Hogs.....do.....	480	3, 750	1, 731	665	232	74	21
Poultry products except eggs.....dollars.....	39	102	96	51	28	15	16
Eggs.....do.....	240	566	478	344	197	98	41
Sheep.....do.....	11	93	24	13	8	6	4
Other livestock and livestock products.....dollars.....	7	41	14	12	8	6	5
Total, livestock and livestock products.....dollars.....	4, 902	30, 713	11, 794	6, 428	3, 544	1, 829	805
Field crops.....do.....	307	3, 053	1, 008	401	174	71	33
Other crops.....do.....	70	505	200	89	46	24	13
Total crops.....do.....	377	3, 558	1, 208	490	220	95	46

¹ Includes horticultural and forest products.

Specified expenses per farm are less than for any region previously described (Table 25). Feed purchases represent around two-fifths of the specified expenses for each subregion; the quantity bought varies from \$6 per acre of total cropland in Economic Subregion 88 to \$11 in Economic Subregion 65. Feed expenses are less than for any other economic subregion of the dairy belt except the Northern Woods Region which bought only one-fourth as much feed as dairymen of the Northern Lake Region. The size of farms, the types of crops grown, and the degree of mechanization are comparable among the economic subregions so that such items as machine hire, gas and oil for farm work, and hired labor do not vary much.

Table 25.—SPECIFIED FARM EXPENDITURES ON DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE NORTHERN LAKE REGION: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	124, 501	425	10, 548	41, 266	46, 789	20, 843	4, 630
Average per farm:							
Machine hire.....dollars..	144	220	201	167	139	100	53
Hired labor.....do.....	228	4, 731	837	270	109	56	19
Feed.....do.....	881	5, 012	2, 021	1, 149	645	372	186
Gas and oil.....do.....	360	1, 574	715	447	298	182	99
Fertilizer.....do.....	135	1, 171	412	175	84	35	16
Lime.....do.....	18	95	45	23	12	6	3
Total.....do.....	1, 766	12, 803	4, 231	2, 231	1, 287	751	376
Average per crop acre:							
Machine hire.....do.....	2	1	1	2	2	2	1
Hired labor.....do.....	2	13	5	2	1	1	(Z)
Feed.....do.....	10	14	12	11	8	7	5
Gas and oil.....do.....	4	4	4	4	4	3	2
Fertilizer.....do.....	1	3	2	2	1	1	(Z)
Lime.....do.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
Total.....do.....	19	35	24	21	16	14	8

Z Less than 0.50.

The net farm income and other measures of efficiency in the utilization of resources in this region continue to emphasize the influence of size (Table 26). The small farms unconsciously use all resources including labor in a prodigal manner. This probably can be remedied only by increasing the volume of business, because it is ordinarily not possible economically to reduce the available family labor or the capital invested in the farm. Production of crop and pastureland as well as of livestock can be increased, however, by some slight expansion in the capital used in the purchase and correct use of fertilizers, but more readily by improved methods of production which may not require more capital but will require an intense application of best cultural and management practices to land, crops, and livestock.

Table 26.—MEASURES OF INCOME AND EFFICIENCY LEVELS FOR DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE NORTHERN LAKE REGION: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	124, 501	425	10, 548	41, 266	46, 789	20, 843	4, 630
Gross sales per farm.....dollars..	5, 279	34, 271	13, 002	6, 918	3, 764	1, 924	851
Specified expenses per farm.....do....	1, 766	12, 803	4, 231	2, 231	1, 287	751	376
Gross sales less specified expenses per farm.....dollars.....	3, 513	21, 468	8, 771	4, 687	2, 477	1, 173	475
Gross sales per man-equivalent.....	3, 785	7, 616	6, 616	4, 324	2, 689	1, 749	851
Total investment—							
Per farm.....dollars.....	24, 169	106, 500	48, 308	29, 208	19, 754	13, 414	9, 594
Per man-equivalent.....do.....	17, 264	23, 667	24, 154	18, 255	14, 110	12, 195	9, 594
Per \$100 gross sales.....do.....	456	310	372	423	520	706	1, 066
Percent of sales of dairy products from cream.....	3	1	1	2	4	8	16
Milk sales per cow:							
Dollars.....	201	323	261	213	174	138	97
Pounds (milk equivalent).....	6, 594	9, 772	8, 242	6, 987	5, 857	4, 814	3, 445

It is not easy to tell from available information just what are the reasons for the very low income. It is not known whether the operators of smaller farms patronized condenseries and cheese factories while the larger farms sold to the higher-paying fluid milk markets. Larger farms are better able to comply with the regulations placed on sellers of fluid milk. They are also better able to send to market a fairly constant supply of milk throughout the year, whereas the sales of the smaller operators may be quite variable.

One pertinent situation does show up in these records: the lower the income the larger is the proportion of cream sold. The whole area averaged \$6 per cow from this source, or 3 percent of the total income from the sale of both milk and cream.

The highest cream sales were in Economic Subregion 88, where they constituted 20 percent of the total sales of dairy products. Economic Subregion 68 received only 4 percent of its dairy income from cream; the two other subregions sold only token quantities. Economic Subregion 88 received \$2.77 per 100 pounds milk equivalent for all milk sold, compared with \$3.09 for the eastern part of the area.

A somewhat wider price differential is shown for farms grouped by economic class. The average milk price for Economic Class VI was \$2.81 per 100 pounds and 16 percent of this was from the sale of cream. The average price increased and the percentage of cream sales decreased with the economic class, until Economic Class I showed almost no cream sales and an average milk price of \$3.31 per 100 pounds.

If the smaller farms were to use as much fertilizer per acre as their largest neighbors they would have to buy 50 to 75 percent more than they did in 1954 (Table 27). The per acre rate of application was practically the same for all farms although the larger farms paid a little more per ton which suggests the use of fertilizers with higher nutrient content.

Table 27.—USE OF FERTILIZER AND LIME ON DAIRY FARMS, By ECONOMIC CLASS OF FARM, FOR THE NORTHERN LAKE REGION: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	124,501	425	10,548	41,206	46,789	20,843	4,630
Fertilizer:							
Percent of farms using.....	66	99	91	79	63	42	23
Tons used per farm reporting.....	3	19	7	4	2	1	1
Acres upon which used per farm reporting.....	34	175	70	37	22	15	12
Average per acre fertilized:							
Pounds.....	200	213	201	197	198	202	207
Cost..... dollars.....	6.05	6.80	6.45	5.90	5.89	5.78	5.90
Lime:							
Percent of farms using.....	23	38	39	30	20	12	6
Acres upon which used per farm reporting.....	14	52	22	14	11	9	11
Average per acre limed:							
Pounds.....	3,649	4,153	3,934	3,631	3,468	3,396	2,643
Cost..... dollars.....	5.53	4.83	5.33	5.52	5.82	5.64	4.00

One-fourth to one-third more farmers used fertilizer or lime in the eastern part of the area than in the western part. Of the farmers in Economic Subregion 67 fertilizer was used by 76 percent; only 48 percent in Economic Subregion 88 used it. This latter subregion also applied fertilizer to fewer acres although the rate of application was approximately the same for all subregions.

Farms vary more among the subregions in the intensity of operation, or in the relation of feed produced to livestock numbers, than in the proportion of the several classes of livestock maintained on individual farms. The number of milk cows, along with the young stock raised for replacement, constitute by far the largest proportion of livestock. The presence or absence of a few more hogs or sheep or even a few hundred head of poultry scarcely changes the capital and labor requirements on the usual dairy farm, yet these minor enterprises contribute materially to income.

Economic Subregion 67, which has the least productive soil, also has the least livestock per farm. Because of poor yields of crops it buys more feed than the other subregions. On the other hand, Economic Subregion 65 has the most intensively operated farms with the greatest gross income per acre.

EASTERN OHIO-WESTERN PENNSYLVANIA REGION (Economic Subregions 17, 27, 28, 29, 30)

The story of the settlement and development of this region which consists of the western two-thirds of Pennsylvania and the eastern half of Ohio, along with a little of West Virginia and one small Kentucky county, is similar to that of the Northeastern Dairy Region except that it has not gone so strongly into dairying. The shift from a self-sufficing home economy to a highly specialized and commercialized production was gradual and practically continuous until a generation ago. During the last 30 years, however, the change in production practices and output have been almost revolutionary. The use of improved seed, better cultural practices, more selective breeding programs, and a more realistic interpretation of market needs, has resulted in a greatly enhanced output per man and higher living standards for the farm families.

EASTERN OHIO-WESTERN PENNSYLVANIA DAIRY AREA

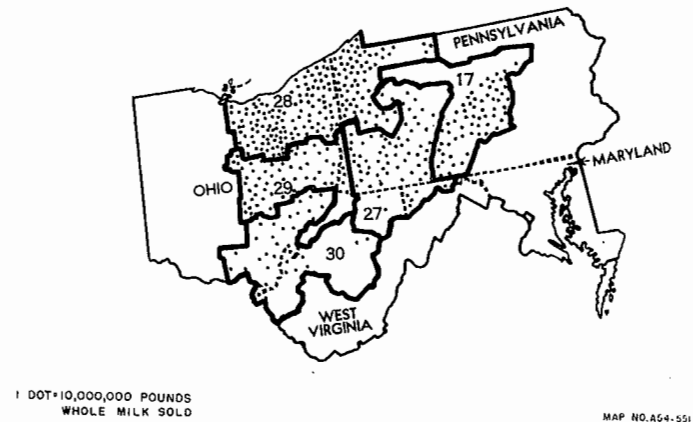


Figure 14.

There are more livestock farms other than dairy and poultry in Economic Subregions 29 and 30 than in other subregions of the region. Economic Subregion 28 has a good distribution of field crops, other livestock and general farms; and Economic Subregion 17 replaces other livestock farms with poultry farms.

The region has a varied soil and topographic pattern. Soils of Northwestern Pennsylvania are derived from sandstones and are less fertile than the ridge and valley country in the rougher parts of the State. The hilly land in the central part of the plateau gives way to a rolling to fairly level topography along the Ohio border. This type of topography continues into Northern Ohio where soils are generally productive. Southeastern Ohio and the bordering land of West Virginia is nonglaciated, of limestone origin and has a rolling to rough topography.

The cropping system is fairly well described as a 3-year rotation of corn, small grains, and hay. Cash crops, mostly field crops, account for around one-tenth of the sale of farm products from these dairy farms. Some feed is shipped out to the Northeastern Dairy Region although the dairy farms within this area have little, if any, surplus feed. It is farmed less intensively as shown by fewer milk cows per crop acre and less is spent for specified expenses. The production of dairy products seems to have developed in Northeastern Ohio when it was still a part of the Western Reserve of Connecticut. The Connecticut Yankees brought in cheesemaking over a century ago and it has consistently been considered a dairy section since then. It, too, went through the stage of homemade to factory manufacture of cheese and butter.

Dairy farming is only one of several, though the most important, farming enterprises of the region. There are more other livestock farms in Economic Subregions 29 and 30 than in other of the subregions while Economic Subregion 28 has a good distribution of field crops, other livestock, and general farms; Economic Subregion 17 replaces other livestock farms with poultry farms.

The dairy farms are considerably more diversified than is true in the Northeastern Region. They have only 71 percent of the total income from milk in comparison with 86 percent in the Northeast (Table 28). This diversification includes both livestock and crops. Sales of pigs, poultry, and eggs are relatively important in every economic subregion, accounting for 7 to 11 percent of the total income. Crop sales, on the other hand, show a greater range than do the sales of livestock. Economic Subregion 30 derives 8 percent of the total income of its dairy farms from the sale of field and cash crops. Economic Subregion 17 gets 14 percent from these sources.

Table 28.—SOURCES OF FARM INCOME ON DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE EASTERN OHIO-WESTERN PENNSYLVANIA REGION: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	40,636	258	4,432	12,439	12,911	7,055	3,541
Gross sales—							
Per farm.....dollars..	5,389	30,716	13,458	6,990	3,760	1,883	751
Per crop acre.....do....	99	120	92	74	58	38	23
Percent of gross sales from dairy products.....	71	76	70	71	72	67	62
Sales per farm:							
Milk.....dollars.....	3,810	23,219	9,378	4,946	2,725	1,264	463
Cattle and calves.....do....	435	2,521	968	515	321	240	140
Hogs.....do.....	184	1,082	507	249	102	64	25
Poultry products except eggs.....dollars..	71	152	240	88	41	18	9
Eggs.....do.....	252	608	640	350	160	92	47
Sheep.....do.....	18	45	23	22	15	15	8
Other livestock and livestock products.....dollars..	15	43	25	18	14	14	6
Total, livestock and livestock products.....dollars..	4,785	27,670	11,781	6,188	3,378	1,707	698
Field crops.....do.....	547	2,568	1,522	735	346	154	37
Other crops ¹.....do.....	57	478	155	67	36	22	16
Total crops.....do.....	604	3,046	1,677	802	382	176	53

¹ Includes horticultural and forest products.

Specified expenses of the dairy farms are two-thirds those of the Northeastern Dairy Region while the income is three-fourths as much (Table 29). Expenses were slightly less than one-half the total value of sales in comparison with slightly more than one-half for the Northeastern Region. Milk sales per cow were less but not so much was spent for feed. There was a wide range within the region both in specified expenses and in feed bought. Economic Subregion 30, with specified expenses of \$1,668 per farm was the lowest, and \$68 feed cost per cow was the second lowest of the area. At the other extreme was Economic Subregion 17 with \$3,921 expenses per farm and \$98 feed bought per cow. Economy in the use of resources may reduce efficiency.

Table 29.—SPECIFIED FARM EXPENDITURES ON DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE EASTERN OHIO-WESTERN PENNSYLVANIA REGION: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	40,636	258	4,432	12,439	12,911	7,055	3,541
Average per farm:							
Machine hire.....dollars..	139	148	205	175	135	93	37
Hired labor.....do.....	370	4,948	1,382	395	161	73	30
Feed.....do.....	1,241	5,016	2,891	1,586	926	545	224
Gas and oil.....do.....	340	1,391	714	431	279	160	63
Fertilizer.....do.....	287	1,477	702	362	203	122	49
Lime.....do.....	77	256	171	100	58	35	16
Total.....do.....	2,454	13,236	6,065	3,049	1,762	1,028	419
Average per crop acre:							
Machine hire.....do.....	2	1	1	2	2	2	1
Hired labor.....do.....	5	19	9	4	2	2	1
Feed.....do.....	16	20	20	17	14	11	7
Gas and oil.....do.....	4	5	5	5	4	3	2
Fertilizer.....do.....	4	6	5	4	3	3	2
Lime.....do.....	1	1	1	1	1	(Z)	
Total.....do.....	32	52	41	33	26	22	13

Z Less than 0.50.

Sorting by size discloses the smaller farms to be slightly more diversified than the larger (Table 30). They have less income per

farm and per crop acre. Dairy-product sales per cow, both in dollars and pounds, are so low in Economic Class VI as to raise the question of whether the operators of these farms are seriously engaged in dairying. Sales of \$82 per cow in comparison with \$423 for Economic Class I is an extreme range. Approximately one-third of the small quantity of cream sold from the area is from the group of smallest farms and more than one-fourth of the total milk sales from these farms is in this form. The sale of cream may help to account for the low money income per cow but it will not account for the low milk production unless butterfat prices are so low as to discourage proper management.

Table 30.—MEASURES OF INCOME AND EFFICIENCY LEVELS FOR DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE EASTERN OHIO-WESTERN PENNSYLVANIA REGION: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	40,636	258	4,432	12,439	12,911	7,055	3,541
Gross sales per farm.....dollars..	5,389	30,716	13,458	6,990	3,760	1,883	751
Specified expenses per farm.....do....	2,454	13,236	6,065	3,049	1,762	1,028	419
Gross sales less specified expenses per farm.....dollars..	2,935	17,480	7,393	3,941	1,998	855	332
Gross sales per man-equivalent.....	3,849	6,981	6,117	4,660	2,892	1,883	751
Total investment—							
Per farm.....dollars.....	23,137	80,978	46,358	27,723	19,143	13,764	8,508
Per man-equivalent.....do.....	16,526	18,404	21,072	18,482	14,725	13,764	8,508
Per \$100 gross sales.....do.....	428	264	343	396	504	724	1,064
Percent of sales of dairy products from cream.....	1	1	(Z)	(Z)	1	3	28
Milk sales per cow:							
Dollars.....	251	423	328	269	213	143	82
Pounds (milk equivalent).....	6,298	9,110	7,718	6,696	5,593	4,200	3,082

Z Less than 0.5.

A larger percentage of these farmers are using both lime and fertilizer than in the Northeastern Area (Table 31). Farmers of Economic Class I used 400 pounds of fertilizer per acre; those of the other economic classes used 40 to 100 pounds less per acre of land treated, and on a smaller acreage. Information is not available to show what kind or how much fertilizer should be used. It is probable that the small farms need fertilizer as much as the larger ones do, yet only two-thirds as many reported buying any.

Table 31.—USE OF FERTILIZER AND LIME ON DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE EASTERN OHIO-WESTERN PENNSYLVANIA REGION: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	40,636	258	4,432	12,439	12,911	7,055	3,541
Fertilizer:							
Percent of farms using.....	90	98	98	96	93	82	60
Tons used per farm reporting.....	6	38	14	7	4	3	2
Acre upon which used per farm reporting.....	39	156	80	47	28	19	11
Average per acre fertilized:							
Pounds.....	320	301	343	313	305	308	317
Cost.....dollars.....	8.23	9.67	8.98	8.04	7.71	8.02	7.56
Lime:							
Percent of farms using.....	54	60	71	63	53	41	25
Acre upon which used per farm reporting.....	16	47	26	16	12	10	10
Average per acre limed:							
Pounds.....	3,456	3,180	3,568	3,495	3,487	3,132	2,856
Cost.....dollars.....	8.91	7.86	9.32	9.06	8.83	8.29	6.78

CENTRAL MICHIGAN-WESTERN NEW YORK LAKE SHORE
DAIRY AREA

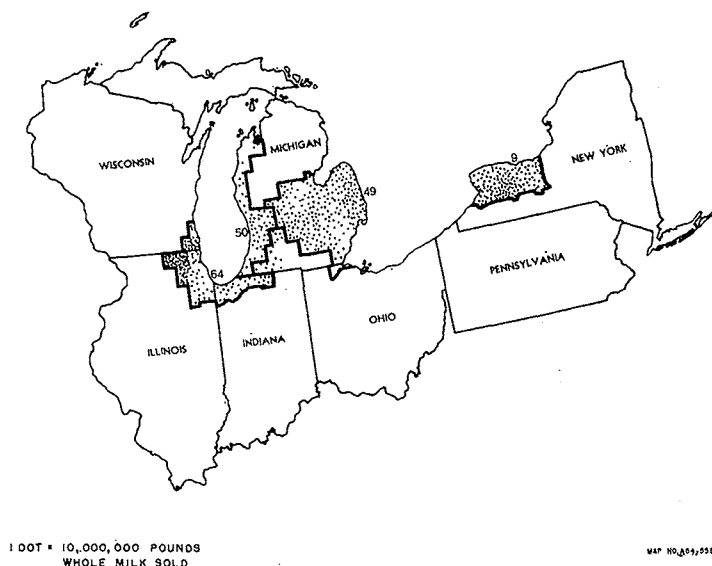


Figure 15.

CENTRAL MICHIGAN-WESTERN NEW YORK LAKE
SHORE REGION
(Economic Subregions 9, 49, 50, 64)

In this region the soils have a wide range of texture and structure as well as a mixed topography. The part that borders on Lake Huron has soils that were developed under poor natural drainage conditions from heavily timbered, swampy, loam or clay-loam parent material. They are fairly high in organic matter, lime, and nitrogen. These with their moisture-retaining capacities make for productive and durable soils. Some of the more nearly level stretches are also productive when provided with adequate drainage. Small grains and hay do well here and the heaviest concentration of corn in the State is in the counties just north of the Ohio border. The few sugarbeets grown in the State are in this area as is the heaviest concentration of potatoes. Michigan leads in growing field beans and virtually the whole acreage is grown on the dark colored, well-drained, heavy loam soils at the north side of the "Thumb."

The soils of the central part are derived mainly from glacial till and are usually high in fertility. They stand cultivation where the land is not on the steeper slopes. Such staple crops as corn, oats, and hay do well. Mint, onions, and other truck crops are grown on the more nearly level muck soils.

The western part of the Michigan country has a diverse soil and topographic pattern. The most commonly found soils are excessively drained sands, strongly acid, and low in organic matter. Islands of less porous soil dot this part. They may be classed as loamy sands and sandy loams and occupy level to rolling locations. When well handled these soils produce fair yields of oats and hay, and potato crops are good. Cherry orchards have been developed on the hillier and sandier soils of the Lake Michigan shore where, because of the proximity of that large body of water, the climate is moderated.

Although there are more dairy farms than any other single type in the four economic subregions there is a mixture with other livestock and cash crops and some limited localities within the area are dominated by types other than dairy. The southwestern

corner of Michigan is known for its fruit and truck growing. Berries, tomatoes, asparagus, and muskmelons are predominant specialty crops. Apples, peaches, and pears do well. A little farther east away from the lake shore, sales of hogs and cattle supplement the sale of dairy products, and a little farther north along the lake shore, poultry and truck crops are valued sources of income. Fruit trees and grape vines extend north of the poultry-truck-crop section in Economic Subregion 50. The three northern counties of this subregion have very few milk cows.

The metropolitan area in the southeastern part of Economic Subregion 49 offers the best market in the State for dairy and truck crops and furnishes the most part-time employment. Fluid milk, poultry, eggs, vegetables, and small fruits are produced for local market. The Chicagoland market for farm products raised in Economic Subregion 64 is as good or better than that afforded the products of Economic Subregion 49. The important sources of farm income for this lake shore subregion are field crops, fresh vegetables, and poultry, as well as dairying.

This economic subregion, and Michigan Economic Area 3, are ordinarily not considered a part of the central Michigan dairy country because of a possibly closer relationship to the Northern Lake Dairy Area and because of a dearth of milk cows. Because only the dairy farms of the area, and not all types of farms, are being considered in this connection and because the basic organization of dairy farms changes little from area to area, it was thought desirable to include these two sections with the rest of this region.

Economic Subregion 9 on the lake shore of western New York was placed in this general area because of the similarity of types of production. This shore is devoted essentially to fruit and vegetable growing. It is the largest fruit and vegetable locality within the State of New York. Both the dairy and the fruit enterprises have been increasing in this subregion during the last 25 years, whereas vegetable and cereal growing have been decreasing. Fruit growing is concentrated on the fertile deep soils which are near enough to Lake Erie to be benefited by the moderating influence of its water. Grapes are grown on the fringes of the locality. The whole subregion grows a wide range of crops and livestock products. Some localities are so specialized as to justify special consideration in any presentation covering these commodities.

The dairy farms of the Central Michigan-Western New York Lake Shore Region have an average total income of \$7,000 per farm which is only \$200 less than that of the Northeastern Dairy Region but nearly \$2,000 more than that of the Eastern Ohio-Western Pennsylvania Region. The farms are more diversified, have a greater acreage of harvested crops, and have higher land values than either of these other regions. Total income for the subregions within the area is lowest for the dairy farms along the eastern shore of Lake Michigan, Economic Subregion 50, and highest for the Western New York Lake Shore, and Economic Subregion 9. The range is practically 100 percent—from \$4,592 to \$9,135.

The degree of specialization varies inversely with average income. Economic Subregions 9 and 64 have the largest average income and least diversification, while Economic Subregions 49 and 50 with smaller incomes have the greatest diversification. The two areas with the largest incomes not only are less diversified but they have an average of 94 and 104 acres of harvested cropland and 23 and 24 milk cows, respectively, as compared to 84 and 67 acres of harvested crops and 15 and 13 cows per farm for the subregions with smaller incomes. Diversification in the two Michigan subregions is probably the result of local environmental conditions and personal considerations rather than its favorable effect on income.

The income range of the different economic subregions follows the pattern of the region (Table 32). The total sales as well as the sales per acre of total cropland show a consistent drop from the large to the small farms. What diversification there is shows up more among economic subregions than within the subregions. The smaller farms within a subregion show little, if any, more diversification than the larger farms.

Specified expenses of the region are consistently less than of either of the previously discussed regions when expressed in terms of income. The ratio of expenses to income in Economic Subregions 49 and 64 is 1 to 3; in Subregions 9 and 50 the ratios are 1 to 2.3 and 1 to 2.6, respectively.

Table 32.—SOURCES OF FARM INCOME ON DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE CENTRAL MICHIGAN-WESTERN NEW YORK LAKE SHORE REGION: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	35,605	551	6,925	12,068	9,286	5,175	1,600
Gross sales—							
Per farm.....dollars..	7,011	34,652	14,085	7,168	3,800	1,909	836
Per crop acre.....do..	62	101	76	60	45	32	19
Percent of gross sales from dairy products.....	66	65	66	67	67	64	64
Sales per farm:							
Milk.....dollars..	4,650	22,438	9,317	4,805	2,535	1,220	538
Cattle and calves.....do..	582	3,254	1,057	567	382	234	117
Hogs.....do..	229	1,343	550	207	84	54	29
Poultry products except eggs.....do..	52	147	93	57	32	20	9
Eggs.....do..	202	447	333	241	140	75	33
Sheep.....do..	18	181	29	20	9	4	2
Other livestock and livestock products.....dollars..	9	40	14	9	6	3	3
Total, livestock and livestock products.....dollars..	5,742	27,850	11,393	5,906	3,168	1,610	731
Field crops.....do..	1,162	5,919	2,496	1,170	565	260	70
Other crops.....do..	107	883	196	92	67	39	35
Total crops.....do..	1,269	6,802	2,692	1,262	632	299	105

¹ Includes horticultural and forest products.

Table 33.—SPECIFIED FARM EXPENDITURES ON DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE CENTRAL MICHIGAN-WESTERN NEW YORK LAKE SHORE REGION: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	35,605	551	6,925	12,068	9,286	5,175	1,600
Average per farm:							
Machine hire.....dollars..	176	252	224	199	162	110	52
Hired labor.....do..	468	5,799	1,124	347	125	56	16
Feed.....do..	1,062	4,823	1,982	1,101	633	375	204
Gas and oil.....do..	439	1,626	768	464	287	195	101
Fertilizer.....do..	347	1,492	689	357	192	110	64
Lime.....do..	26	160	54	24	12	7	2
Total.....do..	2,517	14,152	4,841	2,492	1,411	853	439
Average per crop acre:							
Machine hire.....do..	2	1	1	2	2	2	1
Hired labor.....do..	4	17	6	3	1	1	(Z)
Feed.....do..	9	14	11	9	8	7	5
Gas and oil.....do..	4	5	4	4	3	3	2
Fertilizer.....do..	3	4	4	3	2	2	1
Lime.....do..	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
Total.....do..	22	41	26	21	16	15	9

Z Less than 0.50.

Feed bought is again the largest single item of specified expenses (Table 33). It amounts to \$76 per cow for Economic Subregion 9 and about \$60 per cow for Economic Subregions 64 and 50. In Western New York, Economic Subregion 9 is outstandingly high on this item as are all the farms in the Northeastern Dairy Region.

Net farm income and other items showing the relation of various factors to the success of the venture disclose little change from the standard pattern set by the previously described areas (Table 34). The operators of small farms show less effective use of all resources, whether they be physical or human, than the larger farmers.

Table 34.—MEASURES OF INCOME AND EFFICIENCY LEVELS FOR DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE CENTRAL MICHIGAN-WESTERN NEW YORK LAKE SHORE REGION: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	35,605	551	6,925	12,068	9,286	5,175	1,600
Gross sales per farm.....dollars..	7,011	34,652	14,085	7,168	3,800	1,909	836
Specified expenses per farm.....do..	2,517	14,152	4,841	2,492	1,411	853	439
Gross sales less specified expenses per farm.....dollars..	4,494	20,500	9,244	4,676	2,389	1,056	397
Gross sales per man-equivalent.....	5,393	8,250	7,825	5,120	3,455	2,121	929
Total investment—							
Per farm.....dollars..	32,792	113,217	55,999	33,703	22,274	16,031	11,400
Per man-equivalent.....do..	25,225	26,956	31,111	24,074	20,249	17,812	12,667
Per \$100 gross sales.....do..	468	326	397	468	586	844	1,425
Percent of sales of dairy products from cream.....	1	(Z)	(Z)	(Z)	2	8	30
Milk sales per cow:							
Dollars.....	259	383	302	256	205	147	98
Pounds (milk equivalent).....	7,261	9,358	8,143	7,294	6,090	4,973	3,750

Z Less than 0.5 percent.

Nine-tenths of the dairy farms of this region used some fertilizer (Table 35). The quantity applied per acre was only 240 pounds in comparison with around 400 pounds for the two more eastern dairy regions. The two subregions with the larger farms bought the larger quantities but only the New York subregion applied more per acre fertilized. Farmers in this subregion, on the average, applied 100 pounds more per acre than Subregion 64, and 120 pounds more than was applied by the other subregions.

Table 35.—USE OF FERTILIZER AND LIME ON DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE CENTRAL MICHIGAN-WESTERN NEW YORK LAKE SHORE REGION: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	35,605	551	6,925	12,068	9,286	5,175	1,600
Fertilizer:							
Percent of farms using.....	90	99	97	95	90	77	55
Tons used per farm reporting.....	7	29	13	7	4	3	2
Acres upon which used per farm reporting.....	56	179	96	57	35	22	16
Average per acre fertilized:							
Pounds.....	251	328	261	241	228	232	264
Cost.....dollars..	6.89	8.39	7.36	6.58	6.13	6.41	7.41
Lime:							
Percent of farms using.....	20	47	31	23	14	10	3
Acres upon which used per farm reporting.....	18	42	25	15	12	10	6
Average per acre limed:							
Pounds.....	3,271	3,526	2,904	3,450	3,690	3,894	3,937
Cost.....dollars..	7.13	7.96	6.82	7.27	7.30	6.97	9.67

NORTHERN WOODS DAIRY AREA

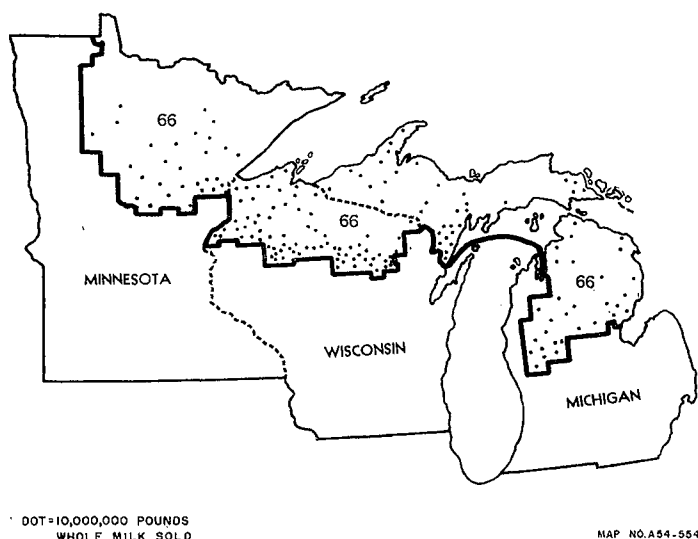


Figure 16.

THE NORTHERN WOODS REGION (Economic Subregion 66)

The whole Northern Woods Region, usually called the cut-over lands, has less agricultural development than any of the other dairy areas. Its varied and irregular topography, short cool growing seasons, and long cold winters call for hardy individuals as farmers. On most of the farms they must be willing to face many handicaps to agricultural production if they are to extract a living. Occasional openings of tillable land are found where one or more large farms have been established. Their operators are able to make good incomes and have fairly satisfactory living conditions. Most of the land has broken irregular terrain and a mixture of fairly heavy to light soils containing divers impediments to tillage such as boulders, stones, pot holes, knolls, and marshy spots. Such acreage must depend for its development on people who are willing to try to cultivate these rather isolated pieces of land.

The agricultural history of this region began after the removal of the forests, when land companies and other owners of large tracts offered various inducements to obtain settlers. Many settlers came and were sold small tracts of cleared or partially cleared land. One or more generations of families toiled and grubbed to expand cleared acres so as to grow enough for family needs.

After the initial influx of buyers the number of farms continued to increase until 1940. At that time, there were 91,740 farms in the region (Table 36). Since then, the number of farms decreased to 57,917 in 1954. The size of farms, on the other hand, has been increasing. The average farm now contains 186 acres with 57 acres of harvested crops and total cropland of 77 acres. Along with the decrease of 37 percent in the number of farms was a

decrease in numbers of milk cows from 486,371 to 415,518 in 1950, but this was followed by an increase during the next 4 years to 438,582. The net decrease in milk-cow numbers during the 14-year period was 10 percent. The herds became larger, however, showing an increase from 5.3 cows in 1940 per farm to 7.6 in 1954.

Even with these changes there are still very few large farms in the area and very many small farms. At present, fewer than 2 percent of all dairy farms are in Economic Classes I and II, and they have only 4 percent of the milk cows of the area. At the other extreme, in Economic Classes V and VI, are more than one-half the dairy farms and they have more than one-third of all the milk cows.

Hay and pastureland dominate the region. From one-half to nine-tenths of the tillable land in the different counties is used for this purpose. Growing seasons are too short and cool for corn to mature, except in the southernmost parts, so most of it is grown for silage or forage. Cereal crops like oats do well and some root crops are grown. A second growth of trees has started on land that was not kept cleared.

Table 36.—NUMBER OF FARMS AND NUMBER OF MILK COWS
IN THE NORTHERN WOODS REGION: 1930 TO 1954

Year	Number of farms	Number of milk cows	Average number of cows per farm
1930	77,663	373,294	4.8
1940	91,740	486,371	5.3
1950	70,412	415,518	5.9
1954	57,917	438,582	7.6

The organization of the dairy farms follows the pattern in the Northern Lake Region. Whether the farms be large or small the basic cropping system consists of corn, small grains, and hay. The proportion of the different crops changes somewhat with the size of farm. The smaller farms grow relatively less corn and small grains and more hay than the larger farms. The crops grown suggest a 6-year rotation for the largest farms and a 7- or 8-year rotation for the smallest. There are 4 to 5 acres of harvested cropland per cow with no evident relation to size of farm. The same holds true for acres harvested and total animal units. The largest farms, Economic Class I, have 2.4 acres of harvested cropland per animal unit. The others average approximately 3 acres regardless of size.

The range in the amount of business done by the different economic classes of farms, like those of other areas, is so great as to be almost startling (Table 37). Why should the largest farms have livestock and crop sales of \$122 per acre of total cropland, while the small farms average \$19? And why should specified expenses range from \$42 to \$7 per acre (Table 38)? A partial answer has to do with the way in which resources are used. But why such a range in the use of resources when from two-thirds to three-fourths of the value of sales is from milk and equal opportunity is offered both small and large farmers to improve the dairy herd through a breeding program, as well as to obtain and learn to use most effectively a good quality of hay?

Table 37.—SOURCES OF FARM INCOME ON DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE NORTHERN WOODS REGION: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	28,001	32	385	3,294	9,465	10,820	4,005
Gross sales—							
Per farm.....dollars.....	2,999	36,118	12,495	6,545	3,499	1,849	831
Per crop acre.....do.....	39	122	64	53	42	29	19
Percent of gross sales from dairy products.....	73	62	68	75	74	72	69
Sales per farm:							
Milk.....dollars.....	2,193	22,247	8,482	4,877	2,605	1,332	575
Cattle and calves.....do.....	381	5,914	1,353	760	416	274	141
Hogs.....do.....	62	32	286	156	71	36	12
Poultry products except eggs.....do.....	16	56	142	25	19	10	5
Eggs.....do.....	66	395	256	139	76	42	23
Sheep.....do.....	13	228	65	22	15	9	3
Other livestock and livestock products.....dollars.....	8	76	29	13	7	8	4
Total, livestock and livestock products.....dollars.....	2,739	28,948	10,613	5,992	3,209	1,711	763
Field crops.....do.....	165	7,017	1,408	371	170	80	40
Other crops.....do.....	95	152	474	182	120	58	27
Total crops.....do.....	260	7,169	1,882	553	290	138	67

¹ Includes horticultural and forest products.

Table 38.—SPECIFIED FARM EXPENDITURES ON DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE NORTHERN WOODS REGION: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	28,001	32	385	3,294	9,465	10,820	4,005
Average per farm:							
Machine hire.....dollars.....	89	178	129	134	109	74	43
Hired labor.....do.....	113	4,402	1,252	318	96	46	21
Feed.....do.....	461	4,622	1,708	947	533	303	162
Gas and oil.....do.....	242	1,449	748	443	276	184	96
Fertilizer.....do.....	78	1,061	511	206	88	34	15
Lime.....do.....	13	336	62	31	15	6	2
Total.....do.....	996	12,048	4,410	2,079	1,117	647	339
Average per crop acre:							
Machine hire.....do.....	1	1	1	1	1	1	1
Hired labor.....do.....	1	15	6	3	1	1	(Z)
Feed.....do.....	6	16	9	8	6	5	4
Gas and oil.....do.....	3	5	4	4	3	3	2
Fertilizer.....do.....	1	4	3	2	1	1	(Z)
Lime.....do.....	(Z)	1	(Z)	(Z)	(Z)	(Z)	(Z)
Total.....do.....	12	42	23	18	12	11	7

Z Less than 0.50.

Milk sales per cow show the same trend (Table 39). They dropped from \$446 to \$94 and from 13,282 pounds to 3,718 pounds. The lower price of cream can account for a part of the price difference because the smaller farmers sold more than 40 percent of their milk as cream whereas the larger farms sold not more than 5 or 6 percent.

Average net farm incomes of these operators were a little more than one-half of those of the Northern Lake Region not because of the differences between identical economic classes, but because of the much larger proportion of farmers in Economic Classes V and VI. Likewise, other factors showing effectiveness in the use

of resources are fairly comparable with other areas within economic classes, but averages for the whole region are low. Fully one-half of the dairy farms are in the two smallest size groups in comparison with one-fifth for the Northern Lake Region.

Table 39.—MEASURES OF INCOME AND EFFICIENCY LEVELS FOR DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE NORTHERN WOODS REGION: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	28,001	32	385	3,294	9,465	10,820	4,005
Gross sales per farm.....dollars.....	2,999	36,118	12,495	6,545	3,499	1,849	831
Specified expenses per farm.....do.....	996	12,048	4,410	2,079	1,117	647	339
Gross sales less specified expenses per farm.....dollars.....	2,003	24,070	8,085	4,466	2,382	1,202	492
Gross sales per man-equivalent.....	2,307	8,209	5,433	4,091	2,499	1,541	755
Total investment—							
Per farm.....dollars.....	15,388	60,537	37,618	25,954	16,944	12,465	8,608
Per man-equivalent.....do.....	11,837	13,758	16,356	16,221	12,103	10,388	7,825
Per \$100 gross sales.....do.....	513	168	301	399	484	692	1,076
Percent of sales of dairy products from cream.....	14	(Z)	6	5	12	25	44
Milk sales per cow:							
Dollars.....	174	446	293	230	179	135	94
Pounds (milk equivalent).....	5,674	13,282	8,327	6,796	5,794	4,842	3,718

Z Less than 0.5 percent.

Not so many of these farmers used fertilizers as in other areas, and when used the rates applied were lower (Table 40). Fewer of the smaller farmers bought fertilizers and they applied less per acre than their larger neighbors. The soils were derived from noncalcareous material so that in general a good application of limestone or marl is beneficial to crop production. Yet only one-seventh of these farmers reported using any liming material, and only a few of the smaller farms used any at all. When used, these smaller farmers made only about half the per acre application made by the larger farms. The limited use of both fertilizers and lime may partly account for the relatively low production reported for the area as a whole.

Table 40.—USE OF FERTILIZER AND LIME ON DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE NORTHERN WOODS REGION: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	28,001	32	385	3,294	9,465	10,820	4,005
Fertilizer:							
Percent of farms using.....	48	84	84	79	62	35	21
Tons used per farm reporting.....	3	20	10	4	2	2	1
Acres upon which used per farm reporting.....	23	138	75	35	21	15	11
Average per acre fertilized:							
Pounds.....	240	290	269	246	236	231	216
Cost.....dollars.....	7.08	9.12	8.16	7.32	6.89	6.62	6.45
Lime:							
Percent of farms using.....	16	63	34	32	21	11	4
Acres upon which used per farm reporting.....	12	59	20	14	11	9	9
Average per acre limed:							
Pounds.....	3,690	6,270	4,362	3,603	3,639	3,502	3,343
Cost.....dollars.....	6.84	9.07	9.12	6.85	6.84	6.21	5.40

SPECIAL DAIRY AREAS

We have seen that the more important dairy areas of the United States have developed from a background of physical conditions as well as economic forces and situations. This interplay of forces and conditions has resulted in areas that are fairly definitely delineated. Dairying has also developed well in some restricted areas, because of special market situations as well as natural forces.

Concentrations of population do not necessarily take place within areas of intensive food production. Rather the opposite is true, especially for certain food products of which the production of milk for fluid consumption is a conspicuous example. In the past, the perishability of milk restricted its production to locations that were relatively close to consuming centers. Even now, although improved methods of handling fluid milk have so increased its keeping qualities that it can be moved hundreds of miles and still arrive at the consuming centers in the best condition, this is not done in large volume for two reasons.

The first is the cost of transporting milk these longer distances. Milk must receive expedited service and this transportation is the highest in price. It is much cheaper per hundredweight to ship in the 20 or 25 pounds of grain and other concentrates usually required to produce 100 pounds of milk than it is to ship the 100 pounds of milk. In a few limited areas this margin is so wide that some dairymen prefer a location at the market. They buy all of their feed and spend full working time with the dairy herd.

A second reason is found in the regulations and restrictions set up by local health authorities whose primary function is to assure consumers the highest quality product. These regulations sometimes are greater deterrents to the shipment of fluid milk than are transportation and handling costs.

Because of varying economic forces and the administration of different health regulations these special dairy areas continue to develop and expand. Since each of the more outstanding special areas is different in some respects from every other, a brief discussion of each is in order.

GENERAL CHARACTERISTICS

There are eight smaller areas which have a large enough concentration of dairy farms or milk production to justify individual description. A considerable range in the proportion of dairy farms to all commercial farms is found in the different areas (Table 41).

The Ozark-Springfield area, Subregions 73 and 82, is more nearly like a major dairy-producing area than any of the others. Nearly one-half of the commercial farms are dairy farms and they fairly well blanket these two subregions. One-third of the commercial farms have beef cattle or hogs as the major enterprise and this makes it easier to add a few milk cows than when cash crops or poultry is the main source of income. The rolling topography with large acreages of pastureland encourages livestock farming.

Such areas as the Gulf Coastal, Subregion 58, the California Inner Valley, Subregion 116, and the Southern California area, Subregion 115, where half or more of the farms are classed as cash-crop farms will take up dairying more slowly than where livestock other than dairy predominates. Also, it costs more to change the cropping system and buildings, as well as the form of operating capital to suit dairy farming, than when the system already includes other livestock.

Another conspicuous difference among these subregions is the proportion of noncommercial farms. A noncommercial farm may be a part-time, residential, or abnormal farm, and the operator is not considered a genuine or full-time farm operator. It is frequently held that large numbers of noncommercial farms are found in areas having much industrial or commercial activity. Excess capital and energy in these areas find outlets in various farming ventures which give recreation and pleasure to the owners.

Table 41.—NUMBER OF COMMERCIAL FARMS BY TYPE, FOR SPECIAL DAIRY AREAS: 1954

Special dairy area	Subregions included	All farms (number)	Commercial farms		Percent distribution of commercial farms by type					
			Number	Percent of all farms	Cotton, cash-grain, other field-crop, fruit-and-nut, and vegetable	Dairy	Poultry	Other livestock	General	All other
Atlantic Coast.....	3, 4, 5, 11, 12, 13, 14, 16	103, 812	75, 417	73	18	35	23	8	10	5
Nashville Basin.....	54	20, 528	19, 437	66	29	34	1	21	14	1
Gulf Coastal.....	58	36, 092	13, 369	37	48	20	6	15	7	4
Ozark-Springfield.....	73 and 82	96, 625	51, 088	53	7	45	9	31	7	1
Snake River-Utah Valley.....	112	44, 056	34, 472	78	34	25	4	16	22	0
Southern California.....	115	34, 537	23, 847	69	55	5	23	7	5	5
California Inner Valley.....	116	52, 447	42, 223	80	56	21	7	9	7	0
Puget Sound-Coastal.....	118 and 119	82, 169	40, 189	49	26	31	13	13	10	7

These areas do not demonstrate this premise. The fewest noncommercial farms are in the Inner Valley of California, Subregion 116, where population is increasing, industries are growing, and evidences of prosperous communities are obvious. The same proportion of noncommercial farms is found in the Intermountain area, Subregion 112, where irrigation makes for high-value dairy farms, and where industrial development is limited to the cities of Boise, Salt Lake City, and Twin Falls. On the other hand, the largest numbers of noncommercial farms are found in the Puget Sound and the Gulf Coastal areas, where there is no more free capital looking for diversional or recreational outlets than in other areas.

The dairy farms of these special areas vary greatly in the amount and proportion of the area resources used. Those of Southern California occupy less than 3 percent of both the total farmland and the cropland of the area. Yet they have 97 percent of the milk cows and account for 99 percent of the dairy income.

Near the other extreme are the dairy farms of the Snake River-Utah Valley area. Although 25 percent of the farms are dairy farms they occupy only 6 percent of the farmland and 10 percent of the cropland. They sell only 63 percent of the dairy products of the area. Dairy farms of the other special areas usually are found to be between these two extremes in the use of land and in the sale of dairy products.

It is logical to expect to find most of the milk cows in a dairy area on dairy farms. This is the situation in all the special

areas. The Intermountain area, Subregion 112, is the only one where more than 40 percent of milk cows are on nondairy farms (Table 42). A large part of these are on general or other livestock farms, while the highly specialized poultry farms have the fewest milk cows.

VARIATIONS IN FARM CHARACTERISTICS

Figures from different studies indicate that well-organized dairy farms generally turn over their capital every 2½ to 3 years. The following tabulation shows some of these relationships for the special areas. The commercial nature of the dairy operators in Southern California is obvious in this comparison.

Area and subregion	Total investment per milk cow (dollars)	Percent of income from all sources except milk	Years for income to equal value of land and buildings	
			Total income	Income less specified expenses
Subregions 3, 4, 5, 11, 12, 13, 14, 16 (Atlantic Coast).....	1,588	(NA)	(NA)	(NA)
Subregion 54 (Nashville Basin).....	1,048	34	3.6	6.2
Subregion 58 (Gulf Coastal).....	648	12	2.1	5.1
Subregions 73 and 82 (Ozark-Springfield).....	1,040	30	3.2	7.3
Subregion 112 (Snake River-Utah Valley).....	1,971	32	4.3	6.6
Subregion 115 (Southern California).....	767	8	1.0	2.4
Subregion 116 (California Inner Valley).....	1,382	18	3.1	5.6
Subregions 118 and 119 (Puget Sound-Coastal).....	1,657	15	3.7	6.6

NA Not available.

Table 42.—DISTRIBUTION OF MILK COWS ON COMMERCIAL FARMS BY TYPE OF FARM, FOR SPECIAL DAIRY AREAS: 1954

Special dairy area	Subregions included	Total milk cows on all commercial farms	Percent of milk cows on—	
			Dairy farms	Other farms
Atlantic Coast.....	3, 4, 5, 11, 12, 13, 14, 16	760,066	86	14
Nashville Basin.....	54	158,588	62	38
Gulf Coastal.....	58	104,804	82	18
Ozark-Springfield.....	73	277,124	73	27
Ozark-Springfield.....	82	112,338	66	34
Total.....	73 and 82	389,462	71	29
Snow River-Utah Valley.....	112	237,194	52	48
Southern California.....	115	201,916	97	3
California Inner Valley.....	116	413,863	88	12
Puget Sound-Coastal.....	118	186,639	91	9
Puget Sound-Coastal.....	119	128,307	74	26
Total.....	118 and 119	314,946	84	16

These special areas differ in resources used as well as in income (Table 43). At the one extreme are the few highly specialized dairy farms of the Southern California area with their large capital values, labor force, and income. The concentration of these farms near and within the Los Angeles metropolitan area has resulted in fantastic real estate values on a per farm basis. The total investment of approximately \$140,000 per farm is over twice that in the California Inner Valley and almost four times that in the Puget Sound-Coastal subregions. Investment in other special areas is from three-tenths to one-tenth this amount. If the investment is expressed on a per cow basis, the Los Angeles dairymen have a smaller investment than is found in any other area except along the Gulf Coast. Their total investment per cow is less than half that of the Puget Sound and the Intermountain areas, and only a little more than one-half of the investment per cow for dairy farmers of the Inner Valley of California.

Table 43.—SIZE OF DAIRY FARMS, BY SPECIAL DAIRY AREAS: 1954

Item	Special dairy area							
	Atlantic Coast (Subregions 3, 4, 5, 11, 12, 13, 14, 16)	Nashville Basin (Subregion 54)	Gulf Coastal (Subregion 58)	Ozark-Springfield (Subregions 73 and 82)	Snow River-Utah Valley (Subregion 112)	Southern California (Subregion 115)	California Inner Valley (Subregion 116)	Puget Sound-Coastal (Subregions 118 and 119)
Number of farms.....	26,073	6,681	2,730	23,017	8,450	1,101	8,783	12,321
Average per farm:								
All land in farms.....acres..	152	143	143	169	102	183	104	109
Cropland harvested.....do..	73	36	26	34	44	32	36	29
All farms products sold.....dollars..	(NA)	3,126	7,040	2,595	5,185	107,035	13,814	7,273
Investment in—								
Land and buildings.....do..	27,274	11,198	14,930	8,228	22,233	102,933	43,375	26,873
Machinery.....do..	6,823	2,468	3,007	2,376	4,046	6,464	5,068	4,331
Livestock.....do..	5,593	2,055	2,799	1,878	3,293	27,105	8,231	3,593
Total.....do..	39,690	15,721	20,736	12,482	29,572	136,502	56,674	34,797
Man-equivalent.....number	1.9	1.3	1.5	1.3	1.1	5.6	1.7	1.3
Milk cows.....do..	25	15	32	12	15	178	41	21
Animal units.....do..	48	23	44	19	25	210	59	30

NA Not available.

Another comparison that may be made to show the relation between resources used and income are the number of years of income required to equal the value of real estate.

To the extent that specified expenses reflect the total expenses on the dairy farms of these special areas the dairymen of Southern California are better able to make out on their large real estate investment than those of other areas with much smaller investments. The cost of cow turnover every 2 years is not considered in the expenses, however, and when a reasonable figure is allowed for this yearly cost the number of years required for the net farm income to equal the real estate value is increased. It is also possible that the wages paid the milkers are nearer \$5,000 per year than the average wage rate of the special area, which is \$3,200. These two adjustments could easily double the number of years required for the yearly net farm income to equal the value of the real estate. Even with this type of adjustment, these dairymen appear to be in much better position to pay out on their farms than those of other areas.

The size of the milking herd on the dairy farms of the special areas also varies greatly (Table 44). The smallest herds are in the Ozark-Springfield area where dairying is more generally distributed than elsewhere. Nearly one-half of the dairy farms of this area have fewer than 10 cows per farm and less than 15 percent have more than 20 cows. Almost one-half of the 51,000 commercial farms are classed as dairy farms.

Both the Nashville Basin and the Snake River-Utah Valley areas average 15 milk cows per herd with 40 and 36 percent respectively having fewer than 10 cows per herd. The largest herds are in California, the Inner Valley showing an average of 41 milk cows per herd while the Southern California area has the unusual average of 178 cows. The most nearly uniform distribution of herds among the different size groups is in the Puget Sound-Coastal area where 28 percent of the herds have fewer than 10 cows per farm and 23 percent have more than 30 cows.

Milk is sold either as whole milk or cream. Census figures show the amount received for each so that the percentage of the total milk check received from the sale of each is easily obtained. It is not possible, however, to show the quantity of whole milk being used for manufactured products in comparison with that used for fluid consumption. This diversion of whole milk from fluid consumption to manufactured products affects the price received by the farmer because manufactured dairy products carry a lower value for that portion of the whole milk than when used for fluid consumption. The price is also affected by conditions surrounding the special area under consideration, some of which may be unique to that area. These factors and conditions affect the price of milk in any area. In only one area, Economic Subregions 118 and 119, does the sale of cream exceed 2 percent of the total milk check (Table 45).

Table 44.—DISTRIBUTION OF DAIRY FARMS BY SIZE OF HERD, FOR SPECIAL DAIRY AREAS: 1954

Item	Special dairy area							
	Atlantic Coast (Subregions 3, 4, 5, 11, 12, 13, 14, 16)	Nashville Basin (Subregion 54)	Gulf Coastal (Subregion 58)	Ozark-Springfield (Subregions 73 and 82)	Snake River-Utah Valley (Subregion 112)	Southern California (Subregion 115)	California Inner Valley (Subregion 116)	Puget Sound-Coastal (Subregions 118 and 119)
Number of farms.....	26,073	6,681	2,730	23,017	8,459	1,101	8,783	12,321
Average number of milk cows per farm.....	25	15	32	12	15	178	41	21
Percent distribution								
Size of herd (number of milk cows):								
All farms.....	100	100	100	100	100	(Z) 100	100	100
Under 5.....	2	9	1	10	6	(Z)	3	9
5 to 9.....	10	31	3	35	30	(Z)	8	19
10 to 14.....	16	25	5	28	27	1	12	16
15 to 19.....	17	12	15	13	15	1	10	12
20 to 29.....	27	13	30	10	14	4	18	21
30 to 49.....	20	8	34	3	6	3	24	17
50 to 99.....	7	2	11	1	2	24	18	5
100 and over.....	1	(Z)	1	(Z)	(Z)	67	7	1

Z 0.5 percent or less.

Table 45.—MILK AND CREAM SOLD PER MILK COW ON DAIRY FARMS, BY SPECIAL DAIRY AREAS: 1954

Item	Special dairy area							
	Atlantic Coast (Subregions 3, 4, 5, 11, 12, 13, 14, 16)	Nashville Basin (Subregion 54)	Gulf Coastal (Subregion 58)	Ozark-Springfield (Subregions 73 and 82)	Snake River-Utah Valley (Subregion 112)	Southern California (Subregion 115)	California Inner Valley (Subregion 116)	Puget Sound-Coastal (Subregions 118 and 119)
Dairy farms.....number.....	26,073	6,681	2,730	23,017	8,459	1,101	8,783	12,321
Milk and cream sold per cow.....dollars.....	351	139	198	150	245	548	273	288
Whole milk sold per cow.....do.....	350	138	198	149	243	548	273	283
Cream sold per cow.....do.....	1	1	(Z)	1	2	(Z)	(Z)	5
Milk sold per cow (milk equivalent).....pounds.....	7,200	3,979	3,671	4,634	7,218	11,112	7,643	7,031
Value of milk and cream sold pounds, milk equivalent, per hundred weight.....dollars.....	4.87	3.49	5.39	3.24	3.39	4.93	3.57	4.10

Z Less than 0.50.

The volume of business as well as the sources of income of these specified areas reflect the range of conditions under which the dairy farmers operate (Table 46). In those areas where alternative uses are limited to farming operations the productivity of the soil is a good indication of usual income. Economic Subregions 54 or 73 and 82 have less productive land than Economic Subregions 58 or 118 and 119. They are more diversified in their farming operations and have smaller total incomes.

Where the location of the dairy farm offers valuable alternative

Table 46.—SOURCES OF FARM INCOME FOR DAIRY FARMS, BY SPECIAL DAIRY AREAS: 1954

Special dairy areas	Sub-regions included	Total income per farm	Percent of farm income from—				
			Dairy products	Poultry and poultry products	Other livestock and livestock products	Field crops	Cash crops
Atlantic Coast.....	3, 4, 5, 11, 12, 13, 14, 16.	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
Nashville Basin.....	54	\$3, 126	66	2	19	12	1
Gulf Coastal.....	58	7, 040	88	1	7	3	1
Ozark-Springfield.....	73, 82	2, 595	70	4	19	6	1
Snake River-Utah Valley.....	112	5, 185	68	(Z)	14	14	(Z)
Southern California.....	115	107, 035	92	-----	7	1	-----
California Inner Valley.....	116	13, 814	82	1	8	8	1
Puget Sound-Coastal.....	118, 119	7, 273	85	2	8	2	3

Z 0.5 percent or less.
NA Not available.

uses the price of real estate is established more by its use for other activities than by feed production for a dairy herd. Intensive agricultural use must follow if these farms are to pay out. The so-called dairy farms of the Los Angeles area illustrate how dairy-men meet this situation. Their income per farm, per cow, and per acre of land, as well as the real estate value are outstandingly greater than for any other area.

There is considerable difference in the mechanization of these farms as shown in the special lists of farm machinery (Table 47). Subregion 54 has the least mechanization, the two California areas have the most. The California Inner Valley, Subregion 116, has the most milking machines, tractors, motortrucks, and automobiles and just as much field machinery. On the other hand, the smallest amount of field machinery is found on the dairy farms in the Southern California area where there is a small acreage of harvested cropland. The dairymen of these two areas also have more of the specified home facilities—probably indicating the relatively large incomes of the groups. The Ozark-Springfield area, Subregions 73 and 82, has fewer of the facilities for the home than the other special subregions. They also have fewer cows and less total farm income.

The number of farm operators under 35 years of age is greatest in the Gulf Coast and two California areas (Table 48). These areas also have the fewest operators over 54 years old. In the discussion of the age of operators in the major dairy areas it was brought out that there were not enough young farmers in any of the areas to offset the number of farmers over 54 years. The three above-mentioned special dairy areas come nearer meeting this situation than any others. Most of the special areas have as many or more operators over 64 years old as under 35.

Table 47.—FARM MECHANIZATION AND HOME CONVENIENCES ON DAIRY FARMS, BY SPECIAL DAIRY AREAS: 1954

Item	Special dairy area							
	Atlantic Coast (Sub-regions 3, 4, 5, 11, 12, 13, 14, 16)	Nashville Basin (Sub-region 54)	Gulf Coastal (Subregion 58)	Ozark-Springfield (Subregions 73 and 82)	Snake River-Utah Valley (Subregion 112)	Southern California (Subregion 115)	California Inner Valley (Subregion 116)	Puget Sound-Coastal (Sub-regions 118 and 119)
Number of farms.....	26, 073	6, 681	2, 730	23, 017	8, 459	1, 101	8, 783	12, 321
Percent of farms reporting:								
Milking machine.....	84	29	79	36	81	96	92	82
Power feed grinder.....	25	16	16	15	16	15	10	12
Electric pig brooder.....	2	2	1	1	2	1	1	1
Farm tractors.....	93	47	67	60	81	45	79	85
Automobiles.....	90	66	64	57	88	94	90	87
Field forage harvesters.....	23	3	5	4	10	10	13	11
Motortrucks.....	76	38	61	53	62	74	74	63
Pick-up balers.....	47	9	6	8	19	0	18	13
Grain combines.....	29	12	5	7	15	1	2	8
Corn pickers.....	23	5	5	1	1	(Z)	1	(Z)
Telephone.....	83	60	46	28	78	95	79	78
Electricity.....	99	97	99	95	98	100	100	99
Television.....	64	32	41	18	37	79	53	36
Piped water.....	93	52	92	42	93	99	98	97
Home freezer.....	60	22	59	19	40	58	50	37

Z 0.5 percent or less.

Table 48.—DISTRIBUTION OF DAIRY FARMERS BY AGE, FOR SPECIAL DAIRY AREAS: 1954

Item	Special dairy area							
	Atlantic Coast (Sub-regions 3, 4, 5, 11, 12, 13, 14, 16)	Nashville Basin (Sub-region 54)	Gulf Coastal (Subregion 58)	Ozark-Springfield (Subregions 73 and 82)	Snake River-Utah Valley (Subregion 112)	Southern California (Subregion 115)	California Inner Valley (Subregion 116)	Puget Sound-Coastal (Sub-regions 118 and 119)
Number of farms.....	26, 073	6, 681	2, 730	23, 017	8, 459	1, 101	8, 783	12, 321
Age groups:								
Total.....	100	100	100	100	100	100	100	100
Under 25 years.....	3	1	1	1	1	2	1	1
25 to 34 years.....	15	9	19	12	13	16	17	12
35 to 44 years.....	23	23	26	22	26	32	28	23
45 to 54 years.....	23	24	31	26	25	27	27	25
55 to 64 years.....	21	23	15	24	21	15	18	23
65 years and over.....	15	20	8	15	14	8	9	16

The cropping systems have some conspicuous differences (Table 49). In all the special western areas, more than half of the harvested cropland is in hay. Grains are grown on the remaining cropland. Corn either for grain or for silage, is the chief grain crop in the areas east of the Rockies, whereas wheat or barley is the main cereal in the Snake River-Utah Valley subregion and small grains, oats and barley, are found along the western coast. A small quantity of hayland characterizes the dairy farms of the special areas east of the Rockies.

A common characteristic of all these areas, except Subregions 115 and 116, is the extent of pastureland per farm. In each area there are from 2 to 10 acres of pastureland per milk cow. Subregion 115 has three-fourths of an acre of pasture per cow; Subregion 116 shows an average of one and one-half acres. The high price of land in the parts of these two areas with dairy-cow concentration prevents its extensive use for pasture. Class by class, the value of farm land and buildings is equalled only by the value of dairy farms in the irrigated valleys of Subregion 112. The per acre value of land and buildings of the dairy farms in the special areas is generally less than half of the value in the three above areas. The only livestock on these farms in appreciable numbers is cattle. Milk cows and cattle raised for replacement are supplemented on some farms by a few chickens, a small flock of sheep,

and possibly a half-dozen hogs. None of these classes of livestock is large enough in the organization to justify being called an enterprise.

The labor force per farm is probably the most constant factor discussed (Table 50). With one exception the average man-equivalent varied from 1.1 to 1.9, less than one-third being hired help. The resources used and the work accomplished by the labor force was greatly different in different areas. Fully two-thirds of the labor force on a dairy farm is used to feed and care for the dairy herd. Yet in some of these areas one man-equivalent was available for each 11 milk cows while in others it cared for twice as many cows. To some extent, of course, this reflects differences in the proportion of feed produced on the farm. The range in value of sales per man-equivalent showed twice this range. This emphasizes the point frequently made that the dairy farm of usual size is too small to utilize its resources effectively, especially the labor that is available for farmwork. The man-equivalent dropped almost consistently as size of farm decreased and it was used much less effectively with decreasing size. When the total income per man is \$2,000 or \$3,000 and farm expenses and cost must be met out of this amount there is little left for increasing the standards of living.

Table 49.—FARM ORGANIZATION OF DAIRY FARMS, BY SPECIAL DAIRY AREAS: 1954

Item	Special dairy area							
	Atlantic Coast (Subregions 3, 4, 5, 11, 12, 13, 14, 16)	Nashville Basin (Subregion 54)	Gulf Coastal (Subregion 58)	Ozark-Springfield (Subregions 73 and 82)	Southern California (Subregion 112)	Southern California (Subregion 115)	California Inner Valley (Subregion 116)	Puget Sound-Coastal (Subregions 118 and 119)
Number of farms.....	26,073	6,681	2,730	23,017	8,459	1,101	8,783	12,321
Average per farm:								
All land in farms.....acres.....	152	143	143	169	102	183	104	109
Cropland harvested.....do.....	73	36	26	34	44	32	36	29
Cropland pastured.....do.....	18	33	30	32	12	28	32	24
Cropland not harvested and not pastured.....do.....	3	4	2	3	5	5	4	2
Total cropland.....do.....	94	73	58	69	61	65	72	55
Total land pastured.....do.....	48	92	93	118	43	124	58	56
Livestock:								
All cattle.....number.....	39	25	53	23	32	239	72	36
Milk cows.....do.....	25	15	32	12	15	178	41	21
Hogs.....do.....	5	7	3	4	2	1	1	1
Chickens.....do.....	129	58	33	53	44	24	30	39
Sheep.....do.....	1	5	2	1	3	2	(Z)	2
Percent of cropland harvested in:								
Corn for all purposes.....percent.....	26	33	43	17	6	7	9	2
Corn for grain.....do.....	15	24	38	3	1	(Z)	1	(Z)
Small grains.....do.....	23	19	4	28	28	12	8	17
All hay.....do.....	49	42	32	42	52	66	73	74
Other crops.....do.....	2	6	21	13	14	15	10	7

Z 0.5 percent or less.

Table 50.—SOURCES OF LABOR ON DAIRY FARMS, BY SPECIAL DAIRY AREAS: 1954

Item	Special dairy area							
	Atlantic Coast (Subregions 3, 4, 5, 11, 12, 13, 14, 16)	Nashville Basin (Subregion 54)	Gulf Coastal (Subregion 58)	Ozark-Springfield (Subregions 73 and 82)	Southern California (Subregion 112)	Southern California (Subregion 115)	California Inner Valley (Subregion 116)	Puget Sound-Coastal (Subregions 118 and 119)
Number of farms.....	26,073	6,681	2,730	23,017	8,459	1,101	8,783	12,321
Total man-equivalent per farm.....	1.9	1.3	1.5	1.3	1.1	5.6	1.7	1.3
Operator.....	.8	.8	.8	.8	.7	.9	.8	.7
Unpaid family help.....	.4	.3	.4	.4	.3	.2	.4	.4
Hired labor.....	.7	.2	.3	.1	.1	4.5	.5	.2
Average per man-equivalent:								
Cropland, total.....acres.....	38	56	39	53	55	12	42	42
Total sales.....dollars.....	(NA)	2,405	4,693	1,996	4,714	19,113	8,126	5,595
Milk cows.....number.....	13	12	21	9	14	32	24	16

NA Not available.

ATLANTIC COASTAL AREA

DOT=10,000,000 POUNDS
WHOLE MILK SOLD

MAP NO. A54-505

Figure 17.

THE ATLANTIC COAST AREA

(Economic Subregions 3, 4, 5, 11, 12, 13, 14, 16)

In some respects this is not a special dairy area. Its milk production adds materially to the supply for the industrialized urban East, and its proximity to the Northeastern Dairy Region along with the variety of the output suggests some special treatment. Its location makes it assume the role of a transition area, where, because of its unlimited market for all farm products including milk, it can continue to increase production. Though milk production is a minor part of the food contribution to the industrial East from this region the sale of 5,233 million pounds of whole milk and cream from the 760,000 milk cows is a real contribution (Table 51). Approximately one-third of the commercial farms are dairy farms. These farms account for 86 percent of all milk cows, and 90 percent of total milk sales from the area. Less than 1 percent of all milk is sold as cream and 56 percent of this comes from the few cows on nondairy farms. More than half of this quantity is sold from Economic Subregion 16—the subregion that centers in Adams County in Southeastern Pennsylvania.

Table 51.—MILK COWS AND MILK PRODUCTION, FOR THE ATLANTIC COAST AREA: 1954

Item	Number of farms	Milk cows (number)	Milk and cream sold		
			Total milk (pounds)	Whole milk (pounds)	Milk as cream (pounds, milk equivalent)
All commercial farms.....	75, 417	760, 066	5, 232, 694, 847	5, 195, 587, 473	37, 107, 374
Dairy farms.....	26, 073	655, 910	4, 722, 440, 845	4, 706, 002, 029	16, 438, 816
Percent dairy.....	34.6	86.3	90.2	90.6	44.3

The following brief statement without all the detailed production figures is planned to show the contribution this region makes to the general dairy picture. The whole area is essentially industrial and commercial with a population of 30 million people in 1950. Although one-fifth of the population of the nation was here at that time it has only one-eighteenth of the land of the country and approximately one-half of this land lies within design-

nated State metropolitan economic areas. It is the most densely populated area of the United States, having around 600 persons per square mile. Different forms of manufacturing are the chief occupation of the urban people.

The farms occupy slightly less than half of the land and use less than 3½ percent of the total labor force. Almost every form of intensely operated agricultural production which leads to a high degree of specialization is found here. Because of this the term "mixed farming" is most appropriate for its agriculture. More than half of the farms are classed as dairy or poultry farms. Vegetables, small fruits, tobacco, and other special crop and livestock types account for the remaining farms.

Its subregions vary considerably in the proportion of the different types of farms although every economic subregion produces practically every commodity found in this general region. Within each subregion are found small areas devoted almost exclusively to one special enterprise while a neighboring locality with apparently similar soil, topography, and market possibilities, is used for a completely different enterprise.

Five of the economic subregions, numbers 4, 11, 12, 13, and 16, have a larger proportion of dairy herds than any other type while poultry farms account for more of the farms in Subregions 3 and 5. Central New Jersey, Subregion 14, has about the same number of vegetable, poultry, and dairy farms. In practically every part of the area employees of industrial or commercial concerns live in rural communities and commute to work. This results in many part-time or residential farms whose owners produce some crop or livestock products for market. They ordinarily consume much more than they produce so that as long as they are employed these workers create markets for local produce. Noncommercial operators account for two-fifths of all farmers.

A statement of the development of agriculture in Connecticut may well characterize the area. Early records indicate that its citizens considered theirs a manufacturing State even before 1800, when nine-tenths of the population depended on agriculture for a living. Each form of manufacturing of that time was essentially a home enterprise. Gradually farmers who were more proficient in some activity began specializing in the production of that one commodity by hiring one or more helpers. These special commodities were then exchanged with neighbors whose developing specialties were along other lines.

As these home enterprises developed, factories were built on the farms or in the nearby villages and the help continued to be recruited from neighboring farms. This meant that early in the development of the State there were many part-time farmers or, as they may as well be called, part-time factory workers.

The advent of hard surfaced roads, and especially the coming of automobiles, resulted in a shift from the more general farming and crafts to activities that required special buildings and equipment, as well as trained workers, for more economical operation. A two-way movement of the population resulted. Many farm people continued to live in the country, but took part-time or full-time work in neighboring urban communities, while urban employees moved to the country and commuted to work. As a result of this kind of activity, more than one-third of all farmers were classed as part-time farmers 20 years ago.³ This situation has changed little. In 1954, almost 40 percent of all Connecticut farmers were noncommercial operators.

Cranberry growing is an important industry in Subregion 3, while tobacco production in the Connecticut River Valley of Subregion 4 is one of the high-income crops. The farmland around New York City is most valuable. It can pay out only by being used for the most intensive forms of production. Small acreages used for growing plants and flowers under glass, some potato growing, and a few poultry farms, illustrate the type of production adapted to this land.

³ Adapted from "Types of Farming and Type-of-Farming Areas in Connecticut," Bulletin 213. I. G. Davis. Connecticut State College, Storrs, Connecticut.

The most completely agriculturally developed parts of the area are in Economic Subregions 11, 12, 13, 14, and 16.

Most of these farms are of average size. Less than 8 percent are in the two economic classes with the smallest incomes and only 6 or 7 percent in the class of largest farms, Economic Class I (Table 52).

Table 52.—NUMBER OF DAIRY FARMS, BY ECONOMIC CLASS, FOR THE ATLANTIC COAST AREA: 1954

Subregion	Total dairy farms	Number of farms by economic class					
		I	II	III	IV	V	VI
Atlantic Coast Area.....	26,073	1,651	9,161	8,649	4,586	1,721	305
Subregion 3.....	1,929	197	616	511	435	140	30
Subregion 4.....	3,948	286	1,201	1,301	765	325	70
Subregion 5.....	3,138	454	1,065	692	236	81	10
Subregion 11.....	2,230	25	241	805	824	315	20
Subregion 12.....	2,547	127	925	970	345	150	30
Subregion 13.....	2,657	126	1,186	880	360	95	10
Subregion 14.....	556	86	305	105	35	25	—
Subregion 16.....	9,068	350	3,022	3,385	1,586	590	135

The cropping pattern of the New England part of this area is considerably different from the southern part. Hay crops dominate the former, representing nearly six-sevenths of the harvested acreage and corn occupies about one-seventh. Small acreages of potatoes, tobacco, and truck crops occupy not more than one-twentieth of the harvested cropland while practically no small grains are grown.

The southern part of the area, consisting mainly of farms in Eastern Pennsylvania and Northern New Jersey, has more corn, some small grain and much less hay in the cropping system than the northern part of the area. Hay occupies a little over two-fifths of the harvested crop acreage whereas corn acreage accounts for about one-third and small grain, especially wheat, is grown on all but five percent of the remainder. Truck crops and potatoes use relatively few acres throughout the area, but because of their high per-acre value they add materially to the farm income.

The dairy farms of this area grow more hay and corn and less grain and truck crops than the average of all commercial farms (Table 53). Their cropping system approximates a 6-year system of hay for 3 years followed by 2 years of corn and 1 of small grain. A few acres of cash crops may substitute for any of these standard crops.

Table 53.—CROP ACREAGE PER FARM ON DAIRY FARMS, BY ECONOMIC CLASS, FOR THE ATLANTIC COAST AREA: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	26,073	1,651	9,161	8,649	4,586	1,721	305
Total acres.....	162	342	178	131	101	82	72
Cropland, total.....	94	214	113	81	58	44	36
Harvested.....	73	156	90	65	44	30	22
Pastured.....	18	53	21	14	11	10	10
Not harvested and not pastured.....	3	5	3	2	3	4	4
Crops:							
Corn.....	19	38	24	17	10	6	4
All hay.....	36	94	43	29	21	16	12
Wheat.....	7	11	10	8	4	3	1
All other crops.....	11	13	13	11	9	5	5

The average value of farm products sold from all farms of the area was a little over \$8,000 per farm. Approximately two-thirds of this was from the sale of livestock and livestock products, while the remaining third was from special and field crops. Less than one-half percent of all farm sales was from forest products. Slightly more than one-fourth of all farms are in the New England part of the area and the income from these farms was about \$500 more per farm than in the southern part. They sold more than a fourth of all farm products of the area as well as over two-fifths of the small quantity of forest products.

Total livestock sales from the dairy farms show an average of \$10,302 per farm in comparison with a little over half this amount for all the farms of the area (Table 54). Eighty-six percent of this was from milk sales, while another seven percent was from the sale of cows and youngstock. The sale of poultry products, hogs, and sheep account for less than seven percent of the total livestock sales. The smaller farms were slightly more diversified than the larger farms in that they received but three-fourths of their livestock income from the sale of milk while the largest farms received seven-eighths. Cream sales throughout the area were almost nonexistent.

Table 54.—SOURCES OF FARM INCOME ON DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE ATLANTIC COAST AREA: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	26,073	1,651	9,161	8,649	4,586	1,721	305
Milk sold per milk cow...pounds..	7,200	8,831	7,546	6,446	5,267	4,423	2,075
Sales per farm:							
Milk.....dollars..	8,819	34,812	11,756	5,588	3,019	1,498	563
Cattle and calves.....do..	805	3,574	986	491	319	182	109
Hogs.....do..	123	230	155	119	67	34	16
Poultry products except eggs.....dollars..	142	565	196	84	44	30	6
Eggs.....do..	403	977	582	316	161	77	41
Sheep.....do..	5	18	6	4	3	2	—
Other livestock and livestock products.....dollars..	5	16	4	4	3	3	3
Total, livestock and livestock products.....dollars..	10,302	40,192	13,685	6,586	3,606	1,826	738

Specified farm expenses range from a little more than half the total livestock income for the largest farms to slightly more than all livestock income for the smallest farms (Table 55). Feed costs account for more than half these expenses for all classes except Class I. Hired labor is the next highest item of expense except on the smaller farms, where it is replaced by costs of gas and oil. Both the volume of livestock sales and the size of the specified expenses emphasize the problem faced by the smaller farmers in the effective use of resources.

Table 55.—SPECIFIED FARM EXPENDITURES ON DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE ATLANTIC COAST AREA: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	26,073	1,651	9,161	8,649	4,586	1,721	305
Average per farm:							
Machine hire.....dollars..	193	279	221	192	151	104	53
Hired labor.....do..	1,348	8,182	1,674	555	273	131	54
Feed.....do..	3,254	10,687	4,158	2,376	1,516	840	527
Gas and oil.....do..	610	1,363	633	414	289	177	125
Fertilizer.....do..	483	1,391	653	374	190	111	61
Lime.....do..	66	211	88	44	20	22	6
Total.....do..	5,854	22,113	7,427	3,955	2,448	1,385	816
Average per crop acre:							
Machine hire.....do..	2	1	2	2	3	2	1
Hired labor.....do..	14	38	15	7	5	3	2
Feed.....do..	35	50	37	29	26	19	15
Gas and oil.....do..	5	6	6	5	5	4	4
Fertilizer.....do..	5	7	6	5	3	3	1
Lime.....do..	1	1	1	1	1	1	(Z)
Total.....do..	62	103	67	49	43	32	23

Z Less than 0.50.

These farmers used more fertilizer than was used on most dairy farms and more was used on the smaller farms (Table 56). The rate of application was nearly twice as high as was used in the northwest and the number using fertilizer was greater than for most areas. From one-fourth to one-half as many farmers used lime as used fertilizer and the rate of application of more than a ton per acre was also more than dairy farmers of other areas used.

Table 56.—USE OF FERTILIZER AND LIME ON DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE ATLANTIC COAST AREA: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	26, 073	1, 651	9, 161	8, 649	4, 586	1, 721	305
Fertilizer:							
Percent of farms using.....	88. 0	91. 3	93. 9	89. 8	80. 9	70. 3	49. 2
Tons used per farm reporting.....	1	31	14	8	5	3	2
Acres upon which used per farm reporting.....	55	133	68	44	28	19	16
Average per acre fertilized:							
Pounds.....	396	462	405	360	349	343	299
Cost.....dollars.....	10	11	10	10	9	8	7
Lime:							
Percent of farms using.....	42. 5	63. 2	51. 8	39. 2	32. 0	23. 5	11. 5
Acres upon which used per farm reporting.....	20	40	21	16	12	14	7
Average per acre limed:							
Pounds.....	2, 351	2, 303	2, 331	2, 364	2, 508	2, 429	2, 462
Cost.....dollars.....	8	8	8	7	7	7	7

THE NASHVILLE BASIN AREA (Economic Subregion 54)

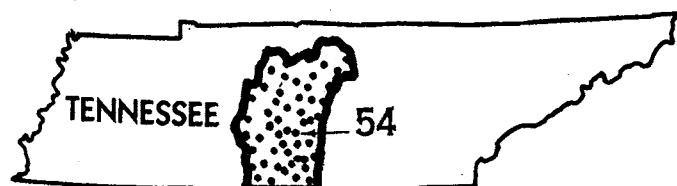
The Nashville Basin, Subregion 54, is an island of comparatively fertile soil within a larger stretch of more rugged and less fertile land. It is small, about 120 miles long and 60 miles wide. The land is gently undulating to rolling with occasional ridges or broken sections. These stony ridges along with rough sections at the outer edges of the basin contain land that is useful mainly for pasture or woodland.

The soils are residual, of limestone origin, and very fertile. Nearly nine-tenths of the area is occupied by farms. This makes it one of the heaviest concentrations of farms in the South. The farms in general are small, averaging less than 100 acres. Approximately one-half of the land is classed as cropland but crops are harvested from only two-thirds of this acreage.

It is recognized as one of the major dairy areas of the South. Slightly more than one-third of the commercial farms are so classed. Another 30 percent are cash-crop farms. Most of the remaining one-third are livestock other than dairy, or general, farms. This suggests a varied agriculture where livestock enterprises are supplemented with or are in direct competition with cash crops. Although the sale of livestock products accounts for more than half the farm income in every part of the area, such cash crops as tobacco or cotton are important producers of income.

The metropolitan area is in the northern part of the basin around Nashville, which is the second largest city in the State. It has experienced a slow but steady growth. The large labor force is employed in making such products as nylon, cellophane, clothing, aircraft, furniture, and electrical appliances. Limestone for building purposes is quarried here.

NASHVILLE BASIN AREA



1 DOT=10,000,000 POUNDS
WHOLE MILK SOLD

A54-513

Figure 18.

Most of the dairy farms are in the southern half of the sub-region rather than in the counties contiguous to the metropolitan area. The reason may well be that the earlier cream market found outlets within the territory and later, when markets for fluid milk developed, the slightly longer haul made little difference to the dairymen. Fifteen years ago, for example, there were as many farmers selling cream in the State as there were selling fluid milk. In 1954, only one-seventh as many farmers were selling cream. During this period fluid-milk sales per farm nearly doubled, although the number of dairy farms decreased. In 1949, there were 7,002 dairy farms in this area. The 1954 figures show only 6,681 dairy farms or 34 percent of all commercial farms. Total milk cow numbers increased from 86,500 in 1949 to 99,000 in 1954.

The average size of the dairy farm has increased during the 5-year period between Censuses, from 126 acres with 68 acres total cropland to 143 total acres with 73 acres of cropland. A direct comparison of the size of herds by economic class cannot be made with the 1950 Census.

The 1954 Census of Agriculture shows a gradual decrease in the average size of herds with decreasing total income. There is an unusually large number of dairy farms with fewer than 15 milk cows per herd. Further, more than four-fifths of the farms are in Economic Classes IV, V, and VI, while only one-twenty-fifth are in Classes I and II.

Other indications of the size of farms are number of livestock kept as well as farm real estate value. They had only 23 animal units per farm and an average of \$11,200 farm land and building value per farm or \$82 per acre of land in farms. Nearly two-thirds of the 6,681 dairy farms had less than \$2,500 total value of farm products sold, and six-sevenths of them sold less than \$5,000 worth of farm produce. This means that the dairy farms of the area, by and large, have modest incomes of which over two-thirds is from the sale of milk and cream.

The cropping systems varied considerably with the economic class. The lower income farms, Economic Classes IV to VI, planted more corn and less hay and small-grain crops than the larger farms. The acreage of land pastured seems to depend more upon physical factors than upon the volume of business. No economic class showed much variation from the average of two-thirds of the total farm being used for pasture.

The livestock organization of these farms showed little difference between the largest and the smallest. Approximately three-fifths of the animal units of each economic class were milk cows. The relative number of hogs on hand at the time the Census was taken remained the same regardless of the total number of animal units. Poultry flocks were just enough to meet family demands for eggs and meat. A flock of 500 birds is too small to be given the special care required of an income-producing enterprise. These farms were stocked about the same when expressed in terms of total cropland per animal unit. Only one economic class showed as much as 10 percent variation from the average 3.2 acres of total cropland per animal unit. Harvested cropland has less significance on dairy farms in the South where winters are shorter and grazing seasons longer.

The smaller farms had no bigger portion of their income from the sale of crops than the larger farms (Table 57). Around one-eighth of the total value of sales of the smallest, as well as the largest, farms was from crop sales. This suggests that the larger farms of this area with dairy cows tend to specialize no more than do the smaller farms. Ten percent of the livestock income during 1954 was from the sale of hogs in comparison with 5 percent for the small farms. On the other hand, the smaller farms receive 25 percent of their livestock income from the sale of cattle in comparison with only 10 percent on the larger farms.

Table 57.—SOURCES OF FARM INCOME ON DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE NASHVILLE BASIN AREA: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	6,681	37	255	848	1,306	2,435	1,710
Gross sales—							
Per farm.....dollars..	3,126	34,632	13,019	6,756	3,476	1,799	775
Per crop acre.....do..	43	67	66	54	40	33	23
Percent of gross sales from dairy products.....	66	70	71	72	62	59	61
Sales per farm:							
Milk.....dollars.....	2,063	24,390	9,284	4,833	2,169	1,056	476
Cattle and calves.....do..	345	2,469	1,366	596	391	254	114
Hogs.....do.....	179	2,325	931	378	218	82	29
Poultry products except eggs.....dollars.....	8	13	30	17	9	7	3
Eggs.....do.....	61	97	215	91	70	49	31
Sheep.....do.....	44	989	161	92	49	25	6
Other livestock and livestock products.....dollars.....	15	226	48	27	18	9	4
Total, livestock and livestock products.....dollars.....	2,715	30,500	12,035	6,034	2,924	1,482	663
Field crops.....do.....	388	4,111	817	680	534	302	103
Other crops.....do.....	23	12	167	42	18	15	9
Total crops.....do.....	411	4,123	984	722	552	317	112

¹ Includes horticultural and forest products.

The smaller farms were operated less intensively than the larger dairy farms (Table 58). This shows up both in the input or specified expense items and in the gross sales per acre of cropland. Specified expenses dropped from \$25 per acre for the farms of largest volume to \$9 for the smallest, while the gross sales showed the same general relationship. The largest farms averaged \$67 gross sales per crop acre. There was a consistent and continuous drop in income per acre as farms became smaller. The smallest farms with only 5 milk cows sold only \$23 worth of farm products per acre of harvested crops during the year.

Table 58.—SPECIFIED FARM EXPENDITURES ON DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE NASHVILLE BASIN AREA: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	6,681	37	255	848	1,306	2,435	1,710
Average per farm:							
Machine hire.....dollars..	77	371	256	184	88	46	26
Hired labor.....do.....	222	4,897	1,499	605	149	66	22
Feed.....do.....	754	4,207	3,338	1,803	746	446	218
Gas and oil.....do.....	153	1,829	682	341	185	78	26
Fertilizer.....do.....	121	1,893	466	280	126	64	29
Lime.....do.....	4	26	17	12	7	1	(Z)
Total.....do.....	1,331	13,226	6,258	3,225	1,301	701	321
Average per crop acre:							
Machine hire.....do.....	3	9	8	5	2	1	1
Hired labor.....do.....	10	8	17	14	9	8	6
Feed.....do.....	2	4	3	3	2	1	1
Gas and oil.....do.....	2	4	2	2	1	1	1
Fertilizer.....do.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
Lime.....do.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
Total.....do.....	17	25	30	24	14	11	9

Z Less than 0.50.

Although measures of effective use of resources or efficiency are few and not very conclusive, total value of sales minus the specified expenses for the different economic classes suggests that operators in the three lower income classes must have very little money to meet living costs (Table 59).

Both the value of milk sales per cow and the pounds of milk sold indicate decreasing effectiveness in use of feed, as well as other factors contributing to milk production. It is again emphasized that man labor cannot be used effectively on the smaller farms.

Table 59.—MEASURES OF INCOME AND EFFICIENCY LEVELS FOR DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE NASHVILLE BASIN AREA: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	6,681	37	255	848	1,306	2,435	1,710
Gross sales per farm.....dollars..	3,126	34,632	13,019	6,756	3,476	1,799	775
Specified expenses per farm.....do.....	1,331	13,226	6,258	3,225	1,301	701	321
Gross sales less specified expenses per farm.....do.....	1,795	21,406	6,761	3,531	2,175	1,098	454
Gross sales per man-equivalent.....	2,405	6,925	5,425	3,974	2,897	1,635	775
Total investment—							
Per farm.....dollars.....	15,721	103,934	48,304	32,139	17,798	11,376	6,526
Per man-equivalent.....do.....	12,093	20,787	20,127	18,905	14,832	10,342	6,526
Per \$100 gross sales.....do.....	507	300	372	473	500	632	816
Percent of sales of dairy products from cream.....	1				1	1	4
Milk sales per cow:							
Dollars.....	139	267	213	175	122	101	77
Pounds (milk equivalent).....	3,979	7,407	4,963	4,385	3,939	3,276	2,708

Both capital investment and income per man-equivalent show why this is true.

It is surprising to find in area after area that dairymen in Economic Classes V and VI are receiving one-third to one-fourth of the milk and cream income per cow received by those in Classes I and II. For example, the dairymen in Economic Class VI received about one-third of the income per cow received by the Class I dairymen and they sold only about two-fifths as much milk per cow. Practically no cream or butterfat was sold by these dairymen so that the smaller income per cow was the result both of lower production per cow and a 60-cent lower price per hundred-weight of milk.

Approximately two-thirds of the farmers are using some fertilizer (Table 60). Much is used on the tobacco and cotton crops, although some may have been used on ordinary field crops. The cost of fertilizer ranged from \$40 to \$58 per ton. Since the composition of the fertilizer was not given it is not possible to find how much of this range in cost is the result of the grade of fertilizer used. Fertilizer can be used on small farms almost as conveniently as on the larger ones, yet, whereas all of the larger farms used some fertilizer, only two-fifths of the farms with the smallest total incomes used any. The cost of liming materials, to the few farmers who used lime, was from \$1.20 to \$1.60 per ton but only about one-tenth as many dairymen used lime as used fertilizer.

Table 60.—USE OF FERTILIZER AND LIME ON DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE NASHVILLE BASIN AREA: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	6,681	37	255	848	1,306	2,435	1,710
Fertilizer:							
Percent of farms using.....	65	100	84	82	80	64	43
Tons used per farm reporting.....	4	41	12	6	3	2	2
Acre upon which used per farm reporting.....	20	204	87	49	27	16	13
Average per acre fertilized:							
Pounds.....	268	404	285	243	249	273	259
Cost.....dollars.....	6.45	9.30	6.38	7.00	5.74	6.16	5.36
Lime:							
Percent of farms using.....	6	11	20	18	8	2	(Z)
Acre upon which used per farm reporting.....	17	27	21	13	22	10	35
Average per acre limed:							
Pounds.....	3,058	7,196	3,483	3,328	2,737	2,514	800
Cost.....dollars.....	4.38	9.95	4.33	4.88	4.10	3.91	1.00

Z Less than 0.5.

GULF COASTAL AREA



Figure 19.

THE GULF COAST AREA
(Economic Subregion 58)

The topography of the Gulf Coast area is level to slightly rolling. The soils range from sandy to loams and are rather deficient in organic matter. They respond readily to farmyard manures and commercial fertilizers when moisture conditions are right. Average annual rainfall of 40 to 44 inches is plentiful but its distribution throughout the year is irregular and periods of moisture deficiency occur during the long growing season.

The soil in the western part is the southern termination of the brown loam soil belt and is good farmland. This is probably the most desirable part of the area for general agriculture and around one-third of the land is in farms.

To the east are the clay hills and higher lands which become flat along the north shore of Lake Ponchartrain. Forests originally covered much of these two sections and much of the nonfarm land is still well forested.

South of Lake Ponchartrain the land is mostly swampy and marshy with very little woods. Only about one-seventh is in farms. A few dairy farms and cattle raising are the chief types of farming in this part.

Much of the area that lies in Mississippi and extending into southwestern Alabama is not very well suited for growing crops because of flooding, or soils that are too sandy to hold water, and some "gumbo" soils with impervious subsoils. One-third of the land is in farms and one-half of this is wooded. Dairying, livestock raising, and the growing of tung nuts, pecans, and cotton all contribute to the small agricultural output. Potatoes harvested for early northern markets are grown on some of the sandy soils.

Increase in milk cow numbers in Louisiana has been gradual since 1925 with only one or two exceptions. Since 1950, the increase has been more rapid. The growth of dairying is the result partly of increase in local population which was greater for Louisiana during the last 25 years than for the rest of the South, and partly of a consumer education program especially set up for younger people.⁴ More jobs and better pay have provided a greater increase in expendable income for the area during this time than for the rest of the country. The greatest potential for increased use of milk is in the lower income group. It is in this group that the greatest relative increases have occurred. There is no reason to think aggregate consumption of dairy products will not increase during the next few decades.

The growth of shipbuilding and paper mills in Mobile and other seaport towns along with textile mills, food processing plants, lumber mills, chemical factories, and petroleum refineries in New Orleans, has boosted the urban population and increased the demand for all farm products. New Orleans still dominates as a seaport.

The standard of living over much of the area is low but has been increasing during the last 25 years. Almost one-half of the farms are classed as noncommercial; a large majority are on a subsistence level. Twenty percent of the 13,000 commercial farms are dairy farms and 26 percent are cotton farms. Some of the highest priced farmland of the State is in this area.

During the last 5 years there have been seasonal milk surpluses in this area. Surpluses appear in the spring and summer when pasture conditions are good, and no method has been devised to prevent these surpluses or to carry them over to the winter when seasonal milk production is low. Practically all of the milk from these dairymen is sold as whole milk.

These farms are not large when expressed in terms of acres of cropland or of capital invested. More cropland is used for pasture than for harvested crops. This is an economical way of producing feed for the dairy herd, especially if the pastured cropland is so handled as to produce its share of feed for the long growing season.

The cropping systems were variable among the economic classes. Corn harvested for either silage or grain was from less than one-fourth of the harvested cropland on the larger farms to one-half for the smaller farms. Hay acreage, however, was from one-fourth to one-fifth of the harvested cropland for every class. Other crops than grain constituted around one-third of the harvested cropland on most farms.

The livestock organization, on the other hand, was rather uniform when expressed in terms of the inventoried animals. The two groups of larger farms had slightly more cropland per cow than the smaller farms. In other words, the farms of these groups were less intensively operated than the smaller farms. All are much more heavily stocked than those of the Nashville Basin, having twice as many cows on less land. They have more livestock than the available cropland will support. Either the feed bills must be high or production per animal low. Fewer pigs and chickens are kept, but their decrease does not offset the larger number of cows.

The sale of dairy products accounts for nine-tenths of the total income of the dairy farms in comparison with only 66 percent from dairy farms in the Nashville Basin (Table 61). These figures again show the relatively small proportion of income received from other livestock than dairy. The larger farms were more diversified in both livestock and crop sales than the smaller farms. All had relatively large acreages of cash crops.

⁴ Louisiana Rural Economist, Vol. 15, No. 1—February 1953. Department of Agriculture Economics, University Station, Baton Rouge, La.

FARMERS AND FARM PRODUCTION

The largest farms have somewhat less income per total crop acre than the medium-sized farms but much more than the two groups of smaller farms. Here again, the small farms fail to use their resources as effectively as the larger farms, and total incomes are exceedingly small—less than one-third of the income per crop acre of the group.

Table 61.—SOURCES OF FARM INCOME ON DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE GULF COAST AREA: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	2,730	53	431	996	900	240	50
Gross sales—							
Per farm.....dollars..	7,040	40,586	14,028	6,816	3,876	1,971	813
Per crop acre.....do....	121	107	128	141	104	72	30
Percent of gross sales from dairy products.....	89	82	90	90	80	82	82
Sales per farm:							
Milk.....dollars.....	6,240	33,041	12,586	6,154	3,447	1,619	666
Cattle and calves.....do....	413	2,775	748	344	270	213	103
Hogs.....do.....	43	489	100	20	22	33	4
Poultry products except eggs.....dollars..	8	64	12	7	5	—	8
Eggs.....do.....	48	392	77	50	28	6	8
Sheep.....do.....	8	181	8	(Z)	8	—	—
Other livestock and livestock products.....dollars..	4	109	3	1	1	2	2
Total, livestock and livestock products.....dollars..	6,704	37,051	13,534	6,576	3,781	1,873	791
Field crops.....do.....	206	2,957	330	182	67	75	21
Other crops ¹.....do.....	70	578	164	58	28	23	1
Total crops ¹.....do.....	276	3,535	494	240	95	98	22

Z Less than 0.50.

¹ Includes horticultural and forest products.

The largest expense item is for feed, hired labor comes second (Table 62). Specified expenses per crop acre are much lower on the small than on the large farms. The large farms averaged but \$54 expenses per \$100 income, whereas the small farms averaged \$83.

Table 62.—SPECIFIED FARM EXPENDITURES ON DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE GULF COAST AREA: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	2,730	53	431	996	900	240	50
Average per farm:							
Machine hire.....dollars..	80	238	163	78	48	43	12
Hired labor.....do.....	502	6,458	1,468	286	99	62	16
Feed.....do.....	2,846	10,822	5,206	2,969	1,778	1,077	576
Gas and oil.....do.....	266	1,614	601	226	145	91	30
Fertilizer.....do.....	381	2,753	734	332	217	140	73
Lime.....do.....	35	197	64	38	18	14	10
Total.....do.....	4,110	21,982	8,236	3,929	2,305	1,433	717
Average per crop acre:							
Machine hire.....do.....	9	17	13	6	3	2	1
Hired labor.....do.....	49	29	48	62	48	39	21
Feed.....do.....	49	29	48	62	48	39	21
Gas and oil.....do.....	5	4	6	5	4	3	1
Fertilizer.....do.....	7	7	7	7	6	5	3
Lime.....do.....	—	—	—	—	—	—	—
Total.....do.....	70	57	74	80	61	49	26

Net income of these operators is not large. Production and sales of milk per cow are the lowest for any special dairy area (Table 63). The average price received per 100 pounds of milk is the highest of any area which indicates the type of market for fluid milk. Practically none is sold as cream. The quantity of whole milk used for manufactured dairy products is not known but the price received indicates that very little is used for other than fluid consumption. Alabama and Louisiana marketed 20 percent of the whole milk as manufactured products in 1954.

Table 63.—MEASURES OF INCOME AND EFFICIENCY LEVELS FOR DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE GULF COAST AREA: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	2,730	53	431	996	900	240	50
Gross sales per farm.....dollars..	7,040	40,586	14,028	6,816	3,876	1,971	813
Specified expenses per farm.....dollars..	4,110	21,982	8,236	3,929	2,305	1,433	717
Gross sales less specified expenses per farm.....dollars..	2,930	18,604	5,792	2,887	1,571	538	96
Gross sales per man-equivalent.....	4,693	7,805	6,376	4,869	3,230	1,971	739
Total investment—							
Per farm.....dollars.....	20,736	84,225	44,267	19,007	12,711	12,282	6,775
Per man-equivalent.....do.....	13,824	16,197	20,121	13,641	10,592	12,282	6,159
Per \$100 gross sales.....do.....	296	207	316	281	326	614	847
Percent of sales of dairy products from cream.....	(Z)	(Z)	—	(Z)	(Z)	—	—
Milk sales per cow:							
Dollars.....	198	316	246	195	148	96	61
Pounds (milk equivalent).....	3,671	4,858	4,451	3,631	2,981	2,122	1,040

Z Less than 0.5 percent.

Some fertilizer was used by a larger proportion of the smaller farms than any other economic subregion, and the rate of application of those using fertilizer was higher (Table 64). Most of the farms used the same rate of application and only the two groups of farms at the extremes of the economic class showed much variation from the average.

Table 64.—USE OF FERTILIZER AND LIME ON DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE GULF COAST AREA: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	2,730	53	431	996	900	240	50
Fertilizer:							
Percent of farms using.....	81	83	85	84	80	73	70
Tons used per farm reporting.....	10	73	19	9	6	4	2
Acre upon which used per farm reporting.....	43	234	81	39	26	18	11
Average per acre fertilized:							
Pounds.....	480	619	481	453	452	408	335
Cost.....dollars.....	10.88	14.15	10.75	10.19	10.48	11.25	9.08
Lime:							
Percent of farms using.....	21	34	24	27	15	8	10
Acre upon which used per farm reporting.....	28	82	49	22	17	28	5
Average per acre limed:							
Pounds.....	1,078	2,341	2,076	1,667	2,299	2,000	2,000
Cost.....dollars.....	6.17	7.10	5.41	6.24	6.88	6.18	20.00

OZARK SPRINGFIELD-AREA

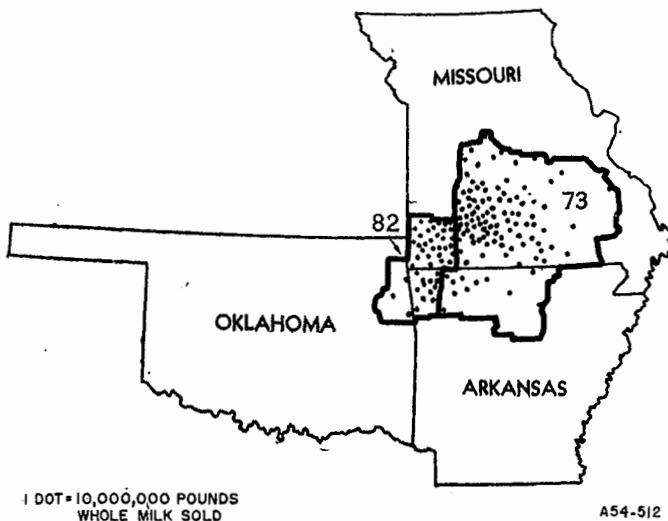


Figure 20.

THE OZARK-SPRINGFIELD AREA
(Economic Subregions 73 and 82)

The soils here are among the most infertile of the State of Missouri. Many of them have been "characterized in a number of studies as marginal or submarginal for crops."⁵ The soils in the eastern part are stony and the topography almost always hilly, so very little of the land is under the plow. The 1950 Census showed less than half of the land of this part in farms and the harvested cropland occupied a smaller portion of the total land than in any other area of the State.

The topography of the central part is not so hilly or rough as in the eastern part. Some of the land here is fairly smooth but the soil has a hardpan that makes poor underdrainage. Late spring plantings are frequently the result and any prolonged period without rainfall brings the threat of crop loss. The soils in the western part are better adapted to crops than those of the middle or eastern parts. They are fairly deep and friable and seem well adapted to fruit production.

Normal monthly precipitation records show plentiful moisture for growing most crops, 40 to 44 inches. With regular rainfall, temperatures during the growing season are favorable for good crop production. But the rainfall is seldom normal or regular. Periods of excessive precipitation are followed by hot dry weather which makes crops a gamble both on the hardpan soils and on the stony or sandy soils with highly porous subsoils. In these circumstances small grains, which mature before the hottest and driest summer weather, are grown in preference to corn. Sorghums or other hot-weather crops also do well.

The area has about equal acreages of corn and hay. Approximately one-sixth of the harvested cropland is used for each. More than a fourth of the cropland is used for small grains, while other crops than these staples use the remaining 40 percent.

There is little difference in the percentage distribution of the harvested cropland in the economic classes. All had relatively small acreages of corn and hay. The land seems better suited to pastures than to most crops and farmers have depended on livestock to utilize it. The gradual development of dairying over other forms of livestock production appears to be based upon the following considerations.⁶

1. Water supply is adequate and easily accessible. There are many running streams and springs throughout the area.
2. Gravel deposits, as well as a plentiful supply of stone, have made possible well-constructed all-weather roads at relatively small cost.
3. Dairy farming offers greater income than beef raising and provides a greater yearly return for family labor.

Not only are crop productions low but real estate values are among the lowest in the State. The highest values center in Green County where the city of Springfield is located. The high land values are the result of location and not of better crop productions.

The varied and adverse conditions under which production takes place shows up in the farm-income figures (Table 65). Figures for both total and per crop acres are low in comparison with other special dairy areas. The average total income of \$2,595, or \$37 per acre of total cropland, suggests the adverse conditions under which these farmers work. The income, both total and per acre, is less on the smaller farms. Even though there is considerable diversification in crop and livestock production within the area, the dairy farms are rather highly specialized. From two-thirds to three-fourths of all income is from the sales of milk and cream, while the sale of livestock, mostly dairy stock, adds another one-fifth to the income of the dairy farms.

Table 65.—SOURCES OF FARM INCOME ON DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE OZARK-SPRINGFIELD AREA: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	23,017	39	516	1,962	5,182	8,988	6,330
Gross sales—							
Per farm.....dollars..	2,595	34,233	12,600	6,773	3,414	1,771	787
Per crop acre.....do....	37	83	63	50	39	31	19
Percent of gross sales from dairy products.....	70	75	74	71	69	68	68
Sales per farm:							
Milk.....dollars.....	1,813	25,832	9,382	4,825	2,340	1,212	537
Cattle and calves.....do....	366	3,422	1,252	790	482	304	133
Hogs.....do.....	110	2,175	488	295	161	68	27
Poultry products except eggs.....dollars..	32	26	228	88	29	16	23
Eggs.....do.....	69	54	167	144	106	56	27
Sheep.....do.....	10	831	41	14	12	8	2
Other livestock and livestock products.....dollars..	7	35	14	10	8	8	3
Total, livestock and livestock products.....dollars..	2,407	32,375	11,572	6,175	3,138	1,672	762
Field crops.....do.....	161	1,784	983	553	244	76	18
Other crops.....do.....	27	74	45	45	32	23	17
Total crops.....do.....	188	1,858	1,028	598	276	99	35

¹ Includes horticultural and forest products.

⁵ Types of Farming in Missouri, Hammar, Roth, Johnson, Research Bulletin 284, Missouri Agricultural Experiment Station, Columbia, Missouri. Those parts of the area that extend into Northern Arkansas and Northeast Oklahoma are similar to the bordering areas in Missouri.

⁶ Marketing Dairy Products in Southwestern Missouri. M. B. Kirtley and C. C. Erwin, Bulletin 567, Agricultural Experiment Station, Columbia, Missouri.

FARMERS AND FARM PRODUCTION

Although the total expenses are low for the entire area the amount spent for feed is relatively large (Table 66). Where figures from most areas indicate around one-half of the specified expenses used to buy feed, these farmers used 60 percent for this purpose and the smaller farmers used proportionately more than the larger.

Table 66.—SPECIFIED FARM EXPENDITURES ON DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE OZARK-SPRINGFIELD AREA: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	23,017	39	516	1,962	5,182	8,988	6,330
Average per farm:							
Machine hire.....dollars..	90	506	317	219	129	67	30
Hired labor.....do.....	84	4,672	938	240	77	31	18
Feed.....do.....	1,001	10,328	3,905	2,203	1,266	778	434
Gas and oil.....do.....	135	1,195	524	342	187	97	45
Fertilizer.....do.....	154	1,642	722	446	216	96	39
Lime.....do.....	6	67	32	15	8	4	2
Total.....do.....	1,470	18,410	6,438	3,465	1,883	1,073	568
Average per crop acre:							
Machine hire.....do.....	1	1	2	2	1	1	1
Hired labor.....do.....	1	11	5	2	1	1	(Z)
Feed.....do.....	14	25	20	16	15	13	11
Gas and oil.....do.....	2	3	3	3	2	2	1
Fertilizer.....do.....	2	4	4	3	2	2	1
Lime.....do.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
Total.....do.....	20	44	34	26	21	19	14

Z Less than 0.50.

Table 67.—MEASURES OF INCOME AND EFFICIENCY LEVELS FOR DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE OZARK-SPRINGFIELD AREA: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	23,017	39	516	1,962	5,182	8,988	6,330
Gross sales per farm.....dollars..	2,595	34,233	12,000	6,773	3,414	1,771	787
Specified expenses per farm.....dollars..	1,470	18,410	6,438	3,465	1,883	1,073	568
Gross sales less specified expenses per farm.....do.....	1,125	15,823	5,562	3,308	1,531	698	219
Gross sales per man-equivalent.....	1,906	8,558	6,300	4,515	2,626	1,610	715
Total investment—							
Per farm.....dollars..	12,482	87,686	38,569	25,903	15,410	10,168	6,848
Per man-equivalent.....do.....	9,602	21,922	19,284	17,269	11,854	9,244	6,848
Per \$100 gross sales.....do.....	480	256	306	381	453	565	856
Percent of sales of dairy products from cream.....	1	(Z)	(Z)	1	1	1	4
Milk sales per cow:							
Dollars.....	150	384	261	211	157	118	81
Pounds (milk equivalent).....	4,634	9,468	6,996	6,301	4,876	3,857	2,766

Z 0.5 percent or less.

Such measures of effective farming as sales less specified expenses, total sales per man-equivalent, and dollar or pound milk sales per cow, all show the less efficient use of resources on the smaller farms (Table 67). Perhaps this is what should be expected. It is surprising, however, to find both dollar and pound sales of milk per cow to be so very little for the smaller farms. Dollar milk sales per cow from Economic Class VI farms were only one-fifth (21 percent) of those of Class I farms, while 29 percent as many pounds per cow were sold.

The sale of cream, accounting for 4 percent of all sales in only one economic class, does not explain much of the price difference. Most of it may be the result of the kind of markets available for the smaller farms. If a larger percentage of milk from small farms is used for manufactured products rather than for fluid consumption, it could well explain much of the discrepancy. No figures are currently available to confirm this surmise.

Fewer of the small farms used fertilizer or lime, and only 200 pounds were applied per acre compared with 260 pounds for the larger farms (Table 68). Information is not available to show whether the lower cost per ton on the smaller farms is the result of fertilizer of lower test. Lime costs were slightly higher on the small farms and the per acre application was less. Here again, there is no information to indicate the need for fertilizer and lime on farms of different size.

Are these dairy farms overpriced in terms of production or farm income? It has been mentioned that one method of obtaining a value for farm real estate is to ascertain the relation of total farm income to the value of the land and buildings. When judged by this relationship the dairy farms of this area are valued at about the average of dairy farms in other areas. The Economic Class I farms are valued at twice the yearly production. This ratio increases until it requires about 6 times the yearly production to equal the value of Economic Class VI farms.

Table 68.—USE OF FERTILIZER AND LIME ON DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE OZARK-SPRINGFIELD AREA: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	23,017	39	516	1,962	5,182	8,988	6,330
Fertilizer:							
Percent of farms using.....	67	82	88	92	85	66	44
Tons used per farm reporting.....	4	31	14	8	5	3	2
Acres upon which used per farm reporting.....	37	230	120	73	42	24	16
Average per acre fertilized:							
Pounds.....	220	269	227	229	213	217	207
Cost.....dollars..	6.22	8.71	6.79	6.68	5.96	6.00	5.50
Lime:							
Percent of farms using.....	8	31	26	20	12	7	3
Acres upon which used per farm reporting.....	13	41	19	15	12	10	16
Average per acre limed:							
Pounds.....	3,959	3,820	4,522	4,027	3,952	4,170	2,825
Cost.....dollars..	5.83	5.34	6.09	5.30	6.06	6.36	4.40

SNAKE RIVER-UTAH VALLEY AREA

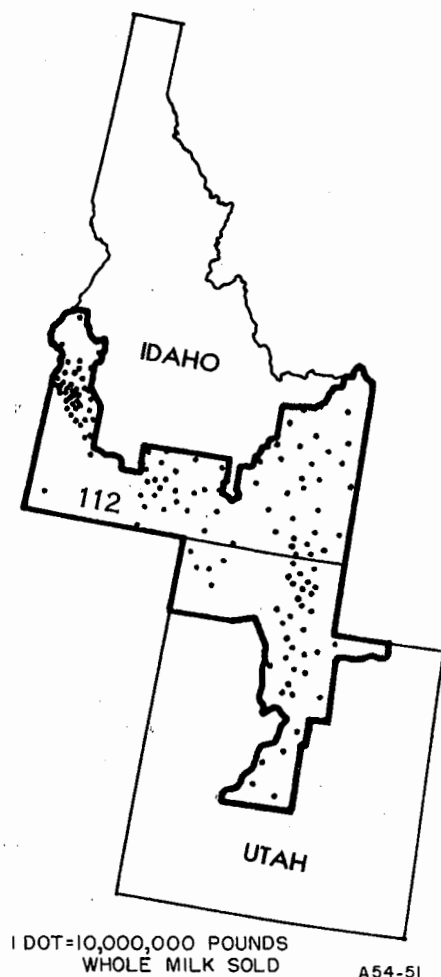


Figure 21.

THE SNAKE RIVER-UTAH VALLEY AREA
(Economic Subregion 112)

This intermountain subregion, with its mixture of intensive and extensive farming, brings together several areas of irrigated agriculture in the high valleys of southern Idaho and northern Utah and places where dryland farming is necessary. Farms in the irrigated valleys are relatively small, partly because of the method of developing the area and partly because large productions are obtained from irrigated crops and this supplies a good workload for the family. The nonirrigated lands have larger farms and a more extensive type of farming.

Most of the soils are waterlaid and show considerable variation within short distances in texture, depth, and drainage.⁷ Usually

the better, more productive soils are used for cultivated crops; the poorer soils are used for pastures. Practically all cropland and much pastureland is rather level, and, with the exception of a few farms in Morgan County and the Ogden Valley, both cropland and pastureland can be irrigated.

The average farm contains 345 acres. This includes 77 acres of harvested cropland with 26 acres of cropland reported as idle. Dairy farms are not so large as most other farms of the area. Although they constitute one-fourth of the number of farms, they occupy only 6 percent of the land in farms and control 9 percent of the total cropland.

Part-time, residential, and abnormal farms comprise one-fifth of the farms reported in the 1954 Census. Nearly 30 percent of the commercial farms produce field and cash crops. Another 25 percent are dairy farms. Nearly all farms are irrigated and most dairy farm concentrations are around the urban centers. Between 40 and 50 percent of the commercial farms in Summit and Wasatch Counties, east and southeast of Salt Lake City, are dairy farms.

The same proportion holds for Gem County, Idaho, while in Ada County, 54 percent are dairy farms. Approximately 21 percent of the dairy farms of the area are in these 4 counties.

Dairying throughout this area is carried on under various conditions. One is the high mountain valleys, as represented by Summit County, in which dairying competes largely with other types of livestock for the available forage. Cash crops are either limited or nonexistent. In most cases, beef cattle are the main competition for the feed with sheep being less competitive.

At the lower elevations dairying under some situations is only one of several important enterprises. On some occasions, wet bottomland or relatively unproductive soils suitable only for grazing are utilized, with the necessary winter feeds being in competition with cash crops such as sugar beets, potatoes, and canning vegetables. In nearly all situations dairying is associated with irrigated farms. Throughout most of this area some dryland crops, primarily wheat, are grown. Dairy cattle, however, are not important on these farms except as the same operator may have both dry-farm and irrigated farmland.⁸

The number of milk cows in the area has increased from 224,297 in 1949 to 250,363 in 1954. The number of dairy farms, was also increased by 476 or 6 percent and the average number of cows per herd has increased from 12 to 15. The range in the size of herd follows the pattern of other areas. Very few of the farms in Economic Class I have fewer than 30 milk cows. At the other extreme, very few of Class V or VI have more than 20 cows.

These dairy farms receive more than two-thirds of their income from the sale of dairy products and around one-seventh from sales of crops (Table 69). The proportion varies little from the largest to the smallest—the two extremes in size being the most highly specialized. No one economic class differs much from the average in its income from other livestock or crops. This holds also for the specified expenses (Table 70). Total feed purchases were low. The proportion of feed bought to total expenses showed greater variation than any other item. The largest farmers bought the smallest quantity of feed in proportion to all expenses; farmers of Economic Class VI bought the most.

⁷ "Farm Management Study of farms with dairy enterprises in the Ogden Area, Utah." Geo. T. Blanch, Dee A. Broadbent, Bulletin 308. Utah Agricultural Experiment Station, Logan, Utah.

⁸ Letter from G. T. Blanch, Head of Department of Agricultural Economics, Utah State College, Logan, Utah, Oct. 15, 1956.

FARMERS AND FARM PRODUCTION

Table 69.—SOURCES OF FARM INCOME ON DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE SNAKE RIVER-UTAH VALLEY AREA: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	8,459	108	766	2,235	2,819	2,010	521
Gross sales—							
Per farm.....dollars..	5,185	31,996	13,564	6,927	3,688	1,846	807
Per crop acre.....do....	85	146	117	94	63	60	36
Percent of gross sales from dairy products.....	69	74	70	67	66	72	76
Sales per farm:							
Milk.....dollars.....	3,561	23,541	9,547	4,664	2,432	1,327	611
Cattle and calves.....do....	630	2,751	1,695	794	491	256	116
Hogs.....do.....	55	300	93	78	48	25	5
Poultry products except eggs.....dollars..	24	25	121	21	14	8	3
Eggs.....do.....	80	184	140	121	71	35	16
Sheep.....do.....	20	48	38	33	13	10	5
Other livestock and livestock products.....dollars..	11	17	16	17	11	8	4
Total, livestock and livestock products.....dollars..	4,381	26,866	11,650	5,728	3,080	1,669	760
Field crops.....do.....	712	4,269	1,664	1,068	561	157	44
Other crops.....do.....	92	861	250	141	47	20	3
Total crops.....do.....	804	5,130	1,914	1,199	608	177	47

¹ Includes horticultural and forest products.

Table 70.—SPECIFIED FARM EXPENDITURES ON DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE SNAKE RIVER-UTAH VALLEY AREA: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	8,459	108	766	2,235	2,819	2,010	521
Average per farm:							
Machine hire.....dollars..	213	512	447	271	189	115	67
Hired labor.....do.....	331	5,128	1,422	323	111	48	44
Feed.....do.....	850	5,344	2,246	1,064	541	429	240
Gas and oil.....do.....	325	1,346	717	419	277	145	92
Fertilizer.....do.....	82	453	263	115	50	20	16
Lime.....do.....	(Z)					(Z)	
Total.....do.....	1,801	12,783	5,095	2,192	1,168	757	459
Average per crop acre:							
Machine hire.....do.....	5	23	12	4	2	2	2
Hired labor.....do.....	14	24	19	14	9	14	11
Feed.....do.....	14	6	6	6	5	5	4
Gas and oil.....do.....	5	2	2	2	1	1	1
Fertilizer.....do.....	1						
Lime.....do.....	(Z)					(Z)	
Total.....do.....	25	55	39	26	17	22	18

Z Less than 0.50.

Measures of effectiveness in the use of resources show little change from the pattern of previously discussed subregions (Table 71). The total cropland per cow is larger than for most areas and the total investment per man-equivalent is higher than for most subregions. The same trend in resource use on smaller farms is as obvious here as in any subregion and the question of why this extreme drop-off occurs remains unanswered. The average price of milk is less on the smaller farms. This is probably due to smaller and lower paying markets. The sale of cream is rather negligible in any economic class, the highest being 3 percent of total milk income in Economic Class VI.

Table 71.—MEASURES OF INCOME AND EFFICIENCY LEVELS FOR DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE SNAKE RIVER-UTAH VALLEY AREA: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	8,459	108	766	2,235	2,819	2,010	521
Gross sales per farm.....dollars..	5,185	31,996	13,564	6,927	3,688	1,846	807
Specified expenses per farm.....dollars..	1,801	12,783	5,095	2,192	1,168	757	459
Gross sales less specified expenses per farm.....dollars..	3,384	19,213	8,469	4,735	2,520	1,089	348
Gross sales per man-equivalent.....	4,714	8,888	6,782	5,328	3,688	2,637	897
Total investment—							
Per farm.....dollars.....	29,572	110,855	58,575	36,454	25,354	16,416	11,819
Per man-equivalent.....do.....	26,884	30,793	29,288	28,042	25,354	23,451	14,774
Per \$100 gross sales.....do.....	569	346	431	528	685	912	1,477
Percent of sales of dairy products from cream.....	1	1	(Z)	(Z)	1	2	3
Milk sales per cow:							
Dollars.....	245	414	304	253	204	172	116
Pounds (milk equivalent).....	7,218	7,560	8,012	7,551	6,800	6,148	4,177

Z Less than 0.5.

Approximately 10 percent of all whole milk is used for fluid consumption. The remaining 90 percent is used in making such products as cheese, evaporated milk, and butter. Factories are large and efficiently organized, and have the whole West Coast as a market. Because of their location the dairy farmers receive relatively satisfactory prices for their product. They apparently prefer getting the steady, regular prices for milk to raising high-priced crops that carry a high production risk. Many farmers produce both; this may help to explain why 48 percent of the milk cows are not on dairy farms.

Two-fifths of the farmers used some fertilizers (Table 72) but the rate of application was no higher than for most areas, even though it has been shown that well-fertilized, irrigated lands will produce phenomenal yields. A production of 6 tons of alfalfa per acre is common among the better farmers.

Table 72.—USE OF FERTILIZER AND LIME ON DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE SNAKE RIVER-UTAH VALLEY AREA: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	8,459	108	766	2,235	2,819	2,010	521
Fertilizer:							
Percent of farms using.....	38	77	68	53	34	19	20
Tons used per farm reporting.....	3	9	6	3	2	1	1
Cost of fertilizer per farm reporting.....dollars..	216	590	386	219	148	106	78
Acres upon which used per farm reporting.....	23	65	38	24	16	14	11
Average per acre fertilized:							
Pounds.....	280	277	321	267	266	215	256
Cost.....dollars.....	9.22	9.13	10.20	9.09	8.96	7.74	6.83
Lime:							
Percent of farms using.....	(Z)					(Z)	
Tons used per farm reporting.....	1					1	
Cost of lime per farm reporting.....dollars..	6					6	
Cost per ton.....do.....	6					6	
Average per acre limed:							
Pounds.....	333					333	
Cost.....dollars.....	1.00					1.00	

Z Less than 0.5.

SOUTHERN CALIFORNIA AREA

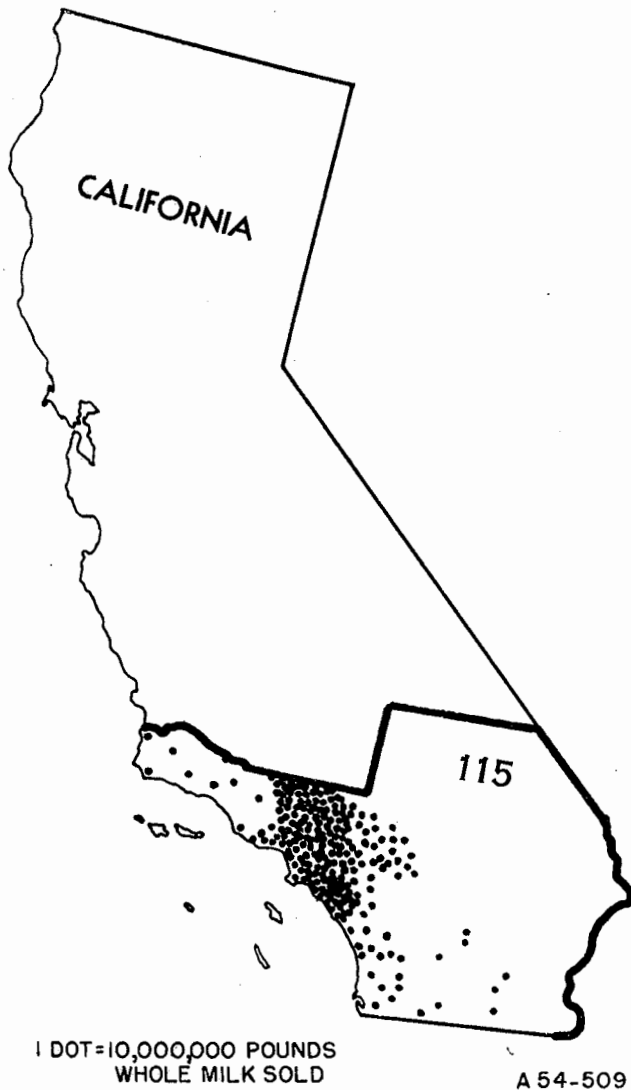


Figure 22.

THE SOUTHERN CALIFORNIA AREA
(Economic Subregion 115)

The West Coast probably has a more diversified pattern of agricultural production than any other agricultural section of the United States. Practically every type of farming is found here. Poultry, dairy, and other livestock farms compete with cash-grain, vegetable, and fruit farms for land, capital, and labor. Some of the most intensive systems of farming are found in the irrigated valleys where special crops are grown. General livestock farming and some ranching takes place where irrigation is not feasible or not practiced at the present time. Thirty percent of all farms are classed as special or noncommercial.

The Southern California Economic Subregion 115 is highly urbanized. This creates markets for many agricultural com-

modities. Agricultural production is limited to the coastal parts and the irrigated Imperial Valley. The Mojave Desert occupies most of the eastern part of the area.

The growing of citrus fruits is the prevailing agricultural activity and accounts for one-third of all farms, or 43 percent of the commercial farms. Poultry raising, vegetable growing, livestock, and general farming, each accounts for more farms than does dairying. These fruit and poultry farms are rather small, averaging less than 40 acres of cropland harvested. Dairy farms show an average of 32 acres. Where water is available 2 or more crops a year are grown on the land.

This subregion has a total of 34,537 farms. Only 23,847 are classed as commercial and 1,101 are dairy farms. One-fourth of the milk cows of the State are in this subregion, however, and they account for 30 percent of the milk output.

The dairy farms of Subregion 115 are unusual in that they show an average of more than 175 milk cows per farm. Slightly more than 97 percent of all milk cows are on these farms and they account for 99 percent of the milk sales, both in volume and value received. In 1950, only 91 percent of all milk cows of the subregion were on dairy farms. Figures do not show the percentage of milk sold from the dairy farms. But indications are that in 1949 these farmers sold a smaller portion of the total milk that reached the market than in 1954.

The immediate vicinity of Los Angeles has four-fifths of the dairy farms of the subregion and a slightly higher percentage of dairy cows. Most of the herds in this vicinity are very large, averaging between 200 and 300 cows. Dry-lot feeding is the common practice of these dairymen most of whom grow no crops. They depend on buying alfalfa hay of good quality for most of their feed. This hay is baled and trucked in from as far away as the San Joaquin Valley although most of it comes from irrigated fields in the Imperial Valley and the vicinity of Riverside. Relatively small quantities of grain are fed. During the last few years many of these dairymen have changed from the use of baled hay to soiling crops as the source of most of the feed. The crop, principally alfalfa, is cut one afternoon and trucked in to the milking herd that evening or early the next morning. The herd thus gets a more palatable feed and of a higher quality even though the baled hay has been excellent. A few farmers have their own hay fields which may be several miles from the milking herd. Their feeding practices are similar to those of farmers who buy their feed.

The usual milking life of cows in these dry-lot herds is 2 to 3 years and, in most instances, replacements are bought from farmers in other areas who either raise young animals for this purpose or have current surpluses from their milking herds. Many are shipped in even from as far away as southern Idaho. Weekly auctions provide a valuable source of replacement as well as an outlet for dry cows. They are usually located at the county seat towns. These auctions are established institutions which are of great service to both the buyer and the seller of milk cows. They are probably more useful in selling dry and cull cows than as a source of good milkers or fresh animals.

The labor force of these farms is more highly organized than in any other dairy area. The standard workload for the large herds is 60 cows per man with an extra man for every 5 or 6 men employed. This permits 1 day a week off for each regular milker. Practically all milking is by machine; 96 percent of all dairy farmers report the use of milking machines. All have electricity and practically all have piped running water and telephones.

Bulk handling of milk has been adopted by all the large producers as well as by many of the smaller dairymen. Some dealers are now requiring all producers to use the bulk method of handling milk. To buy a large bulk tank may add from \$4,000 to \$10,000 to the farmer's investment.

Some of these dairymen are organized on an enterprise basis. They have independent farming units for 2 or more of such operations as milking herd, fruit or vegetable growing, or more general farming activities such as raising alfalfa or other field crops. Any one of these activities can be disposed of without affecting the operation of others. For example, a farmer may decide to sell his milking herd of 250 cows and rent the buildings and equipment to another operator. He will still operate the fruit ranch and general farm. Later, he may again buy a milking herd and become a dairyman.

There were 2,987 farms in the area that had one or more milk cows; 1,962 or 66 percent of these farms had fewer than 50 cows per herd and they sold only 1 percent of the milk within the area (Table 73). On the other hand, the 749 farms, or 25 percent, with 100 or more cows per farm sold 90 percent of the milk. The remaining 9 percent of sales of milk was from the 276 farms with 50 to 99 milk cows per farm. This illustrates the concentration both of milk cows and milk production within the area.

Table 73.—NUMBER OF FARMS BY SIZE OF HERD AND MILK AND CREAM SOLD PER FARM, FOR THE SOUTHERN CALIFORNIA AREA: 1954

Size of herd (number of milk cows)	Number of farms	Milk cows per farm	Milk sold per farm (pounds, milk equivalent)	Cream sold per farm (pounds butterfat)	Percent distribution of milk sales
Total.....	2,987	68.0	730,394	33	100.0
1 to 19 milk cows.....	1,884	2.5	2,589	13	.2
20 to 49 milk cows.....	78	33.3	285,860	0	1.0
50 to 99 milk cows.....	276	74.8	731,417	102	9.3
100 or more milk cows.....	749	232.3	2,606,997	61	89.5

Table 74.—SOURCES OF FARM INCOME ON DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE SOUTHERN CALIFORNIA AREA: 1954

Item	Economic class of farm					
	Total	I	II	III	IV	V
Number of farms.....	1,101	974	54	43	20	10
Gross sales—						
Per farm.....dollars..	107,035	119,305	22,134	8,197	3,857	1,740
Per crop acre.....do..	1,630	1,761	357	275	83	48
Percent of gross sales from dairy products.....	91	91	85	90	85	44
Sales per farm:						
Milk.....dollars.....	97,351	108,596	18,884	7,390	3,284	761
Cattle and calves.....do..	7,782	8,630	2,071	721	560	907
Hogs.....do.....	19	15	117			
Poultry products except eggs.....do..	58	63	56	13		
Eggs.....do.....	162	181	36			
Sheep.....do.....	13	14				
Other livestock and livestock products.....do..	6	6	18			
Total, livestock and livestock products.....dollars..	105,391	117,505	21,182	8,111	3,857	1,668
Field crops.....do.....	1,407	1,535	933	79		
Other crops.....do.....	236	265	19	7		72
Total crops.....do.....	1,643	1,800	952	86		72

¹ Includes horticultural and forest products.

* 1,101 of these farms were dairy farms.

The unusual organization of the dairy farms in this area is further emphasized by a study of their income and expenses (Tables 74 and 75). Not only are these herds the largest in the United States but 89 percent of the farms are concentrated in Economic Class I. Gross sales of \$107,000 per farm or \$1,630 per acre of cropland and the extent of cropland or pastureland per cow show the basic differences between these farms and those other special areas.

Table 75.—SPECIFIED FARM EXPENDITURES ON DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE SOUTHERN CALIFORNIA AREA: 1954

Item	Economic class of farm					
	Total	I	II	III	IV	V
Number of farms.....	1,101	974	54	43	20	10
Average per farm:						
Machine hire.....dollars..	259	227	415	659	29	1,205
Hired labor.....do.....	15,096	16,946	1,603	612	125	15
Feed.....do.....	47,983	53,592	7,812	3,827	1,534	1,340
Gas and oil.....do.....	987	1,053	824	217	229	315
Fertilizer.....do.....	158	168	156	43		
Lime.....do.....	(Z)	(Z)				
Total.....do.....	64,483	71,086	10,810	5,358	1,917	2,965
Average per crop acre:						
Machine hire.....do.....	4	3	7	22	1	36
Hired labor.....do.....	230	249	26	20	3	(Z)
Feed.....do.....	731	786	126	128	33	37
Gas and oil.....do.....	15	15	13	7	5	9
Fertilizer.....do.....	2	2	1			
Lime.....do.....	(Z)	(Z)				
Total.....do.....	982	1,055	174	178	42	82

Z Less than 0.5.

Efficiency in the use of resources shows the same general relationship as that found in the other special areas even though the dairy farms are not typical by any ordinary standard (Table 76). The smaller the farm the less the returns in sales per acre of cropland, or per cow. Investment, though large, is less per cow or man-equivalent on the larger farms. Feed and labor costs are the outstanding items of expense on the larger farms, but the expense per cow looks reasonable enough—\$270 per cow for feed and \$85 for hired labor.

Table 76.—MEASURES OF INCOME AND EFFICIENCY LEVELS FOR DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE SOUTHERN CALIFORNIA AREA: 1954

Item	Economic class of farm					
	Total	I	II	III	IV	V
Number of farms.....	1,101	974	54	43	20	10
Gross sales per farm.....dollars..	107,035	119,305	22,134	8,197	3,857	1,740
Specified expenses per farm.....dollars..	64,483	71,086	10,810	5,358	1,917	2,965
Gross sales less specified expenses per farm.....dollars..	42,552	47,319	11,324	2,839	1,940	-1,225
Gross sales per man-equivalent.....dollars..	19,113	19,243	12,297	7,452	3,857	8,700
Total investment—						
Per farm.....do.....	136,502	144,695	131,802	38,531	13,161	41,461
Per man-equivalent.....do.....	24,375	23,720	73,223	32,109	10,968	103,652
Per \$100 gross sales.....do.....	128	121	596	470	337	2,439
Percent of sales of dairy products from cream.....	(Z)	(Z)				
Milk sales per cow:						
Dollars.....	548	558	271	184	156	152
Pounds (milk equivalent).....	11,112	11,279	6,258	5,168	4,479	4,496

Z Less than 0.5.

Net income, or gross sales less specified expenses, shows the importance of size or volume of business in creating savings. The relationship between size and net income is different from other dairy areas only in the amount rather than the direction. A range of more than \$46,000 between the small and the large farms in this area makes any attempt at comparison worth little. And since there are few farms in any but Economic Class I, this results in irregular relationships among the classes which would not occur if there were more farms in each class. Even so, what tendency there may be for the various efficiency factors to show a trend still supports the statement that small farms ordinarily cannot make as efficient use of the various input items as large farms.

Only a small proportion of farms in this area use fertilizer. Farmers in Economic Classes I and II who did use fertilizer applied more than 400 pounds per acre (Table 77).

Table 77.—USE OF FERTILIZER AND LIME ON DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE SOUTHERN CALIFORNIA AREA: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	1, 101	974	54	43	20	10	-----
Fertilizer:							
Percent of farms using.....	14	13	43	16	-----	-----	-----
Tons used per farm reporting.....	18	22	4	3	-----	-----	-----
Acres upon which used per farm reporting.....	80	89	50	10	-----	-----	-----
Average per acre fertilized:							
Pounds.....	460	490	177	281	-----	-----	-----
Cost.....dollars.....	13. 64	14. 29	7. 29	13. 60	-----	-----	-----
Lime:							
Percent of farms using.....	(Z)	(Z)	-----	-----	-----	-----	-----
Acres upon which used per farm reporting.....	17	17	-----	-----	-----	-----	-----
Average per acre limed:							
Pounds.....	1, 020	1, 020	-----	-----	-----	-----	-----
Cost.....dollars.....	3. 39	3. 39	-----	-----	-----	-----	-----

Z 0.5 percent or less.

THE CALIFORNIA INNER VALLEY AREA (Economic Subregion 116)

The California Inner Valley, consisting of the Sacramento and San Joaquin watersheds, has a varied agriculture. The two valleys have a variety of soils which vary in production from an intensive irrigated type of agriculture to the most extensive grazing operation.

In the San Joaquin Valley the more important soils are generally deep and permeable and neutral to slightly basic, so lime is not used much as a soil corrective. They are fertile, loamy soils with a topography well suited to irrigation. Annual rainfall is less than 10 inches so that all crop production must be under irrigation.

The more undulating to rolling part of the valley has surface soils that are usually sandy loams or gritty loams with clay loam or clay subsoils. They are used primarily for pasture and dry farming. They are not easily irrigated but where water is available and wisely managed they will grow grapes and deciduous and citrus fruits.

The Sacramento Valley has some soils like those of the San Joaquin Valley which are especially suited for general farming.

CALIFORNIA INNER VALLEY AREA

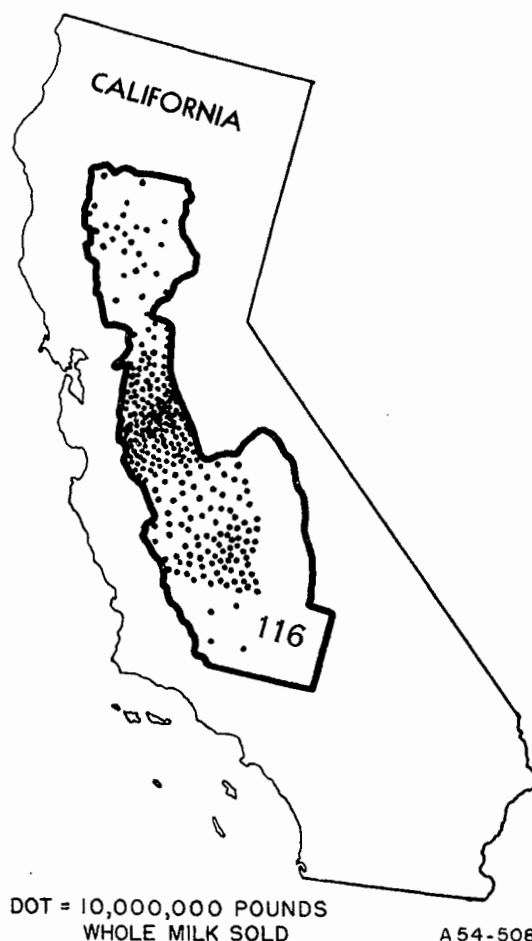


Figure 23.

Most of the better agricultural soils are found in the middle of the valley. They are heavily textured clays or clay loams that have been deposited by slow-moving streams. They are generally neutral to slightly acid with some lime in the deeper subsoils, and are subject to flooding unless protected by levees. Shallow, fibrous-rooted types of crops do better than such deep-rooted crops as vineyards or fruit trees.

As a result of the use of irrigation water this subregion has developed into one of the most important fruit and grape-growing areas of the United States. Dairying comes second in importance while such crops as sugar beets, vegetables, cotton and other special crops add to the variety of production. On lands not subject to irrigation general livestock farming and ranching are still practiced.

In these two valleys are 52,000 farms and 10,000 are classed as noncommercial farms. Of the 42,000 commercial farms 21 percent are dairy farms. These dairy farms, 78 percent of which are in the San Joaquin Valley, help to supply the San Francisco metropolitan area with fluid milk.¹⁰

¹⁰ Approximately two-thirds of the fluid-milk supply for the San Francisco metropolitan area is from Economic Subregion 116; the remaining one-third is from the northern part of Economic Subregion 117 for which no special presentation is made. This central coast area extending 300 miles from Sonoma and Napa Counties north of San Francisco and south to San Luis Obispo County is a small part of the San Francisco and San Jose metropolitan areas. Fruit, vegetable, and livestock farming account for most of the agricultural activity of the subregion, while the poultry industry accounts for 17 percent of all farms. Only 9 percent of the farms are dairy farms; most of these are in the northern part of the area near the consuming center. The ranches are in the rougher parts where all moisture for crop and grass growing is from seasonal rains.

FARMERS AND FARM PRODUCTION

Some dry-lot feeding is practiced here but most of the dairy farms raise some feed crops especially alfalfa and, because of the long growing season, irrigated pasture provides economical dairy feed. The usual practice is to raise the young stock for herd replacement although there is always some buying of young stock and cows outside the valley.

During 1950, 43 percent of the sales of whole milk was for fluid consumption. This had increased to 46 percent by 1954. These farms are second to those of the Southern California area in number of milk cows per farm, total income, and value of total assets. No other special dairy area approaches these two California areas in size of milking herds and in volume of business.

The organization of these farms follows more nearly the usual combination of enterprises than those of Southern California.

Table 78.—SOURCES OF FARM INCOME ON DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE CALIFORNIA INNER VALLEY AREA: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	8,783	1,088	2,099	2,484	1,832	1,125	155
Gross sales—							
Per farm.....dollars..	13,814	56,723	15,574	7,097	3,797	1,953	917
Per crop acre.....do....	193	239	176	163	130	113	43
Percent of gross sales from dairy products.....	82	80	83	84	84	83	84
Sales per farm:							
Milk.....dollars.....	11,308	45,464	12,946	5,996	3,190	1,621	774
Cattle and calves.....do....	1,118	4,033	1,290	678	408	241	116
Hogs.....do.....	17	24	31	10	14	8	—
Poultry products except eggs.....do....	29	160	13	11	12	5	—
Eggs.....do.....	88	392	102	25	29	17	4
Sheep.....do.....	15	9	52	4	2	1	16
Other livestock and livestock products.....dollars.....	4	4	8	2	2	(Z)	1
Total, livestock and livestock products.....do....	12,579	50,086	14,442	6,726	3,657	1,893	911
Field crops.....do.....	1,065	6,087	905	255	90	30	2
Other crops ¹.....do.....	177	550	227	116	50	30	4
Total crops.....do.....	1,242	6,637	1,132	371	140	60	6

Z Less than 0.50.

¹ Includes horticultural and forest products.

Table 79.—SPECIFIED FARM EXPENDITURES ON DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE CALIFORNIA INNER VALLEY AREA: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	8,783	1,088	2,099	2,484	1,832	1,125	155
Average per farm:							
Machine hire.....dollars..	374	1,240	434	253	150	98	43
Hired labor.....do.....	1,455	8,573	1,164	274	151	42	18
Feed.....do.....	3,612	14,706	3,739	1,873	1,239	775	486
Gas and oil.....do.....	559	1,867	657	371	223	144	66
Fertilizer.....do.....	72	309	72	41	18	11	3
Lime.....do.....	3	15	1	2	1	2	—
Total.....do.....	6,075	26,719	6,067	2,814	1,782	1,072	616
Average per crop acre:							
Machine hire.....do.....	5	5	5	6	5	6	2
Hired labor.....do.....	20	36	13	6	5	2	1
Feed.....do.....	50	62	42	43	42	45	23
Gas and oil.....do.....	8	8	7	9	8	8	3
Fertilizer.....do.....	1	1	1	1	1	1	(Z)
Lime.....do.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	—
Total.....do.....	84	112	68	65	61	62	29

Z Less than 0.50.

More of them are found in the smaller size groups, Economic Classes II to IV, with a few even in Economic Class VI.

Average incomes are much smaller and the incomes of Economic Class I farms are less than half those of the Southern California Area. Nearly 10 percent of the total value of sales is from crops. Other livestock than dairy accounts for about 1 percent. Feed purchases and hired labor, as in other areas, are the two large items of specified farm expenses (Tables 78 and 79). The economic class array shows the common pattern of reduced returns on the smaller farms, and both per farm and per unit of production whether it be per cow, per acre, or per man (Tables 79 and 80). The choice and use of resources are not as effective on small dairy farms as on the larger ones.

Table 80.—MEASURES OF INCOME AND EFFICIENCY LEVELS FOR DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE CALIFORNIA INNER VALLEY AREA: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	8,783	1,088	2,099	2,484	1,832	1,125	155
Gross sales per farm.....dollars..	13,814	56,723	15,574	7,097	3,797	1,953	917
Specified expenses per farm.....dollars..	6,075	26,719	6,067	2,814	1,782	1,072	616
Gross sales less specified expenses per farm.....dollars..	7,739	30,004	9,507	4,283	2,015	881	301
Gross sales per man-equivalent.....	8,126	14,181	8,652	5,459	3,797	2,170	1,019
Total investment—							
Per farm.....dollars.....	56,674	172,358	68,017	39,851	26,425	18,819	6,838
Per man-equivalent.....do.....	33,338	43,090	37,787	30,655	26,425	23,524	7,598
Per \$100 gross sales.....do.....	411	304	436	561	695	941	760
Percent of sales of dairy products from cream.....	(Z)	(Z)	(Z)	(Z)	1	1	1
Milk sales per cow:							
Dollars.....	273	348	256	215	181	148	98
Pounds (milk equivalent).....	7,643	8,729	7,643	6,836	5,852	4,776	3,185

Z 0.5 percent or less.

Fewer farmers report the use of commercial fertilizers than in any other special area, and those who use it apply fewer pounds per acre (Table 81). The price would suggest a fertilizer of higher test than is used in some areas. Practically no lime is used on these dairy farms.

Table 81.—USE OF FERTILIZER AND LIME ON DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE CALIFORNIA INNER VALLEY AREA: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	8,783	1,088	2,099	2,484	1,832	1,125	155
Fertilizer:							
Percent of farms using.....	22	42	27	21	16	8	3
Tons used per farm reporting.....	6	14	5	3	2	3	2
Acres upon which used per farm reporting.....	40	89	34	22	16	16	10
Average per acre fertilized:							
Pounds.....	314	326	302	315	256	343	253
Cost.....dollars.....	8.22	8.31	7.91	8.76	7.11	8.08	4.47
Lime:							
Percent of farms using.....	1	3	1	1	1	1	—
Acres upon which used per farm reporting.....	28	52	16	20	8	17	—
Average per acre limed:							
Pounds.....	2,251	2,330	1,021	2,861	1,576	2,353	—
Cost.....dollars.....	9.32	9.26	4.83	9.71	8.70	16.82	—

PUGET SOUND-COASTAL AREA

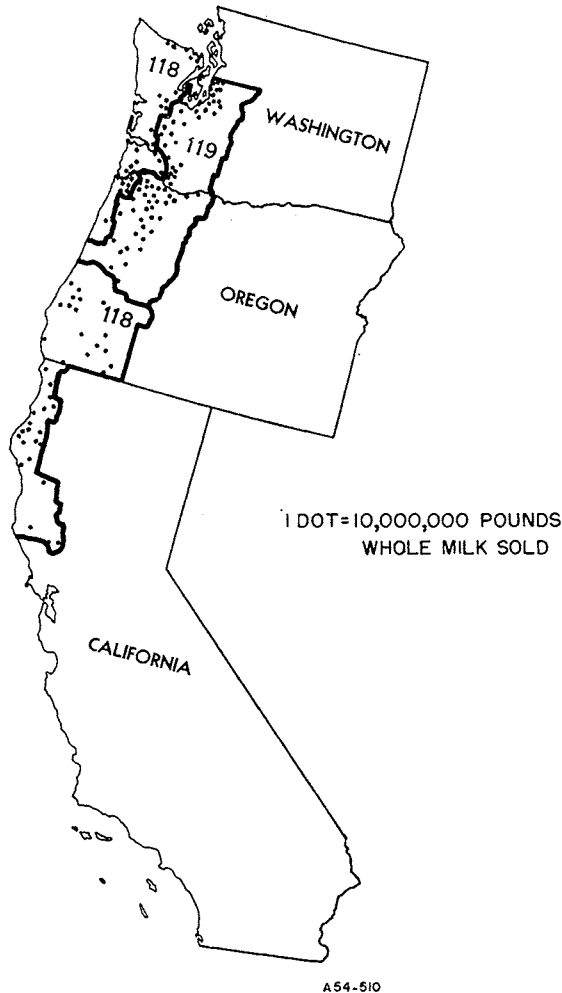


Figure 24

THE PUGET SOUND-COASTAL AREA
(Economic Subregions 118 and 119)

Most of the agricultural production of this area is on the alluvial plains between the mountains and the ocean, and in the river and mountain valleys. The whole area may be characterized as rolling to mountainous. The plow lands are on the less rolling areas and the pasture lands spread to and into the more rugged parts. The western third of Washington and Oregon are included and Economic Subregion 118 extends down the coast of northwestern California to Sonoma and Napa Counties. Practically the whole of the two economic subregions is conditioned climatologically by the Pacific Ocean. Summers are not so hot or the winters so cold as in areas to the east. The cool climate with a long growing season (160 to 240 days) and plentiful rainfall produce good grass growth and a generally good environment for dairying, even though the rainfall is not evenly distributed throughout the summer.

Both economic subregions show considerable diversification and the proportion of the several types of farms is different in different

parts of the elongated area. In Washington, poultry farms are second in number to dairy farms. These are followed by fruit and general farms. In the Oregon part the number of fruit-and-nut farms exceeds any other type. Dairy, general, other livestock, and cash-crop farms follow in the order listed, while in northwestern California the number of general farms practically equals that of the dairy farms with fruit-and-nut farms third. In every part of the two economic subregions the number of noncommercial farms exceeds the total of all others.

Most of the milk sales are of whole milk. The milk equivalent of cream sales is only 6.4 percent in the Washington part. This proportion drops to 5.2 percent in Oregon, and in northwestern California the quantity sold drops to around 4.3 percent.

The quantity of whole milk used in manufacturing dairy products is greatest in the California part where 78 percent¹¹ of the milk sold is so used in comparison with 38 percent for all of California. This part of the area is fairly isolated from fluid-milk markets. It is mainly forest land with some open spaces available for crops and grazing near the mouths of rivers along the coast. The soil here is fertile and grazing conditions are excellent. Dairying has been an established enterprise for decades but because of its inaccessibility to fluid milk markets the milk has gone into such products as cheese, butter, and powdered milk.

The Willamette Valley in western Oregon fairly well characterizes Economic Subregions 118 and 119 within that State. It is somewhat similar to the San Joaquin Valley, except that it has more rainfall as well as more irrigated pasture land. It is more a specialized dairy area and is fairly commercialized. Bulk handling of milk is now the accepted practice throughout this part of the two economic subregions.

Outlets for fluid milk are better in this part than in northwestern California so that less of the whole milk is used in manufactured products. The figures for the State show that 60 percent of the milk sold as whole milk and cream was used in manufactured dairy products, in 1954. That part of the State included in Economic Subregions 118 and 119 sold 94.8 percent of all milk as whole milk and 67 percent of this was used in manufactured products. Butter sales account for two-fifths of the amount, while the sale of cheese accounts for three-fifths.

The part of the two subregions that supplies the Puget Sound metropolitan area with dairy products includes 14 counties lying north of the south tier of counties in Washington.¹² In 1950 this area represented 14 percent of the farmland of the State and 50 percent of all farms, 28 percent of the value of all farm products, and 68 percent of all dairy products were sold from it. The metropolitan district takes the total production of the area except in the flush season.

The northern counties originally developed as a dairy manufacturing territory. The manufacture of butter, cheese, and milk powder were the chief outlets for milk. With the increase in urban population, and especially since bulk handling developed, most of the production now goes to help supply the fluid-milk market of Seattle and other nearby cities.

Not so much of the milk in this part is used in manufactured dairy products as in the other two parts. Nearly 50 percent of the whole milk and cream sold from farms in the State in 1954, was used in manufactured dairy products. In the Washington part of this area 93.6 percent of the milk was sold as whole milk and 55.2 percent of this quantity was used in manufactured products. The sales of cream for the two entire economic subregions was 3.8 percent of all milk sales.

¹¹ See Manufactured Dairy Products, Milk Production, Utilization and Prices. Special Publication No. 256, California Department of Agriculture, Sacramento, Calif.

¹² The county of Kittitas east of the Cascades also supplies the equivalent of 31 million pounds of milk to the urban district.

FARMERS AND FARM PRODUCTION

The general organization of these farms shows little variation from those previously discussed (Tables 82, 83, and 84). Income per farm is relatively high and income per crop acre is better than the usual income of the special dairy areas. Milk income per cow, as well as the quantity of milk sold per cow, is lower than in other areas of the west coast. A study of these farms grouped

Table 82.—SOURCES OF FARM INCOME ON DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE PUGET SOUND-COASTAL AREA: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	12,321	372	2,576	3,252	2,564	2,567	990
Gross sales:							
Per farm.....dollars..	7,273	36,356	14,549	7,339	3,600	1,843	785
Per crop acre.....do..	133	186	165	137	85	63	46
Percent of gross sales from dairy products.....	91	84	87	87	79	74	75
Sales per farm:							
Milk.....dollars..	6,167	30,589	12,616	6,353	2,856	1,373	585
Cattle and calves.....do..	543	2,890	886	504	387	255	102
Hogs.....do..	29	47	49	18	33	22	8
Poultry products except eggs.....dollars..	21	18	40	21	18	12	4
Eggs.....do..	119	231	172	156	101	54	29
Sheep.....do..	15	83	16	20	7	10	2
Other livestock and livestock products.....dollars..	9	45	12	7	7	7	3
Total, livestock and livestock products.....dollars..	6,908	33,903	13,791	7,084	3,409	1,733	733
Field crops.....do..	167	1,210	321	111	109	45	18
Other crops ¹.....do..	131	850	317	80	40	38	17
Total crops.....do..	298	2,060	638	191	149	83	35

¹ Includes horticultural and forest products.

Table 83.—SPECIFIED FARM EXPENDITURES ON DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE PUGET SOUND-COASTAL AREA: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	12,321	372	2,576	3,252	2,564	2,567	990
Average per farm:							
Machine hire.....dollars..	145	411	245	149	113	76	35
Hired labor.....do..	543	5,804	1,122	312	138	93	33
Feed.....do..	2,086	8,148	4,017	2,226	1,173	680	406
Gas and oil.....do..	285	1,146	501	288	203	111	60
Fertilizer.....do..	114	486	247	102	64	28	9
Lime.....do..	17	71	35	14	9	7	2
Total.....do..	3,190	16,066	6,167	3,091	1,700	975	545
Average per crop acre:							
Machine hire.....do..	3	2	3	3	3	3	2
Hired labor.....do..	10	30	13	6	3	3	2
Feed.....do..	38	42	45	41	28	23	24
Gas and oil.....do..	5	6	6	5	5	4	4
Fertilizer.....do..	2	2	3	2	2	1	1
Lime.....do..	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
Total.....do..	58	82	70	57	41	34	33

Z Less than 0.50.

by economic class repeats the story of other areas. The smaller the farm the less the operator receives for the use of resources. Operators of small farms apparently must accept small incomes and only a few of the amenities of living if they depend altogether on the farms for their incomes.

Table 84.—MEASURES OF INCOME AND EFFICIENCY LEVELS FOR DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE PUGET SOUND-COASTAL AREA: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	12,321	372	2,576	3,252	2,564	2,567	990
Gross sales per farm.....dollars..	7,273	36,356	14,549	7,339	3,600	1,843	785
Specified expenses per farm.....do..	3,190	16,066	6,167	3,091	1,700	975	545
Gross sales less specified expenses per farm.....dollars..	4,083	20,290	8,382	4,248	1,900	868	240
Gross sales per man-equivalent.....	5,595	10,093	8,079	5,444	3,325	2,137	903
Total investment per farm.....dollars..	34,797	112,839	57,655	34,443	25,835	20,111	13,796
Per man-equivalent.....do..	26,767	31,344	32,031	24,602	23,496	22,346	15,329
Per \$100 gross sales.....do..	477	310	398	472	718	1,117	1,724
Percent of sales of dairy products from cream.....	.02	(Z)	.01	.01	.04	.08	.16
Milk sales per cow:							
Dollars.....	288	377	333	281	202	165	126
Pounds (milk equivalent).....	7,031	8,271	7,668	7,076	5,617	5,249	4,144

Z Less than 0.5.

The number of farmers using fertilizers compares favorably with the Inner Valley of California, but the quantity applied per acre is less (Table 85). The rate of application on the treated land bears little relation to size or economic class, in the use of either fertilizer or lime.

Table 85.—USE OF FERTILIZER AND LIME ON DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR THE PUGET SOUND-COASTAL AREA: 1954

Item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Number of farms.....	12,321	372	2,576	3,252	2,564	2,567	990
Fertilizer:							
Percent of farms using.....	44	59	61	53	37	31	15
Tons used per farm reporting.....	4	13	6	3	3	1	1
Acres upon which used per farm reporting.....	20	106	43	23	19	11	9
Average per acre fertilized:							
Pounds.....	262	237	273	255	275	253	244
Cost.....dollars..	8.85	8.85	9.32	8.62	9.53	8.22	6.67
Lime:							
Percent of farms using.....	8	22	13	10	6	5	3
Acres upon which used per farm reporting.....	15	29	17	13	11	11	4
Average per acre limed:							
Pounds.....	2,700	2,380	3,100	2,460	2,460	2,620	2,480
Cost.....dollars..	13.27	11.20	16.03	10.92	12.79	13.38	14.24

APPENDIX

DAIRY PRODUCTS AND PRICE SUPPORTS

The purchase and removal of dairy products from regular market channels under the program to support prices to producers for milk and butterfat have been in process since early 1949. During 1949 the program was carried out under the Agricultural Act of 1948 which required the support of prices to producers for milk and butterfat at 90 percent of parity.

The authority for the current program is the Agricultural Act of 1949 as amended. Title II, Section 201 of the amended Act provides that "The Secretary is authorized and directed to make available * * * price support to producers for * * * tung nuts, honey, milk, butterfat, and the products of milk and butterfat. The price of whole milk, butterfat, and the products of such commodities, respectively, shall be supported at such level not in excess of 90 per centum nor less than 75 per centum of the parity price therefore as the Secretary determines necessary in order to assure an adequate supply. Such price support shall be provided through loans on, or purchase of, milk and the products of milk and butterfat, and for the period ending March 31, 1956, surplus stocks of dairy products owned by the Commodity Credit Corporation may be disposed of by any methods determined necessary by the Secretary."

Dairy products acquired under the program have been offered for sale in domestic and export outlets to the extent possible without impairing the support program. In addition, Section 416 of the 1949 act, as amended, provides that "in order to prevent waste of commodities acquired through price-support operations by the Commodity Credit Corporation before they can be disposed of in normal domestic channels without impairment of the price-support program or sold abroad at competitive world prices, the Commodity Credit Corporation is authorized, on such terms and under such regulations as the Secretary may deem in the public interest: (1) to make such commodities available to any Federal Agency for use in making payment for commodities not produced in the United States; (2) to barter or exchange such commodities for strategic or other materials so authorized by law; (3) in the case of food commodities to donate such commodities to the Bureau of Indian Affairs and to such State, Federal, or private agency or agencies as may be designated by the proper State or Federal authority and approved by the Secretary, for use in the United States in nonprofit school-lunch programs, in the assistance of needy persons, and in charitable institutions, including hospitals, to the extent that needy persons are served; and (4) to donate any such food commodities in excess of anticipated disposition under (1), (2), and (3) above to nonprofit voluntary agencies registered with the Committee on Voluntary Foreign Aid of the Administration or other appropriate Department or agency of the Federal Government and intergovernmental organizations for use in the assistance of needy persons outside the United States." Section 202 of the Act also provides for the Commodity Credit Corporation to donate dairy products to hospitals of the Veterans' Administration and to military agencies for their increased use over and above the normal market purchases.

Total dairy products purchased under the program since early 1949 through March 31, 1956, were equivalent to 32,852,000,000 pounds of milk (Table 1). The amounts purchased each year ranged about one hundredth of one percent of the total milk production for the marketing year ending March 31, 1952, to 10 percent in 1953-54. The average yearly purchase was less than 4 percent of the average yearly production. Total quantities purchased to this date approximate one-fourth of the total milk production for 1 year.

Table 1.—MILK PRODUCTION AND PRICE SUPPORT PURCHASES, BY PROGRAM YEARS: 1949 TO 1956

Marketing year beginning Apr. 1 except as noted	Milk production	Purchases in million pounds				Total purchases in milk equivalent as percent of total production
		Butter	Cheddar cheese	Nonfat dry milk	Milk equivalent ¹	
	<i>Million pounds</i>					<i>Percent</i>
1949 ²	116,103	114.3	25.5	325.5	2,541	2.2
1950-51 ¹	142,465	127.9	108.9	352.7	3,647	2.6
1951-52.....	114,714	.2	.8	52.6	12	(Z)
1952-53.....	117,050	143.3	75.2	210.4	3,618	3.1
1953-54.....	121,761	380.2	466.0	665.9	12,164	9.9
1954-55.....	121,673	210.5	153.4	523.2	5,744	4.7
1955-56.....	125,180	177.6	157.4	623.7	5,126	4.1

Z Less than 0.5.

¹ Milk equivalent of butter and cheese purchases, fat solids basis (butter X20 and cheese X10). Milk equivalent of nonfat dry milk not included to avoid duplication with butter.

² Calendar year.

³ Data are for 15 months, Jan. 1950 to Mar. 31, 1951.

The total cost of these commodities consists of two items—the purchase price and the carrying charges. The yearly total cost varied from 9 million dollars for the marketing year ending March 31, 1952, to 453 million dollars in 1954 (Table 2). Practically one-half of the total cost over the 7 years was for butter bought while the remaining costs were fairly evenly divided between the purchases of cheese and nonfat dry milk.

Table 2.—COST OF DAIRY PRODUCTS ACQUIRED UNDER PRICE SUPPORTS PROGRAMS, BY YEARS: JAN. 1, 1949, TO MAR. 31, 1956

Item and period	Total purchases	Carrying charges	Total cost
	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>
By years:			
Jan. 1, 1949, to Dec. 31, 1949.....	116,795,546.53	7,421,511.68	124,217,058.21
Jan. 1, 1950, to Mar. 31, 1951.....	153,158,486.38	8,894,345.79	162,052,832.17
Apr. 1, 1951, to Mar. 31, 1952.....	8,304,187.03	792,740.54	9,096,927.57
Apr. 1, 1952, to Mar. 31, 1953.....	110,051,769.36	1,337,474.97	111,389,244.33
Apr. 1, 1953, to Mar. 31, 1954.....	432,697,611.01	19,983,351.45	452,680,962.46
Apr. 1, 1954, to Mar. 31, 1955.....	387,416,992.22	42,259,575.29	429,676,567.51
Apr. 1, 1955, to Mar. 31, 1956.....	201,817,946.86	45,353,343.94	247,171,290.80
Total.....	1,410,242,539.39	126,042,343.66	1,536,284,883.05
By product purchased (total, Jan. 1, 1949, to Mar. 31, 1956):			
Butter.....	707,546,704.64	50,175,152.66	757,721,857.30
Cheese.....	343,746,370.94	37,520,211.58	381,266,582.52
Nonfat dry milk.....	352,809,065.51	37,859,015.35	390,668,080.86
Whey.....	6,140,398.30	487,964.07	6,628,362.37
Total.....	1,410,242,539.39	126,042,343.66	1,536,284,883.05

It is a comparatively simple procedure to buy 3 or 4 percent of the dairy products of any 1 year. Its utilization in such a way as not to interfere with the regular flow to market of the remaining 96 or 97 percent of the products creates a problem with no simple solution.

Only limited quantities can usually be sold back to the domestic market or for commercial export without impairing the current support program or seriously depressing foreign markets. Donations or sales at low prices for domestic school lunch and welfare uses, for foreign welfare uses, and for increased military use have been the major outlets for dairy products acquired under the support program.

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The various dairy products differed considerably in rate of utilization through the different outlets. For example, whereas only 17.7 percent of all butter bought was moved through commercial sales channels, 24.9 percent of all cheese was so disposed of and 31.8 percent of nonfat dry milk (Table 3). Noncommercial sales of butter also were relatively small compared to the movement of cheese and nonfat dry milk. On the other hand donations of butter to both domestic and foreign recipients accounted for more than one-half of all purchases. The same holds for cheese, whereas only slightly more than one-third of all nonfat dry milk was so disposed of.

It is not surprising, rather it is to be expected, that transactions involving the movement of surplus products will show financial losses. The purchase of surplus products presupposes supplies in excess of the amounts the market will absorb at specified or given prices. And unless some production calamity overtakes the industry or special markets (and prices) develop because of some other type of calamity, such as war, these products ultimately must be moved into consumption channels at lower prices than those at which the commodities were taken off the market.

Table 3.—METHOD OF DISPOSITION OF DAIRY PRODUCTS BOUGHT:
JAN. 1, 1949, TO MAR. 31, 1956

Method of disposition	Butter	Cheese	Nonfat dry milk solids
	Percent	Percent	Percent
Total.....	100.0	100.0	100.0
Commercial sales.....	17.7	24.9	31.8
Noncommercial sales.....	4.1	11.5	20.1
Transfers to other agencies.....	21.7	8.7	3.2
Donations.....	56.5	54.9	35.9

The losses experienced in the sale of purchased dairy products were the lowest in 1951-52, the first full year of the "Korean Incident" (Table 4). The year of the largest loss was following the end of the "Korean Incident" when demand for the greater supplies dropped and market adjustments for producers were most severe. The total losses in handling surplus dairy products to the equivalent of nearly 33 billion pounds of milk amount to slightly more than 25 cents per hundredweight, or about 1 cent per hundredweight of milk produced.

Table 4.—METHOD OF DISPOSITION OF SUPPLIES BOUGHT, BY KIND OF DAIRY PRODUCT, BY CALENDAR YEARS: 1949 to 1956

Method of disposition	1949	1950	1951	1952	1953	1954	1955	1956	Total	1949-56 percent distribution
Butter (million pounds)										
Commercial domestic sales.....	2.6	113.3	26.8		3.7	21.4	2.7	0.9	171.4	14.9
Salvage.....					.3				.3	
Commercial sales exports.....						1.7	14.7	12.1	28.5	2.5
Noncommercial exports.....		5.5				11.4	28.6		43.5	3.8
Transfer to International Cooperation Administration.....						9.1	3.6	2.3	15.0	1.3
Transfer to sec. 32.....	15.0	4.2			71.0	36.0		37.1	163.3	14.1
Transfer to U. S. Army.....					16.1	29.7	41.4	5.6	91.8	7.9
Transfer to Veterans' Administration.....						.9	2.7	.7	4.3	.4
Donations—sec. 416, Domestic.....		36.4				77.2	95.1	1.4	210.1	18.2
Foreign.....		37.9			28.1	130.5	178.9	50.3	425.7	36.9
Total.....	17.6	197.3	26.8		118.2	317.9	365.7	110.4	1,153.9	100.0
Cheddar cheese (million pounds)										
Commercial domestic sales.....		25.7	7.9	1.1	5.3	119.9	8.7	0.6	169.2	22.6
Exports.....						.3	4.0	3.7	8.0	1.1
Noncommercial exports.....		71.9	.8		.5		6.8		80.0	10.7
Transfer to International Cooperation Administration.....						4.1	16.0		20.1	2.6
Sec. 32.....					17.4	19.7		20.4	66.5	8.9
U. S. Army.....						1.3	2.2	.4	3.9	.5
Donations—sec. 416, Domestic.....		20.5				58.0	71.3		149.8	20.0
Foreign.....		8.5			14.3	78.9	118.0	32.1	251.8	33.6
Total.....		126.6	8.7	1.1	37.5	282.2	227.0	66.2	749.3	100.0
Unsold supplies, Mar. 31, 1956.....								228.2		
Nonfat dry milk (million pounds)										
Commercial domestic sales.....		30.8	31.5	19.5	0.1	4.4	1.3	0.4	88.0	3.2
Animal feed.....		10.0	17.5	7.4	2.5	578.3	15.6	6.4	637.7	23.6
Exports.....		2.7	5.9			2.2	89.0	25.2	125.0	4.6
Noncommercial exports.....		140.8	187.1	88.5	20.2	142.9	75.3		749.0	27.7
Transfer to International Cooperation Administration.....						11.6	15.5		27.1	1.0
Sec. 32.....	15.4	4.0	1.4	9.5	7.5	4.2		29.0	71.0	2.6
U. S. Army.....				5.9	6.8	1.1	.3	.1	13.2	.5
Donations—sec. 416, Domestic.....		12.4	11.0			56.5	71.3		151.2	5.6
Foreign.....		71.2	54.6		79.9	189.3	365.3	88.5	845.8	31.2
Research.....					.1		.1		.2	
Foreign Agriculture Service.....							.1		.1	
Total.....	156.2	318.2	205.4	62.5	196.1	986.5	633.8	149.6	2,708.3	100.0
Unsold supplies, Mar. 31, 1956.....								46.4		

The difference between the total quantities purchased and the total quantities disposed of after making allowance for stocks in inventory, may be attributed primarily to the fact that purchase contracts provide for a 2 percent tolerance with the result that the quantities delivered to the C. C. C. may be somewhat more or less than the contracted quantities.

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Table 5.—LOSSES OF COMMODITY CREDIT CORPORATION THROUGH MARKET OPERATIONS, BY KIND OF DAIRY PRODUCT, BY PROGRAM YEARS: 1949 to 1956

Program year ¹	Butter	Cheese	Milk	Whey	Fluid milk	Total losses
	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>
1949.....	34,275,417.02	5,132,692.48	29,072,061.02			68,480,170.52
1950-51.....	14,032,445.53	19,884,725.87	29,342,176.06			63,259,347.46
1951-52.....	² 8,021.51	² 11,089.84	764,099.47			744,988.12
1952-53.....	52,310,599.05	19,164,608.03	30,827,953.20			102,309,160.28
1953-54.....	198,183,219.45	88,687,290.04	94,320,010.14			381,090,519.63
1954-55.....	70,797,421.09	20,054,670.04	82,003,405.05	3,169,478.53	34,585,832.50	210,610,807.22
1955-56.....	10,698,323.79	407,690.13	30,421,754.61		11,122,578.61	64,710,347.14
Total.....	386,295,404.42	153,280,586.75	302,751,459.56	3,169,478.53	45,708,411.11	891,205,340.37

¹ Calendar year for 1949 and marketing year ending Mar. 31 for other years.² Gain.

Table 6.—PERCENT DISTRIBUTION OF DAIRY FARMS IN EACH ECONOMIC CLASS OF FARM GROUP, BY NUMBER OF MILK COWS, FOR MAJOR DAIRY REGIONS: 1954

Major dairy region and number of milk cows per farm	Percent distribution for each economic class of farm					
	Total	I	II	III	IV	VI
Northeastern Dairy Region						
Farms with—						
Under 5 cows.....	2			(Z)	1	5
5 to 9 cows.....	9		(Z)	1	6	44
10 to 14 cows.....	16	(Z)		20	32	34
15 to 19 cows.....	19	1	2	48	23	12
20 to 29 cows.....	29	5	21	23	2	4
30 to 49 cows.....	20	15	57	1		1
50 to 99 cows.....	5	58	19			
100 cows and over.....	(Z)	21	(Z)			
Total.....	100	100	100	100	100	100
Eastern Ohio-Western Pennsylvania Dairy Region						
Farms with—						
Under 5 cows.....	5		(Z)	(Z)	1	7
5 to 9 cows.....	22		(Z)	3	22	56
10 to 14 cows.....	28	2	3	23	47	29
15 to 19 cows.....	20	6	12	35	22	6
20 to 29 cows.....	18	4	43	34	8	1
30 to 49 cows.....	6	34	38	4	1	(Z)
50 to 99 cows.....	1	46	4	(Z)	(Z)	
100 cows and over.....	(Z)	9				
Total.....	100	100	100	100	100	100
Central Michigan-New York Lake Shore Dairy Region						
Farms with—						
Under 5 cows.....	4	1	(Z)	(Z)	1	9
5 to 9 cows.....	19		1	3	25	61
10 to 14 cows.....	24	4	2	23	46	25
15 to 19 cows.....	19	4	9	33	20	4
20 to 29 cows.....	21	5	37	35	7	1
30 to 49 cows.....	11	31	44	6	1	(Z)
50 to 99 cows.....	2	46	7	(Z)		
100 cows and over.....	(Z)	11	(Z)			
Total.....	100	100	100	100	100	100
Northern Lake Dairy Region						
Farms with—						
Under 5 cows.....	2		(Z)	(Z)	(Z)	4
5 to 9 cows.....	13		(Z)	1	9	43
10 to 14 cows.....	24	4	2	8	37	41
15 to 19 cows.....	25	5	5	28	37	10
20 to 29 cows.....	27	1	38	52	17	2
30 to 49 cows.....	8	20	47	11	1	1
50 to 99 cows.....	1	56	7	(Z)	(Z)	(Z)
100 cows and over.....	(Z)	14	(Z)			
Total.....	100	100	100	100	100	100
Northern Woods Dairy Region						
Farms with—						
Under 5 cows.....	6		1	1	1	4
5 to 9 cows.....	30		3	2	9	46
10 to 14 cows.....	32		3	11	42	40
15 to 19 cows.....	18		18	27	33	9
20 to 29 cows.....	12	16	35	48	14	1
30 to 49 cows.....	2	47	29	12	1	(Z)
50 to 99 cows.....	(Z)	34	10	(Z)		
100 cows and over.....	(Z)	3	1			
Total.....	100	100	100	100	100	100

Z Less than 0.5 percent.

FARMERS AND FARM PRODUCTION

Table 7.—PERCENT DISTRIBUTION OF DAIRY FARMS IN EACH ECONOMIC CLASS OF FARM GROUP, BY NUMBER OF MILK COWS, FOR SPECIAL DAIRY AREAS: 1954

Special dairy area and number of milk cows per farm		Percent distribution for each economic class of farm					
	Total	I	II	III	IV	V	VI
Subregion 54							
Farms with—							
Under 5 cows.....	9		2		1	3	30
5 to 9 cows.....	31			3	5	41	57
10 to 14 cows.....	25			3	30	42	10
15 to 19 cows.....	12			14	28	9	2
20 to 29 cows.....	13		14	42	28	5	1
30 to 49 cows.....	8	14	53	33	8		
50 to 99 cows.....	2	43	29	5	(Z)		
100 cows and over.....	(Z)	43	2	(Z)			
Total.....	100	100	100	100	100	100	100
Subregion 58							
Farms with—							
Under 5 cows.....	1				1	2	10
5 to 9 cows.....	3				1	21	40
10 to 14 cows.....	5			3	6	15	30
15 to 19 cows.....	15			5	31	29	
20 to 29 cows.....	30		13	34	37	25	20
30 to 49 cows.....	34		41	51	22	8	
50 to 99 cows.....	11	55	44	8	2		
100 cows and over.....	1	45	2				
Total.....	100	100	100	100	100	100	100
Subregions 73 and 82							
Farms with—							
Under 5 cows.....	10	13		1	2	5	29
5 to 9 cows.....	35		1	2	12	43	54
10 to 14 cows.....	28		3	12	39	35	14
15 to 19 cows.....	13		11	22	26	13	2
20 to 29 cows.....	10	13	26	42	19	4	1
30 to 49 cows.....	3	15	41	19	2	(Z)	(Z)
50 to 99 cows.....	1	41	16	2	(Z)		
100 cows and over.....	(Z)	18	2				
Total.....	100	100	100	100	100	100	100
Subregion 112							
Farms with—							
Under 5 cows.....	6				1	10	45
5 to 9 cows.....	30			4	31	67	47
10 to 14 cows.....	27	5	4	24	46	19	7
15 to 19 cows.....	15		9	33	15	3	
20 to 29 cows.....	14	15	37	32	6	1	1
30 to 49 cows.....	6	16	40	7	1	(Z)	
50 to 99 cows.....	2	53	9	(Z)			
100 cows and over.....	(Z)	12					
Total.....	100	100	100	100	100	100	100
Subregion 115							
Farms with—							
Under 5 cows.....	(Z)					50	
5 to 9 cows.....	(Z)					50	
10 to 14 cows.....	1		1		25		
15 to 19 cows.....	1			23	25		
20 to 29 cows.....	4		19	37	50		
30 to 49 cows.....	3		19				
50 to 99 cows.....	24	2	54	40			
100 cows and over.....	67	76	7				
Total.....	100	100	100	100	100	100	100
Subregion 116							
Farms with—							
Under 5 cows.....	3		(Z)	1	4	7	29
5 to 9 cows.....	8			1	7	40	45
10 to 14 cows.....	12		(Z)	5	28	34	13
15 to 19 cows.....	10		(Z)	11	25	12	3
20 to 29 cows.....	18		7	37	27	4	10
30 to 49 cows.....	24	4	43	41	7	1	
50 to 99 cows.....	18	45	46	4	1	1	
100 cows and over.....	7	51	2	(Z)			
Total.....	100	100	100	100	100	100	100
Subregions 118 and 119							
Farms with—							
Under 5 cows.....	9	4	1	1	3	13	58
5 to 9 cows.....	19		(Z)	2	19	56	37
10 to 14 cows.....	16		(Z)	0	40	24	4
15 to 19 cows.....	12	1		22	21	4	1
20 to 29 cows.....	21	3	22	49	14	2	
30 to 49 cows.....	17	15	55	16	3	1	
50 to 99 cows.....	5	55	18	(Z)	(Z)		
100 cows and over.....	1	22	1	(Z)			
Total.....	100	100	100	100	100	100	100

Z Less than 0.5 percent.

DAIRY PRODUCERS AND DAIRY PRODUCTION

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Table 8.—MEASURE OF SIZE OF BUSINESS FOR DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR MAJOR DAIRY REGIONS: 1954

Major dairy region and item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Northeastern Dairy Region							
Number of farms.....	67,521	1,215	12,525	24,658	19,447	7,965	1,711
Average per farm:							
All land in farms.....acres..	218	505	323	222	167	131	115
Cropland harvested.....do..	70	197	110	72	51	35	27
Total investment.....dollars..	23,348	80,128	37,759	23,399	16,383	12,625	9,347
Land and buildings.....do..	13,781	51,435	22,342	13,731	9,530	7,662	6,035
Machinery and equipment.....do..	4,889	13,915	7,674	4,862	3,647	2,780	1,757
Livestock.....do..	4,678	14,778	7,743	4,806	3,206	2,183	1,555
Man-equivalent of labor.....	1.5	5.3	2.2	1.5	1.1	0.9	0.9
Number of milk cows.....	24	75	39	24	16	10	7
Animal units.....	32	101	52	33	22	15	10
Eastern Ohio-Western Pennsylvania Dairy Region							
Number of farms.....	40,636	258	4,432	12,439	12,911	7,055	3,541
Average per farm:							
All land in farms.....acres..	153	456	243	172	133	115	94
Cropland harvested.....do..	62	198	122	76	51	35	21
Total investment.....dollars..	23,137	80,978	46,358	27,723	19,143	13,764	8,508
Land and buildings.....do..	15,112	55,326	31,303	18,154	12,259	8,839	5,647
Machinery and equipment.....do..	4,706	13,619	8,655	5,572	4,135	2,967	1,627
Livestock.....do..	3,319	12,033	6,400	3,997	2,749	1,958	1,234
Man-equivalent of labor.....	1.4	4.4	2.2	1.5	1.3	1.0	1.0
Number of milk cows.....	15	55	29	18	13	9	6
Animal units.....	24	88	46	29	20	15	10
Central Michigan-New York Lake Shore Dairy Region							
Number of farms.....	35,605	551	6,925	12,068	9,286	5,175	1,600
Average per farm:							
All land in farms.....acres..	157	457	243	162	118	94	72
Cropland harvested.....do..	87	274	148	92	61	39	23
Total investment.....dollars..	23,792	113,217	55,999	33,703	22,274	16,031	11,400
Land and buildings.....do..	15,212	85,052	40,588	23,587	14,986	10,913	8,054
Machinery and equipment.....do..	5,897	14,996	8,884	6,234	4,705	3,414	2,256
Livestock.....do..	3,759	13,169	6,527	3,882	2,583	1,704	1,090
Man-equivalent of labor.....	1.3	4.2	1.8	1.4	1.1	0.9	0.9
Number of milk cows.....	18	59	31	19	12	8	5
Animal units.....	28	93	48	29	19	13	8
Northern Lake Dairy Region							
Number of farms.....	124,501	425	10,548	41,266	46,789	20,843	4,630
Average per farm:							
All land in farms.....acres..	157	483	240	176	142	116	95
Cropland harvested.....do..	74	287	137	89	63	43	29
Total investment.....dollars..	24,169	106,500	48,308	29,208	19,754	13,414	9,594
Land and buildings.....do..	15,212	74,200	32,207	18,412	12,073	8,102	6,088
Machinery and equipment.....do..	4,797	14,429	8,206	5,622	4,243	3,086	2,133
Livestock.....do..	4,160	17,871	7,895	5,174	3,438	2,226	1,373
Man-equivalent of labor.....	1.4	4.5	2.0	1.6	1.4	1.1	1.0
Number of milk cows.....	18	69	31	22	15	10	6
Animal units.....	30	123	66	37	25	16	10
Northern Woods Dairy Region							
Number of farms.....	28,001	32	385	3,294	9,465	10,820	4,005
Average per farm:							
All land in farms.....acres..	186	461	407	271	203	162	117
Cropland harvested.....do..	57	207	147	94	63	46	30
Total investment.....dollars..	15,388	60,537	37,618	25,954	16,944	12,465	8,608
Land and buildings.....do..	8,959	36,953	22,513	15,844	9,763	7,106	5,063
Machinery and equipment.....do..	3,694	11,476	8,321	5,442	4,073	3,193	2,208
Livestock.....do..	2,735	12,108	6,784	4,608	3,108	2,166	1,337
Man-equivalent of labor.....	1.3	4.4	2.3	1.6	1.4	1.2	1.1
Number of milk cows.....	13	50	29	21	15	10	6
Animal units.....	20	89	49	35	23	16	10

Table 9.—FARM LABOR FORCE ON DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR MAJOR DAIRY REGIONS: 1954

Major dairy region and item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Northeastern Dairy Region							
Number of farms.....	67,521	1,215	12,525	24,658	19,447	7,965	1,711
Average per farm:							
Family labor.....	1.1	1.0	1.2	1.2	1.0	0.8	0.9
Operator.....	.7	.7	.8	.8	.7	.5	.7
Other.....	.4	.3	.4	.4	.3	.3	.2
Hired labor.....	.4	4.3	1.0	.3	.1	.1	(Z)
Man-equivalent per farm.....	1.5	5.3	2.2	1.5	1.1	.9	.9
Crop acres per man-equivalent.....	62	50	66	63	62	57	48
Value of all farm products sold per man-equivalent.....dollars..	4,837	6,846	6,446	4,775	3,463	2,228	1,003
Number of milk cows per man-equivalent.....	16	14	18	17	14	12	8
Eastern Ohio-Western Pennsylvania Dairy Region							
Number of farms.....	40,636	258	4,432	12,439	12,911	7,055	3,541
Average per farm:							
Family labor.....	1.2	1.3	1.3	1.2	1.2	.9	1.0
Operator.....	.7	.8	.8	.8	.7	.5	.7
Other.....	.5	.5	.5	.4	.5	.4	.3
Hired labor.....	.2	3.1	.9	.3	.1	.1	(Z)
Man-equivalent per farm.....	1.4	4.4	2.2	1.5	1.3	1.0	1.0
Crop acres per man-equivalent.....	56	58	66	63	50	49	33
Value of all farm products sold per man-equivalent.....dollars..	3,849	6,081	6,117	4,600	2,892	1,883	751
Number of milk cows per man-equivalent.....	11	13	13	12	10	8	6
Central Michigan-New York Lake Shore Dairy Region							
Number of farms.....	35,605	551	6,925	12,068	9,286	5,175	1,600
Average per farm:							
Family labor.....	1.0	1.1	1.2	1.2	1.0	.9	.9
Operator.....	.7	.8	.8	.8	.7	.5	.7
Other.....	.3	.3	.4	.4	.3	.3	.2
Hired labor.....	.3	3.1	.6	.2	.1	(Z)	(Z)
Man-equivalent per farm.....	1.3	4.2	1.8	1.4	1.1	.9	.9
Crop acres per man-equivalent.....	88	82	103	86	76	67	43
Value of all farm products sold per man-equivalent.....dollars..	5,393	8,250	7,825	5,120	3,455	2,121	929
Number of milk cows per man-equivalent.....	14	14	17	14	11	9	6
Northern Lake Dairy Region							
Number of farms.....	124,501	425	10,548	41,266	46,789	20,843	4,630
Average per farm:							
Family labor.....	1.2	1.3	1.4	1.4	1.3	1.1	1.1
Operator.....	.7	.7	.9	.9	.8	.8	.8
Other.....	.5	.6	.5	.5	.5	.3	.3
Hired labor.....	.2	3.2	.6	.2	.1	(Z)	(Z)
Man-equivalent per farm.....	1.4	4.5	2.0	1.6	1.4	1.1	1.0
Crop acres per man-equivalent.....	66	80	84	68	56	50	40
Value of all farm products sold per man-equivalent.....dollars..	3,785	7,616	6,616	4,324	2,689	1,749	851
Number of milk cows per man-equivalent.....	13	15	16	14	11	9	6
Northern Woods Dairy Region							
Number of farms.....	28,001	32	385	3,294	9,465	10,820	4,005
Average per farm:							
Family labor.....	1.2	1.2	1.4	1.4	1.3	1.2	1.1
Operator.....	.7	.8	.8	.8	.8	.7	.8
Other.....	.5	.4	.6	.6	.5	.5	.3
Hired labor.....	.1	3.2	.9	.2	.1	(Z)	(Z)
Man-equivalent per farm.....	1.3	4.4	2.3	1.6	1.4	1.2	1.1
Crop acres per man-equivalent.....	59	68	85	77	60	53	40
Value of all farm products sold per man-equivalent.....dollars..	2,307	8,209	5,433	4,091	2,499	1,541	755
Number of milk cows per man-equivalent.....	10	11	13	13	11	8	6

Z Less than 0.5.

FARMERS AND FARM PRODUCTION

Table 10.—FARM MECHANIZATION AND HOME CONVENIENCES ON DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR MAJOR DAIRY REGIONS: 1954

Major dairy region and item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Northeastern Dairy Region							
Average number per farm:							
Automobiles.....	1	3	2	1	1	1	1
Tractors.....	1	3	2	1	1	1	1
Motortrucks.....	1	2	1	1	1	(Z)	(Z)
Field forage harvesters.....	(Z)	1	(Z)	(Z)	(Z)	(Z)	(Z)
Pick-up hay balers.....	(Z)	1	1	(Z)	(Z)	(Z)	(Z)
Corn pickers.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
Grain combines.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
Power feed grinders.....	1	1	1	1	1	1	1
Milking machines.....	1	1	1	1	1	1	1
Percent of farms reporting:							
Automobiles.....	84	98	93	86	80	77	63
Tractors.....	89	98	98	95	86	71	47
Motortrucks.....	62	94	83	65	53	44	27
Field forage harvesters.....	17	76	44	16	5	2	1
Pick-up hay balers.....	35	85	65	41	19	7	3
Corn pickers.....	3	12	8	2	1	(Z)	1
Grain combines.....	13	40	25	14	7	3	1
Power feed grinders.....	8	24	13	8	6	4	6
Milking machines.....	90	98	98	96	89	69	34
Eastern Ohio-Western Pennsylvania Dairy Region							
Average number per farm:							
Automobiles.....	1	3	2	1	1	1	1
Tractors.....	1	3	2	2	1	1	1
Motortrucks.....	1	2	1	1	1	(Z)	(Z)
Field forage harvesters.....	(Z)	1	(Z)	(Z)	(Z)	(Z)	(Z)
Pick-up hay balers.....	(Z)	1	1	(Z)	(Z)	(Z)	(Z)
Corn pickers.....	(Z)	1	1	(Z)	(Z)	(Z)	(Z)
Grain combines.....	(Z)	1	1	(Z)	(Z)	(Z)	(Z)
Power feed grinders.....	1	1	1	1	1	1	1
Milking machines.....	1	1	1	1	1	1	1
Percent of farms reporting:							
Automobiles.....	82	94	95	87	83	77	55
Tractors.....	86	100	98	95	89	76	43
Motortrucks.....	53	92	79	61	50	39	26
Field forage harvesters.....	12	66	41	16	5	2	1
Pick-up hay balers.....	33	83	71	47	25	11	3
Corn pickers.....	21	72	50	30	15	7	2
Grain combines.....	27	74	60	39	20	10	3
Power feed grinders.....	29	69	48	37	25	18	9
Milking machines.....	72	94	96	90	76	46	12
Central Michigan-New York Lake Shore Dairy Region							
Average number per farm:							
Automobiles.....	1	3	2	1	1	1	1
Tractors.....	2	4	3	2	1	1	1
Motortrucks.....	1	2	1	1	1	(Z)	(Z)
Field forage harvesters.....	(Z)	1	1	(Z)	(Z)	(Z)	(Z)
Pick-up hay balers.....	(Z)	1	1	(Z)	(Z)	(Z)	(Z)
Corn pickers.....	(Z)	1	1	(Z)	(Z)	(Z)	(Z)
Grain combines.....	1	1	1	1	(Z)	(Z)	(Z)
Power feed grinders.....	1	1	1	1	1	1	1
Milking machines.....	1	1	1	1	1	1	1
Percent of farms reporting:							
Automobiles.....	92	98	97	94	89	86	76
Tractors.....	95	99	98	98	96	89	68
Motortrucks.....	55	95	78	60	48	34	23
Field forage harvesters.....	23	73	52	24	10	3	1
Pick-up hay balers.....	34	80	60	41	21	9	4
Corn pickers.....	28	64	55	33	15	6	2
Grain combines.....	50	85	74	60	40	20	8
Power feed grinders.....	25	56	42	28	18	10	8
Milking machines.....	83	98	98	94	81	56	23
Northern Lake Dairy Region							
Average number per farm:							
Automobiles.....	1	3	2	1	1	1	1
Tractors.....	2	4	2	2	1	1	1
Motortrucks.....	1	2	1	1	(Z)	(Z)	(Z)
Field forage harvesters.....	(Z)	1	1	(Z)	(Z)	(Z)	(Z)
Pick-up hay balers.....	(Z)	1	(Z)	(Z)	(Z)	(Z)	(Z)
Corn pickers.....	(Z)	1	(Z)	(Z)	(Z)	(Z)	(Z)
Grain combines.....	(Z)	1	1	(Z)	(Z)	(Z)	(Z)
Power feed grinders.....	1	1	1	1	1	1	1
Milking machines.....	1	1	1	1	1	1	1
Percent of farms reporting:							
Automobiles.....	93	97	98	96	93	89	78
Tractors.....	94	100	98	97	96	87	65
Motortrucks.....	50	88	84	63	43	28	19
Field forage harvesters.....	20	76	54	30	12	3	1
Pick-up hay balers.....	18	66	42	25	13	5	2
Corn pickers.....	17	72	49	24	11	4	2
Grain combines.....	21	63	52	30	15	6	3
Power feed grinders.....	22	47	40	28	19	11	6
Milking machines.....	82	99	98	96	84	52	19

Table 10.—FARM MECHANIZATION AND HOME CONVENIENCES ON DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR MAJOR DAIRY REGIONS: 1954—Continued

Major dairy region and item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Northern Woods Dairy Region							
Average number per farm:							
Automobiles.....	1	2	2	1	1	1	1
Tractors.....	1	3	2	2	1	1	1
Motortrucks.....	(Z)	2	1	1	1	(Z)	(Z)
Field forage harvesters.....	(Z)	1	(Z)	(Z)	(Z)	(Z)	(Z)
Pick-up hay balers.....	(Z)	1	1	(Z)	(Z)	(Z)	(Z)
Corn pickers.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
Grain combines.....	(Z)	1	(Z)	(Z)	(Z)	(Z)	(Z)
Power feed grinders.....	1	1	1	1	1	1	1
Milking machines.....	1	1	1	1	1	1	1
Percent of farms reporting:							
Automobiles.....	85	100	94	92	86	85	74
Tractors.....	91	100	97	97	96	90	72
Motortrucks.....	42	100	83	62	47	35	26
Field forage harvesters.....	7	84	38	24	7	2	(Z)
Pick-up hay balers.....	17	69	60	38	21	11	4
Corn pickers.....	3	16	19	8	2	1	1
Grain combines.....	14	69	43	31	17	10	3
Power feed grinders.....	20	53	39	33	23	16	9
Milking machines.....	62	100	94	95	80	50	17

Z Less than 0.5.

Table 11.—DISTRIBUTION OF OPERATORS OF DAIRY FARMS IN EACH ECONOMIC CLASS, BY AGE, FOR MAJOR DAIRY REGIONS: 1954

Major dairy region and age of operator	Percent distribution for each economic class of farm						
	Total	I	II	III	IV	V	VI
Northeastern Dairy Region							
Total.....	100	100	100	100	100	100	100
Under 25 years.....	2	1	2	3	2	1	1
25 to 34 years.....	13	14	14	15	12	9	4
35 to 44 years.....	23	21	26	24	21	22	8
45 to 54 years.....	25	30	27	25	25	23	16
55 to 65 years.....	21	23	20	20	23	21	24
65 years and over.....	16	11	11	13	17	24	47
Eastern Ohio-Western Pennsylvania Dairy Region							
Total.....	100	100	100	100	100	100	100
Under 25 years.....	2	2	2	2	2	1	1
25 to 34 years.....	13	6	17	17	13	10	4
35 to 44 years.....	23	25	26	27	24	21	10
45 to 54 years.....	24	27	25	24	24	24	18
55 to 65 years.....	21	25	18	19	22	22	24
65 years and over.....	17	15	11	11	15	22	44
Central Michigan-New York Lake Shore Dairy Region							
Total.....	100	100	100	100	100	100	100
Under 25 years.....	2	2	2	2	2	1	1
25 to 34 years.....	13	24	20	15	11	8	2
35 to 44 years.....	24	20	27	27	23	18	5
45 to 54 years.....	24	25	24	27	24	23	12
55 to 65 years.....	21	20	19	19	23	25	25
65 years and over.....	16	10	8	10	17	24	55
Northern Lake Dairy Region							
Total.....	100	100	100	100	100	100	100
Under 25 years.....	2	1	2	2	2	1	2
25 to 34 years.....	16	15	21	20	15	11	5
35 to 44 years.....	25	23	30	30	25	19	9
45 to 54 years.....	26	25	25	25	27	20	10
55 to 65 years.....	20	30	17	18	20	25	31
65 years and over.....	11	6	5	7	10	18	37
Northern Woods Dairy Region							
Total.....	100	100	100	100	100	100	100
Under 25 years.....	1	1	1	2	1	1	1
25 to 34 years.....	12	19	17	17	13	12	4
35 to 44 years.....	24	16	22	29	28	25	10
45 to 54 years.....	23	19	18	23	27	23	17
55 to 65 years.....	22	16	23	18	20	22	29
65 years and over.....	18	30	20	11	11	17	39

Table 12.—LAND USE ON DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR MAJOR DAIRY REGIONS: 1954

Major dairy region and item	Economic class of farm							Major dairy region and item	Economic class of farm							
	Total	I	II	III	IV	V	VI		Total	I	II	III	IV	V	VI	
Northeastern Dairy Region																
Number of farms.....	67,521	1,215	12,525	24,658	19,447	7,965	1,711	Central Michigan-New York Lake Shore Dairy Region—Continued								
Average per farm—Continued																
Total cropland.....acres..	114	343	186	120	84	60	43	Total cropland.....acres..	114	343	186	120	84	60	43	
Total pasture.....do.....	46	123	65	46	37	34	30	Total pasture.....do.....	46	123	65	46	37	34	30	
Percent of cropland harvested in:																
Corn for all purposes.....percent..	28	31	31	28	26	26	20	Corn for all purposes.....percent..	28	31	31	28	26	26	20	
Corn for grain.....do.....	19	21	20	18	17	18	16	Corn for grain.....do.....	19	21	20	18	17	18	16	
Small grains.....do.....	31	30	30	32	31	29	24	Small grains.....do.....	31	30	30	32	31	29	24	
All hay.....do.....	35	34	33	34	38	41	51	All hay.....do.....	35	34	33	34	38	41	51	
Other crops.....do.....	6	5	6	6	5	4	5	Other crops.....do.....	6	5	6	6	5	4	5	
Northern Lake Dairy Region																
Number of farms.....	124,501	425	10,548	41,266	46,789	20,843	4,630	Average per farm:								
All land in farms.....acres..																
Cropland harvested.....do.....	157	483	240	176	142	116	95	Cropland harvested.....do.....	157	483	240	176	142	116	95	
Cropland pastured.....do.....	74	287	137	89	63	43	29	Cropland pastured.....do.....	74	287	137	89	63	43	29	
Cropland not harvested and not pastured.....acres.....	15	69	28	18	12	9	7	Cropland not harvested and not pastured.....acres.....	15	69	28	18	12	9	7	
Total cropland.....do.....	92	361	168	109	77	55	40	Total cropland.....do.....	92	361	168	109	77	55	40	
Total pasture.....do.....	59	151	74	63	56	50	44	Total pasture.....do.....	59	151	74	63	56	50	44	
Percent of cropland harvested in:																
Corn for all purposes.....percent..	27	37	32	28	25	22	20	Corn for all purposes.....percent..	27	37	32	28	25	22	20	
Corn for grain.....do.....	14	24	20	15	12	10	11	Corn for grain.....do.....	14	24	20	15	12	10	11	
Small grains.....do.....	32	29	31	33	32	29	26	Small grains.....do.....	32	29	31	33	32	29	26	
All hay.....do.....	38	32	32	36	40	46	53	All hay.....do.....	38	32	32	36	40	46	53	
Other crops.....do.....	3	2	5	3	3	3	1	Other crops.....do.....	3	2	5	3	3	3	1	
Northern Woods Dairy Region																
Number of farms.....	28,001	32	385	3,294	9,465	10,820	4,005	Average per farm:								
All land in farms.....acres..																
Cropland harvested.....do.....	186	461	407	271	203	162	117	Cropland harvested.....do.....	186	461	407	271	203	162	117	
Cropland pastured.....do.....	57	207	147	94	63	46	30	Cropland pastured.....do.....	57	207	147	94	63	46	30	
Cropland not harvested and not pastured.....acres.....	16	58	38	25	16	14	10	Cropland not harvested and not pastured.....acres.....	16	58	38	25	16	14	10	
Total cropland.....do.....	78	298	195	123	83	65	44	Total cropland.....do.....	78	298	195	123	83	65	44	
Total pasture.....do.....	81	190	149	113	90	72	51	Total pasture.....do.....	81	190	149	113	90	72	51	
Percent of cropland harvested in:																
Corn for all purposes.....percent..	11	18	13	13	11	9	8	Corn for all purposes.....percent..	11	18	13	13	11	9	8	
Corn for grain.....do.....	4	5	5	5	4	3	4	Corn for grain.....do.....	4	5	5	5	4	3	4	
Small grains.....do.....	21	17	27	24	22	19	14	Small grains.....do.....	21	17	27	24	22	19	14	
All hay.....do.....	65	53	55	58	63	70	74	All hay.....do.....	65	53	55	58	63	70	74	
Other crops.....do.....	3	12	6	5	4	2	4	Other crops.....do.....	3	12	6	5	4	2	4	

Table 13.—AVERAGE NUMBER OF LIVESTOCK PER FARM FOR DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR MAJOR DAIRY REGIONS: 1954

Major dairy region and item	Economic class of farm							Major dairy region and item	Economic class of farm							
	Total	I	II	III	IV	V	VI		Total	I	II	III	IV	V	VI	
Northeastern Dairy Region								Central Michigan-New York Lake Shore Dairy Region—Continued								
Number of farms.....	67,521	1,215	12,525	24,658	19,447	7,965	1,711	Average number per farm—Con.								
Average number per farm:								Hogs and pigs.....	6	28	14	6	3	2	2	
All cattle and calves.....	38	121	63	39	26	18	12	Chickens 4 months old and over.....	88	123	115	101	75	55	38	
Cows and heifers.....	24	76	39	25	16	10	7	Sheep and lambs.....	2	6	4	3	1	1	1	
Milk cows.....	24	75	39	24	16	10	7	Ewes 1 year old and over.....	1	4	2	2	1	(Z)	(Z)	
Hogs and pigs.....	1	2	1	1	1	1	1	Northern Lake Dairy Region								
Chickens 4 months old and over.....	53	165	100	52	31	22	21	Number of farms.....	124,501	425	10,548	41,266	46,789	20,843	4,630	
Sheep and lambs.....	1	3	1	1	1	1	1	Average number per farm:								
Ewes 1 year old and over.....	1	2	1	1	(Z)	(Z)	(Z)	All cattle and calves.....	32	132	57	39	27	18	11	
Eastern Ohio-Western Pennsylvania Dairy Region								Cows and heifers.....	18	70	32	22	15	10	6	
Number of farms.....	40,636	258	4,432	12,439	12,911	7,055	3,541	Milk cows.....	18	69	31	22	15	10	6	
Average number per farm:								Hogs and pigs.....	13	69	35	18	9	4	2	
All cattle and calves.....	27	102	52	32	23	16	10	Chickens 4 months old and over.....	109	200	175	138	96	60	39	
Cows and heifers.....	16	56	29	19	13	9	6	Sheep and lambs.....	2	12	3	2	1	1	1	
Milk cows.....	15	55	29	18	13	9	6	Ewes 1 year old and over.....	1	8	2	1	1	1	1	
Hogs and pigs.....	6	24	12	7	4	4	3	Northern Woods Dairy Region								
Chickens 4 months old and over.....	96	183	187	123	74	52	42	Number of farms.....	28,001	32	385	3,294	9,465	10,820	4,005	
Sheep and lambs.....	3	7	3	3	3	3	2	Average number per farm:								
Ewes 1 year old and over.....	2	4	2	2	2	2	1	All cattle and calves.....	24	109	60	42	28	19	12	
Central Michigan-New York Lake Shore Dairy Region								Cows and heifers.....	13	55	30	22	15	10	6	
Number of farms.....	35,605	551	6,925	12,068	9,286	5,175	1,600	Milk cows.....	13	50	29	21	15	10	6	
Average number per farm:								Hogs and pigs.....	2	4	6	4	3	2	1	
All cattle and calves.....	32	109	55	33	22	15	9	Chickens 4 months old and over.....	38	102	79	62	42	31	24	
Cows and heifers.....	18	59	31	19	13	8	6	Sheep and lambs.....	2	24	9	4	2	2	1	
Milk cows.....	18	59	31	19	12	8	5	Ewes 1 year old and over.....	1	14	5	2	1	1	(Z)	

Z Less than 0.5.

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Table 14.—AVERAGE SALES OF DAIRY PRODUCTS PER COW AND DISTRIBUTION OF THE SALES OF DAIRY PRODUCTS, BY ECONOMIC CLASS OF FARM, FOR SPECIAL DAIRY AREAS: 1954

Special dairy area and item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Subregion 54							
Dairy products sold per cow, total.....dollars.....	139	257	213	175	122	101	77
Whole milk.....pounds of milk equivalent.....	3,979	7,407	4,963	4,385	3,930	3,276	2,708
Cream.....dollars.....	138	257	213	175	122	100	74
.....do.....	1				1	1	3
Percent distribution of products sold by economic class:							
All dairy products.....do.....	100.0	6.5	17.2	20.7	22.0	18.7	5.9
Whole milk.....pounds of milk.....	100.0	6.6	14.0	26.1	24.8	21.2	7.3
Whole milk.....dollars.....	100.0	6.5	17.3	29.9	22.0	18.6	5.7
Cream.....do.....	100.0				19.7	30.9	49.4
Average value of milk per cwt. sold.....do.....	3.49	3.46	4.35	3.95	3.07	3.24	2.92
Subregion 58							
Dairy products sold per cow, total.....dollars.....	198	316	246	195	148	95	61
Whole milk.....pounds of milk equivalent.....	3,671	4,858	4,481	3,631	2,981	2,122	1,040
Cream.....dollars.....	198	314	246	195	148	95	61
.....do.....	(Z)	1		(Z)	1		
Percent distribution of products sold by economic class:							
All dairy products.....do.....	100.0	10.3	31.8	36.0	19.4	2.3	0.2
Whole milk.....pounds of milk.....	100.0	8.6	31.3	36.1	21.1	2.7	.2
Whole milk.....dollars.....	100.0	10.3	31.9	36.0	19.4	2.3	.1
Cream.....do.....	100.0	60.0		6.4	33.6		
Average value of milk per cwt. sold.....do.....	5.39	6.48	5.49	5.37	4.96	4.48	5.87
Subregions 73 and 82							
Dairy products sold per cow, total.....dollars.....	160	384	261	211	157	118	81
Whole milk.....pounds of milk equivalent.....	4,634	9,468	6,996	6,301	4,876	3,857	2,766
Cream.....dollars.....	149	384	260	210	156	117	78
.....do.....	1		1	1	1	1	3
Percent distribution of products sold by economic class:							
All dairy products.....do.....	100.0	2.4	11.6	22.7	29.1	26.1	8.1
Whole milk.....pounds of milk.....	100.0	1.9	10.1	22.0	29.3	27.7	9.0
Whole milk.....dollars.....	100.0	2.4	11.7	22.8	29.1	26.1	7.9
Cream.....do.....	100.0		1.3	2.3	22.7	32.5	41.2
Average value of milk per cwt. sold.....do.....	3.24	4.06	3.73	3.35	3.22	3.06	2.93
Subregion 112							
Dairy products sold per cow, total.....dollars.....	245	414	304	253	204	172	116
Whole milk.....pounds of milk equivalent.....	7,218	7,560	8,012	7,651	6,800	6,148	4,177
Cream.....dollars.....	243	410	303	252	202	169	113
.....do.....	2	4	1	1	2	3	3
Percent distribution of products sold by economic class:							
All dairy products.....do.....	100.0	8.4	24.3	34.6	22.8	8.9	1.0
Whole milk.....pounds of milk.....	100.0	5.2	21.7	35.4	25.7	10.7	1.3
Whole milk.....dollars.....	100.0	8.4	24.4	34.7	22.8	8.7	1.0
Cream.....do.....	100.0	13.1	13.4	21.2	24.0	24.1	4.2
Average value of milk per cwt. sold.....do.....	3.39	5.48	3.79	3.31	3.00	2.75	2.78
Subregion 115							
Dairy products sold per cow, total.....dollars.....	548	558	271	184	156	152	
Whole milk.....pounds of milk equivalent.....	11,112	11,279	6,258	5,158	4,479	4,496	
Cream.....dollars.....	548	558	271	184	156	152	
.....do.....	(Z)	(Z)					
Percent distribution of products sold by economic class:							
All dairy products.....do.....	100.0	98.7	1.0	.2	.1		(Z)
Whole milk.....pounds of milk.....	100.0	98.4	1.1	.4	.1		
Whole milk.....dollars.....	100.0	98.7	1.0	.2	.1		
Cream.....do.....	100.0	100.0					
Average value of milk per cwt. sold.....do.....	4.93	4.95	4.33	3.56	3.48	3.38	
Subregion 116							
Dairy products sold per cow, total.....dollars.....	273	348	256	215	181	148	98
Whole milk.....pounds of milk equivalent.....	7,643	8,729	7,643	6,836	5,852	4,776	3,185
Cream.....dollars.....	273	348	255	214	180	146	97
.....do.....	(Z)	(Z)	1	1	1	2	1
Percent distribution of products sold by economic class:							
All dairy products.....do.....	100.0	49.8	27.4	15.0	5.9	1.8	.1
Whole milk.....pounds of milk.....	100.0	44.7	29.2	17.1	6.8	2.1	.1
Whole milk.....dollars.....	100.0	40.9	27.3	15.0	5.9	1.8	.1
Cream.....do.....	100.0	10.0	51.7	14.9	13.0	9.1	.4
Average value of milk per cwt. sold.....do.....	3.57	3.99	3.35	3.15	3.09	3.10	3.08
Subregions 118 and 119							
Dairy products sold per cow, total.....dollars.....	288	377	333	281	202	165	126
Whole milk.....pounds of milk equivalent.....	7,031	8,271	7,668	7,072	5,617	5,249	4,144
Cream.....dollars.....	283	376	330	279	193	152	106
.....do.....	5	1	3	2	9	13	20
Percent distribution of products sold by economic class:							
All dairy products.....do.....	100.0	15.0	42.8	27.2	9.6	4.6	.8
Whole milk.....pounds of milk.....	100.0	13.5	40.4	28.1	11.0	6.0	1.0
Whole milk.....dollars.....	100.0	15.2	43.0	27.4	9.4	4.4	.6
Cream.....do.....	100.0	2.1	28.2	13.7	25.6	22.5	7.9
Average value of milk per cwt. sold.....do.....	4.10	4.56	4.34	3.97	3.60	3.14	3.04

Z Less than 0.5.

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Table 15.—AVERAGE SALES OF DAIRY PRODUCTS PER COW AND DISTRIBUTION OF THE SALES OF DAIRY PRODUCTS, BY ECONOMIC CLASS OF FARM, FOR MAJOR DAIRY REGIONS: 1954

Major dairy region and item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Northeastern Dairy Region							
Dairy products sold per cow, total.....dollars	264	405	309	254	204	190	89
.....pounds of milk equivalent	6,526	8,036	7,549	6,441	5,861	4,361	2,782
Whole milk.....dollars	263	403	309	254	204	157	78
Cream.....do	1	2	(Z)	(Z)	(Z)	3	11
Percent distribution of products sold by economic class:							
All dairy products.....do	100.0	8.8	36.2	36.4	15.2	3.1	.3
.....pounds of milk	100.0	7.1	35.7	37.3	16.1	3.5	.3
Whole milk.....dollars	100.0	8.9	36.2	36.4	15.2	3.1	.2
Cream.....do	100.0	17.7	8.8	21.3	9.3	27.8	15.1
Average value of milk per cwt. sold.....do	4.04	5.04	4.10	3.94	3.81	3.67	3.20
Eastern Ohio-Western Pennsylvania Dairy Region							
Dairy products sold per cow, total.....dollars	251	423	328	289	213	143	82
.....pounds of milk equivalent	6,298	9,110	7,718	6,696	5,593	4,200	3,082
Whole milk.....dollars	249	420	327	268	211	139	59
Cream.....do	2	3	1	1	2	4	23
Percent distribution of products sold by economic class:							
All dairy products.....do	100.0	3.9	26.8	39.7	22.7	5.8	1.1
.....pounds of milk	100.0	3.3	25.2	39.4	23.8	6.7	1.6
Whole milk.....dollars	100.0	3.9	27.0	40.0	22.7	5.6	.8
Cream.....do	100.0	3.6	2.6	13.4	20.5	23.9	36.0
Average value of milk per cwt. sold.....do	3.98	4.65	4.25	4.02	3.81	3.41	2.67
Central Michigan-New York Lake Shore Dairy Region							
Dairy products sold per cow, total.....dollars	269	383	302	256	205	147	98
.....pounds of milk equivalent	7,261	9,358	8,143	7,294	6,090	4,973	3,760
Whole milk.....do	256	382	301	255	200	135	69
Cream.....do	3	1	(Z)	1	4	12	29
Percent distribution of products sold by economic class:							
All dairy products.....do	100.0	7.5	39.0	35.0	14.2	3.8	.5
.....pounds of milk	100.0	6.5	37.5	35.6	15.1	4.6	.7
Whole milk.....dollars	100.0	7.5	39.3	35.2	14.1	3.5	.4
Cream.....do	100.0	1.6	5.3	16.0	29.1	32.4	15.6
Average value of milk per cwt. sold.....do	3.57	4.10	3.71	3.51	3.36	2.97	2.62
Northern Lake Dairy Region							
Dairy products sold per cow, total.....dollars	201	323	261	213	174	138	97
.....pounds of milk equivalent	6,594	9,772	8,242	6,987	5,857	4,814	3,445
Whole milk.....dollars	195	327	259	208	166	127	81
Cream.....do	6	3	3	5	8	11	16
Percent distribution of products sold by economic class:							
All dairy products.....do	100.0	2.1	19.5	43.2	28.0	6.5	.7
.....pounds of milk	100.0	2.0	18.7	43.1	28.6	6.9	.7
Whole milk.....dollars	100.0	2.2	19.9	43.6	27.6	6.2	.5
Cream.....do	100.0	.6	6.7	30.9	40.9	17.5	3.4
Average value of milk per cwt. sold.....do	3.04	3.31	3.17	3.05	2.97	2.86	2.81
Northern Woods Dairy Region							
Dairy products sold per cow, total.....dollars	174	446	293	230	179	135	94
.....pounds of milk equivalent	5,674	13,282	8,327	6,796	5,794	4,842	3,718
Whole milk.....dollars	150	445	276	218	157	101	53
Cream.....do	24	1	17	11	22	34	41
Percent distribution of products sold by economic class:							
All dairy products.....do	100.0	1.1	4.7	23.8	40.0	25.0	4.5
.....pounds of milk	100.0	1.2	5.3	26.2	40.1	23.5	3.7
Whole milk.....dollars	100.0	1.3	5.8	28.0	41.1	20.4	2.5
Cream.....do	100.0	(Z)	2.2	9.2	34.6	42.3	11.7
Average value of milk per cwt. sold.....do	3.07	3.36	3.52	3.38	3.08	2.79	2.54

Z Less than 0.5.

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Table 16.—MEASURE OF SIZE OF BUSINESS FOR DAIRY FARMS, BY ECONOMIC CLASS OF FARM, BY SPECIAL DAIRY AREAS: 1954

Special dairy area and item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Subregion 54							
Number of farms.....	6,681	37	255	848	1,306	2,435	1,710
Average per farm:							
All land in farms.....acres..	143	750	363	227	166	114	76
Cropland harvested.....do....	36	259	102	69	46	25	14
Total investment.....dollars..	15,721	103,934	48,304	32,139	17,798	11,376	6,526
Land and buildings.....do....	11,108	75,834	34,979	23,735	12,513	8,042	4,681
Machinery and equipment.....do....	2,468	14,429	6,707	4,579	2,864	1,904	1,009
Livestock.....do.....	2,055	13,071	6,618	3,825	2,421	1,430	836
Man-equivalent of labor.....	1.3	5.0	2.4	1.7	1.2	1.1	1.0
Number of milk cows.....	15	95	43	28	18	11	6
Animal units.....	23	161	78	44	28	16	9
Subregion 58							
Number of farms.....	2,730	53	431	996	960	240	50
Average per farm:							
All land in farms.....acres..	143	852	256	124	95	75	49
Cropland harvested.....do....	26	164	52	22	15	12	8
Total investment.....dollars..	20,736	84,225	44,267	19,097	12,711	12,282	6,775
Land and buildings.....do....	14,930	62,992	34,508	13,529	8,529	8,834	4,185
Machinery and equipment.....do....	3,007	8,894	5,178	2,922	2,150	1,960	1,228
Livestock.....do.....	2,799	12,339	4,581	2,646	2,032	1,488	1,362
Man-equivalent of labor.....	1.5	5.2	2.2	1.4	1.2	1.0	1.1
Number of milk cows.....	32	105	51	32	23	17	11
Animal units.....	44	199	73	42	32	23	21
Subregions 73 and 82							
Number of farms.....	23,017	39	516	1,062	5,182	8,988	6,330
Average per farm:							
All land in farms.....acres..	169	816	364	263	198	153	118
Cropland harvested.....do....	34	215	119	76	46	26	16
Total investment.....dollars..	12,482	87,686	38,569	25,903	15,410	10,168	6,848
Land and buildings.....do....	8,228	64,494	27,117	18,009	10,036	6,485	4,528
Machinery and equipment.....do....	2,376	9,715	5,895	4,257	3,064	2,089	1,315
Livestock.....do.....	1,878	13,477	5,557	3,637	2,320	1,594	1,005
Man-equivalent of labor.....	1.3	4.0	2.0	1.5	1.3	1.1	1.0
Number of milk cows.....	12	67	36	23	15	10	7
Animal units.....	19	144	58	38	25	16	10
Subregion 112							
Number of farms.....	8,459	108	766	2,235	2,819	2,010	521
Average per farm:							
All land in farms.....acres..	102	332	176	121	93	64	58
Cropland harvested.....do....	44	134	87	55	42	21	16
Total investment.....dollars..	29,572	110,855	58,575	36,454	25,354	16,416	11,819
Land and buildings.....do....	22,233	88,115	44,675	27,519	18,886	11,864	8,696
Machinery and equipment.....do....	4,046	12,073	6,761	4,811	3,722	2,735	1,924
Livestock.....do.....	3,293	10,667	7,139	4,124	2,746	1,817	1,199
Subregion 112—Continued							
Average per farm—Continued							
Man-equivalent of labor.....	1.1	3.6	2.0	1.3	1.0	.7	.8
Number of milk cows.....	15	60	31	18	12	8	5
Animal units.....	25	86	55	32	22	14	10
Subregion 115							
Number of farms.....	1,101	974	54	43	20	10	.....
Average per farm:							
All land in farms.....acres..	183	198	93	65	53	53	.....
Cropland harvested.....do....	32	32	45	26	8	31	.....
Total investment.....dollars..	136,502	144,695	131,802	38,531	13,161	41,461	.....
Land and buildings.....do....	102,933	108,506	112,193	27,778	6,300	36,200	.....
Machinery and equipment.....do....	6,464	6,767	5,797	3,625	1,538	2,667	.....
Livestock.....do.....	27,105	29,422	13,812	7,128	5,323	2,594	.....
Man-equivalent of labor.....	5.6	6.1	1.8	1.2	1.2	.4	.....
Number of milk cows.....	178	195	70	40	21	5	.....
Animal units.....	210	229	96	54	34	14	.....
Subregion 116							
Number of farms.....	8,783	1,088	2,099	2,484	1,832	1,125	155
Average per farm:							
All land in farms.....acres..	104	346	126	64	44	27	28
Cropland harvested.....do....	36	127	44	21	12	7	3
Total investment.....dollars..	56,674	172,358	68,017	39,851	26,425	18,819	6,838
Land and buildings.....do....	43,375	134,250	52,336	30,451	19,436	13,691	3,526
Machinery and equipment.....do....	5,068	11,770	5,770	3,981	3,414	2,814	1,868
Livestock.....do.....	8,231	26,338	9,911	5,419	3,575	2,314	1,444
Man-equivalent of labor.....	1.7	4.0	1.8	1.3	1.0	.8	.9
Number of milk cows.....	41	131	51	28	18	11	8
Animal units.....	59	183	70	38	25	16	11
Subregions 118 and 119							
Number of farms.....	12,321	372	2,576	3,252	2,564	2,567	990
Average per farm:							
All land in farms.....acres..	109	366	157	103	95	73	40
Cropland harvested.....do....	29	101	47	27	22	16	10
Total investment.....dollars..	34,797	112,839	57,655	34,443	25,835	20,111	13,796
Land and buildings.....do....	26,873	89,218	45,456	26,438	19,590	15,219	10,952
Machinery and equipment.....do....	4,331	10,700	6,053	4,323	3,704	3,249	1,912
Livestock.....do.....	3,593	12,921	6,146	3,682	2,541	1,643	932
Man-equivalent of labor.....	1.3	3.6	1.8	1.4	1.1	.9	.9
Number of milk cows.....	21	81	38	23	14	8	5
Animal units.....	30	110	61	31	21	13	8

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Table 17.—FARM LABOR FORCE ON DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR SPECIAL DAIRY AREAS: 1954

Special dairy area and item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Subregion 54							
Number of farms	6,681	37	255	848	1,396	2,435	1,710
Average per farm:							
Family labor	1.1	1.2	1.2	1.2	1.1	1.0	1.0
Operator	.8	.9	.9	.8	.8	.7	.8
Other	.3	.3	.3	.4	.3	.3	.2
Hired labor	.2	3.8	1.2	.5	.1	.1	(Z)
Man-equivalent per farm	1.3	5.0	2.4	1.7	1.2	1.1	1.0
Crop acres per man-equivalent	56.2	103.4	83.9	76.6	69.5	50.9	34.1
Value of all farm products sold per man-equivalent	dollars 2,405	6,926	5,425	3,974	2,897	1,635	775
Number of milk cows per man-equivalent	12	19	18	17	14	10	6
Subregion 58							
Number of farms	2,730	53	431	996	960	240	50
Average per farm:							
Family labor	1.2	1.0	1.2	1.2	1.1	1.0	1.1
Operator	.8	.8	.9	.8	.7	.7	.8
Other	.4	.2	.3	.4	.4	.3	.3
Hired labor	.3	4.2	1.0	.2	.1	(Z)	(Z)
Man-equivalent per farm	1.5	5.2	2.2	1.4	1.2	1.0	1.1
Crop acres per man-equivalent	38.8	72.1	50.6	34.0	30.4	26.8	23.6
Value of all farm products sold per man-equivalent	dollars 4,693	7,805	6,376	4,889	3,230	1,971	739
Number of milk cows per man-equivalent	21	20	24	22	19	17	9
Subregions 73 and 82							
Number of farms	23,017	39	516	1,962	5,182	8,988	6,330
Average per farm:							
Family labor	1.2	.9	1.4	1.3	1.2	1.1	1.0
Operator	.8	.6	.9	.8	.8	.7	.8
Other	.4	.3	.5	.5	.4	.4	.2
Hired labor	.1	3.1	.6	.2	.1	(Z)	(Z)
Man-equivalent per farm	1.3	4.0	2.0	1.5	1.3	1.1	1.0
Crop acres per man-equivalent	53.1	102.0	97.8	88.7	68.2	53.3	38.2
Value of all farm products sold per man-equivalent	dollars 1,996	8,568	6,300	4,615	2,626	1,610	715
Number of milk cows per man-equivalent	9	17	18	15	12	9	6
Subregion 112							
Number of farms	8,459	108	766	2,235	2,819	2,010	521
Average per farm:							
Family labor	1.0	1.5	1.4	1.2	1.0	.7	.8
Operator	.7	.9	.9	.8	.7	.5	.6
Other	.3	.6	.5	.4	.3	.2	.2
Hired labor	.1	2.1	.6	.1	(Z)	(Z)	(Z)
Man-equivalent per farm	1.1	3.6	2.0	1.3	1.0	.7	.8
Crop acres per man-equivalent	55.5	61.1	60.7	56.0	54.3	40.7	25.8
Value of all farm products sold per man-equivalent	dollars 4,714	8,888	6,782	5,328	3,688	2,637	897
Number of milk cows per man-equivalent	14	16	16	14	11	10	6
Subregion 115							
Number of farms	1,101	974	54	43	20	10	-----
Average per farm:							
Family labor	1.1	1.1	1.4	1.0	1.1	.4	-----
Operator	.9	.9	.9	.9	.9	.2	-----
Other	.2	.2	.5	.1	.2	.2	-----
Hired labor	4.5	5.0	.4	.2	.1	(Z)	-----
Man-equivalent per farm	5.6	6.1	1.8	1.2	1.2	.4	-----
Crop acres per man-equivalent	11.6	11.0	34.2	25.1	40.2	72.0	-----
Value of all farm products sold per man-equivalent	dollars 19,113	19,243	12,297	7,452	3,857	8,700	-----
Number of milk cows per man-equivalent	32	31	38	37	18	10	-----
Subregion 116							
Number of farms	8,783	1,088	2,099	2,484	1,832	1,125	155
Average per farm:							
Family labor	1.2	1.3	1.4	1.2	1.0	.8	.9
Operator	.8	.9	.9	.8	.7	.5	.8
Other	.4	.4	.5	.4	.3	.3	.1
Hired labor	.5	2.7	.4	.1	(Z)	(Z)	(Z)
Man-equivalent per farm	1.7	4.0	1.8	1.3	1.0	.8	.9
Crop acres per man-equivalent	42.4	58.9	51.8	33.6	27.4	19.7	23.5
Value of all farm products sold per man-equivalent	dollars 8,126	14,181	8,652	5,459	3,797	2,170	1,019
Number of milk cows per man-equivalent	24	32	30	22	16	12	9
Subregions 118 and 119							
Number of farms	12,321	372	2,576	3,252	2,584	2,567	990
Average per farm:							
Family labor	1.1	.9	1.0	1.0	.7	.6	.7
Operator	.7	.7	.7	.7	.5	.4	.6
Other	.4	.2	.3	.3	.2	.2	.1
Hired labor	.2	2.7	.8	.4	.4	.3	.2
Man-equivalent per farm	1.3	3.6	1.8	1.4	1.1	.9	.9
Crop acres per man-equivalent	42.3	54.2	49.1	39.8	33.3	33.7	19.5
Value of all farm products sold per man-equivalent	dollars 5,595	10,093	8,079	5,444	3,325	2,137	903
Number of milk cows per man-equivalent	16	23	21	17	13	10	5

Z Less than 0.5.

Table 18.—FARM MECHANIZATION AND HOME CONVENIENCES ON DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR SPECIAL DAIRY AREAS: 1954

Special dairy area and item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Subregion 54							
Average number per farm:							
Automobiles.....	1	3	2	1	1	1	1
Tractors.....	1	4	2	1	1	(Z)	(Z)
Motortrucks.....	(Z)	2	1	1	(Z)	(Z)	1(Z)
Field forage harvesters.....	(Z)	1	(Z)	(Z)	(Z)	(Z)	(Z)
Pick-up hay balers.....	(Z)	1	(Z)	(Z)	(Z)	(Z)	(Z)
Corn pickers.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
Grain combines.....	(Z)	1	(Z)	(Z)	(Z)	(Z)	(Z)
Power feed grinders.....	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
Milking machines.....	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
Percent of farms reporting:							
Automobiles.....	66	100	82	84	71	66	48
Tractors.....	47	100	84	86	66	40	16
Motortrucks.....	38	73	76	62	43	35	20
Field forage harvesters.....	3	49	25	12	3		
Pick-up hay balers.....	9	70	42	23	11	4	1
Corn pickers.....	5	41	22	14	7	1	(Z)
Grain combines.....	12	57	30	34	15	7	1
Power feed grinders.....	16	73	48	41	22	8	2
Milking machines.....	29	70	80	84	41	14	5
Subregion 58							
Average number per farm:							
Automobiles.....	1	2	1	1	1	1	(Z)
Tractors.....	1	2	1	1	1	1	(Z)
Motortrucks.....	1	2	1	1	1	1	(Z)
Field forage harvesters.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
Pick-up hay balers.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
Corn pickers.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
Grain combines.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
Power feed grinders.....	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
Milking machines.....	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
Percent of farms reporting:							
Automobiles.....	64	87	89	65	54	56	40
Tractors.....	67	89	92	74	55	50	30
Motortrucks.....	61	98	77	67	49	52	30
Field forage harvesters.....	5	42	14	5	1	2	
Pick-up hay balers.....	6	36	18	3	4		
Corn pickers.....	5	17	13	4	2	2	
Grain combines.....	5	38	17	4	1		
Power feed grinders.....	16	55	41	15	8	6	10
Milking machines.....	79	92	92	88	73	48	40
Subregions 73 and 82							
Average number per farm:							
Automobiles.....	1	2	1	1	1	1	(Z)
Tractors.....	1	2	2	1	1	1	(Z)
Motortrucks.....	1	2	1	1	1	1	(Z)
Field forage harvesters.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
Pick-up hay balers.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
Corn pickers.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
Grain combines.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
Power feed grinders.....	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
Milking machines.....	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
Percent of farms reporting:							
Automobiles.....	57	79	89	72	61	56	47
Tractors.....	60	87	94	72	63	53	37
Motortrucks.....	53	87	77	72	63	53	37
Field forage harvesters.....	4	50	28	18	4	1	1
Pick-up hay balers.....	8	40	41	26	12	5	2
Corn pickers.....	1	13	6	6	1	1	(Z)
Grain combines.....	7	36	37	21	12	4	2
Power feed grinders.....	15	69	40	37	24	11	4
Milking machines.....	36	87	88	87	60	27	8
Subregion 112							
Average number per farm:							
Automobiles.....	1	2	2	1	1	1	1
Tractors.....	1	3	2	1	1	1	1
Motortrucks.....	1	2	1	1	1	1	(Z)
Field forage harvesters.....	(Z)	1	(Z)	(Z)	(Z)	(Z)	(Z)
Pick-up hay balers.....	(Z)	1	(Z)	(Z)	(Z)	(Z)	(Z)
Corn pickers.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
Grain combines.....	(Z)	1	(Z)	(Z)	(Z)	(Z)	(Z)
Power feed grinders.....	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
Milking machines.....	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)

Special dairy area and item	Economic class of farm						
	Total	I	II	III	IV	V	VI
Subregion 112—Continued							
Percent of farms reporting:							
Automobiles.....	88	100	95	93	88	81	74
Tractors.....	81	100	99	93	85	62	52
Motortrucks.....	62	95	89	74	59	49	32
Field forage harvesters.....	10	54	31	17	5	3	
Pick-up hay balers.....	19	48	36	30	16	5	
Corn pickers.....	1	5	1	1	(Z)	(Z)	1
Grain combines.....	15	42	32	18	15	6	4
Power feed grinders.....	16	27	36	24	11	8	6
Milking machines.....	81	95	100	95	86	61	39
Subregion 115							
Average number per farm:							
Automobiles.....	2	2	2	1	(Z)	(Z)	
Tractors.....	1	1	1	1	(Z)	(Z)	
Motortrucks.....	2	2	1	1	1	(Z)	
Field forage harvesters.....	(Z)	(Z)	(Z)	(Z)			
Pick-up hay balers.....	(Z)	(Z)	(Z)	(Z)		(Z)	
Corn pickers.....	(Z)	(Z)					
Grain combines.....	(Z)	(Z)					
Power feed grinders.....	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	
Milking machines.....	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	
Percent of farms reporting:							
Automobiles.....	94	96	98	77	25	50	
Tractors.....	45	42	67	86	25	50	
Motortrucks.....	74	74	69	88	75	50	
Field forage harvesters.....	10	9	20	12			
Pick-up hay balers.....	9	8	22	14		50	
Corn pickers.....	(Z)	(Z)					
Grain combines.....	1	2					
Power feed grinders.....	15	15	24				
Milking machines.....	96	98	98	88	50	50	
Subregion 116							
Average number per farm:							
Automobiles.....	1	3	1	1	1	1	1
Tractors.....	1	3	2	1	1	1	(Z)
Motortrucks.....	1	2	1	1	1	1	(Z)
Field forage harvesters.....	(Z)	1	(Z)	(Z)	(Z)	(Z)	
Pick-up hay balers.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	
Corn pickers.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	
Grain combines.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	
Power feed grinders.....	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
Milking machines.....	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
Percent of farms reporting:							
Automobiles.....	90	96	93	90	86	85	74
Tractors.....	79	98	90	82	69	57	23
Motortrucks.....	74	95	85	73	63	55	30
Field forage harvesters.....	13	44	19	9	3	1	
Pick-up hay balers.....	18	43	29	13	7	4	
Corn pickers.....	1	3		1			
Grain combines.....	2	6	3	1	2	4	
Power feed grinders.....	10	18	12	9	9	2	
Milking machines.....	92	98	98	95	91	73	52
Subregions 118 and 119							
Average number per farm:							
Automobiles.....	1	2	1	1	1	1	1
Tractors.....	1	3	2	1	1	1	1
Motortrucks.....	1	2	1	1	1	1	(Z)
Field forage harvesters.....	(Z)	1	(Z)	(Z)	(Z)	(Z)	(Z)
Pick-up hay balers.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
Corn pickers.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
Grain combines.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
Power feed grinders.....	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
Milking machines.....	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
Percent of farms reporting:							
Automobiles.....	87	98	94	92	83	83	69
Tractors.....	85	97	98	93	84	78	46
Motortrucks.....	63	94	82	69	50	50	27
Field forage harvesters.....	11	52	26	10	4	2	1
Pick-up hay balers.....	13	48	27	13	8	4	3
Corn pickers.....	(Z)	(Z)	1	(Z)	(Z)		
Grain combines.....	8	23	14	7	6	7	3
Power feed grinders.....	12	22	18	13	11	7	3
Milking machines.....	82	97	98	97	86	64	22

NA Not available. Z Less than 0.5.

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Table 19.—DISTRIBUTION OF OPERATORS OF DAIRY FARMS IN EACH ECONOMIC CLASS, BY AGE, FOR SPECIAL DAIRY AREAS: 1954

Special dairy area and age of operator	Percent distribution for each economic class of farm						Special dairy area and age of operator	Percent distribution for each economic class of farm							
	Total	I	II	III	IV	V		VI	Total	I	II	III	IV	V	VI
Subregion 54															
Total.....	100	100	100	100	100	100	100	Total.....	100	100	100	100	100	100	100
Under 25 years.....	1	42	6	2	1	1	1	Under 25 years.....	2	2	11	13			
25 to 34 years.....	9	6	31	11	11	10	5	25 to 34 years.....	16	17	13				
35 to 44 years.....	23	6	27	32	24	12		35 to 44 years.....	32	34	13	16		50	
45 to 54 years.....	24	14	20	30	24	26	19	45 to 54 years.....	27	29	23	16			
55 to 65 years.....	23	19	32	22	17	23	26	55 to 65 years.....	15	12	42	29	75		
65 years and over.....	20	19	11	8	15	16	37	65 years and over.....	8	6	11	26	25	50	
Subregion 58															
Total.....	100	100	100	100	100	100	100	Total.....	100	100	100	100	100	100	100
Under 25 years.....	1			2	2			Under 25 years.....	1	2	1	1	1	1	
25 to 34 years.....	19	8	15	20	20	22	30	25 to 34 years.....	17	24	18	18	16	8	3
35 to 44 years.....	26	30	25	25	29	20	10	35 to 44 years.....	28	31	33	28	23	24	3
45 to 54 years.....	31	30	34	32	29	33		45 to 54 years.....	27	24	28	26	20	26	16
55 to 65 years.....	15	23	16	13	15	22	30	55 to 65 years.....	18	14	13	19	21	25	48
65 years and over.....	8	9	10	8	5	4	30	65 years and over.....	9	5	7	8	10	16	29
Subregions 73 and 82															
Total.....	100	100	100	100	100	100	100	Total.....	100	100	100	100	100	100	100
Under 25 years.....	1	(Z)		2	1	1	1	Under 25 years.....	1	2	1	1	1	1	
25 to 34 years.....	12	21	18	17	17	13	6	25 to 34 years.....	17	24	18	18	16	8	
35 to 44 years.....	22	8	27	31	28	23	13	35 to 44 years.....	28	31	33	28	23	24	
45 to 54 years.....	26	44	31	26	29	27	21	45 to 54 years.....	27	24	28	26	20	26	16
55 to 65 years.....	24	3	16	18	18	23	31	55 to 65 years.....	18	14	13	19	21	25	48
65 years and over.....	15	26	8	6	8	13	27	65 years and over.....	9	5	7	8	10	16	29
Subregion 112															
Total.....	100	100	100	100	100	100	100	Total.....	100	100	100	100	100	100	100
Under 25 years.....	1			2	2	1		Under 25 years.....	1	2	2	2	1	1	1
25 to 34 years.....	13	5	17	17	11	11	3	25 to 34 years.....	12	26	15	14	10	9	1
35 to 44 years.....	20	15	33	31	27	20	11	35 to 44 years.....	23	27	30	29	19	19	5
45 to 54 years.....	25	59	28	27	24	25	18	45 to 54 years.....	25	21	28	26	29	21	10
55 to 65 years.....	21	16	17	17	24	21	20	55 to 65 years.....	23	15	18	22	26	28	26
65 years and over.....	14	6	5	7	11	22	47	65 years and over.....	16	11	6	8	16	23	58
Subregion 115															
Total.....	100	100	100	100	100	100	100	Total.....	100	100	100	100	100	100	100
Under 25 years.....	2	2		13				Under 25 years.....	2	2	11				
25 to 34 years.....	16	17						25 to 34 years.....	16	17	13				
35 to 44 years.....	32	34	13	16			50	35 to 44 years.....	32	34	13	16		50	
45 to 54 years.....	27	29	23	16				45 to 54 years.....	27	29	23	16			
55 to 65 years.....	15	12	42	29	75			55 to 65 years.....	15	12	42	29	75		
65 years and over.....	8	6	11	26	25	50		65 years and over.....	8	6	11	26	25	50	
Subregion 116															
Total.....	100	100	100	100	100	100	100	Total.....	100	100	100	100	100	100	100
Under 25 years.....	1	2	1	1	1	1		Under 25 years.....	1	2	1	1	1	1	
25 to 34 years.....	17	24	18	18	16	8	3	25 to 34 years.....	17	24	18	18	16	8	3
35 to 44 years.....	28	31	33	28	23	24	3	35 to 44 years.....	28	31	33	28	23	24	3
45 to 54 years.....	27	24	28	26	20	26	16	45 to 54 years.....	27	24	28	26	20	26	16
55 to 65 years.....	18	14	13	19	21	25	48	55 to 65 years.....	18	14	13	19	21	25	48
65 years and over.....	9	5	7	8	10	16	29	65 years and over.....	9	5	7	8	10	16	29
Subregions 118 and 119															
Total.....	100	100	100	100	100	100	100	Total.....	100	100	100	100	100	100	100
Under 25 years.....	1		2	2	1			Under 25 years.....	1		2	2	1	1	1
25 to 34 years.....	12	26	15	14	10	9	1	25 to 34 years.....	12	26	15	14	10	9	1
35 to 44 years.....	23	27	30	29	19	19	5	35 to 44 years.....	23	27	30	29	19	19	5
45 to 54 years.....	25	21	28	26	29	21	10	45 to 54 years.....	25	21	28	26	29	21	10
55 to 65 years.....	23	15	18	22	26	28	26	55 to 65 years.....	23	15	18	22	26	28	26
65 years and over.....	16	11	6	8	16	23	58	65 years and over.....	16	11	6	8	16	23	58

Z Less than 0.5.

Table 20.—LAND USE ON DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR SPECIAL DAIRY AREAS: 1954

Special dairy area and item	Economic class of farm						Special dairy area and item	Economic class of farm							
	Total	I	II	III	IV	V		VI	Total	I	II	III	IV	V	VI
Subregion 54															
Number of farms.....	6,681	37	255	848	1,396	2,435	1,710	Number of farms.....	23,017	39	516	1,962	5,182	8,988	6,330
Average per farm:															
All land in farms.....acres.....	143	750	363	227	166	114	76	All land in farms.....acres.....	169	816	364	263	198	153	118
Cropland harvested.....do.....	36	259	102	69	46	25	14	Cropland harvested.....do.....	34	215	119	76	46	26	16
Cropland pastured.....do.....	33	223	93	53	38	25	17	Cropland pastured.....do.....	32	185	73	52	37	29	22
Cropland not harvested and not pastured.....acres.....	4	38	3	4	3	4	3	Cropland not harvested and not pastured.....acres.....	3	11	7	7	4	3	2
Total cropland.....do.....	73	520	198	125	86	55	34	Total cropland.....do.....	69	411	199	134	87	58	41
Total pasture.....do.....	92	433	240	141	106	74	51	Total pasture.....do.....	118	648	222	159	134	112	89
Percent of cropland harvested in—															
Corn for all purposes.....percent.....	33	23	21	27	33	39	40	Corn for all purposes.....percent.....	17	17	14	15	17	18	21
Corn for grain.....do.....	24	10	9	18	24	31	40	Corn for grain.....do.....	3	1	1	2	3	4	6
Small grains.....do.....	19	36	25	23	20	12	9	Small grains.....do.....	28	40	38	37	31	21	12
All hay.....do.....	42	40	43	41	41	44	37	All hay.....do.....	42	34	30	33	38	49	56
Other crops.....do.....	6	1	11	9	6	5	5	Other crops.....do.....	13	9	18	15	14	12	11
Subregion 58															
Number of farms.....	2,730	53	431	996	960	240	50	Number of farms.....	8,459	108	766	2,235	2,819	2,010	521
Average per farm:															
All land in farms.....acres.....	143	852	250	124	95	75	49	All land in farms.....acres.....	102	332	176	121	93	64	58
Cropland harvested.....do.....	26	164	52	22	15	12	8	Cropland harvested.....do.....	44	134	87	55	42	21	16
Cropland pastured.....do.....	30	207	54	25	20	13	10	Cropland pastured.....do.....	12	37	21	15	11	7	5
Cropland not harvested and not pastured.....acres.....	2	7	4	2	2	2	4	Cropland not harvested and not pastured.....acres.....	5	47	8	4	6	2	2
Total cropland.....do.....	58	378	109	49	37	28	27	Total cropland.....do.....	61	218	116	74	59	30	23
Total pasture.....do.....	93	593	173	80	56	40	35	Total pasture.....do.....	43	140	68	51	36	33	33
Percent of cropland harvested in—															
Corn for all purposes.....percent.....	43	23	42	42	54	60	39	Corn for all purposes.....percent.....	6	12	8	8	5	4	1
Corn for grain.....do.....	38	19	35	38	48	00	39	Corn for grain.....do.....	1	(Z)	1	1	1	1	(Z)
Small grains.....do.....	4	9	5	3	2			Small grains.....do.....	28	28	28	27	31	24	23
All hay.....do.....	32	28	31	37	27	33	47	All hay.....do.....	52	36	47	51	53	64	66
Other crops.....do.....	21	40	22	18	17	7	14	Other crops.....do.....	14	24	17	14	11	8	10

FARMERS AND FARM PRODUCTION

Table 20.—LAND USE ON DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR SPECIAL DAIRY AREAS: 1954—Continued

Special dairy area and item	Economic class of farm							Special dairy area and item	Economic class of farm						
	Total	I	II	III	IV	V	VI		Total	I	II	III	IV	V	VI
Subregion 115								Subregion 116—Continued							
Number of farms.....	1, 101	974	54	43	20	10	-----	Percent of cropland harvested ¹ in—							
Average per farm:								Corn for all purposes..... percent..	9	8	9	11	7	5	-----
All land in farms..... acres..	183	198	93	65	63	53	-----	Corn for grain..... do.....	1	1	1	1	1	1	-----
Cropland harvested..... do.....	32	32	45	26	8	31	-----	Small grains..... do.....	8	10	11	4	6	6	11
Cropland pastured..... do.....	28	31	14	4	9	3	-----	All hay..... do.....	73	67	73	81	81	87	97
Cropland not harvested and not pastured..... acres.....	5	5	3	-----	30	3	-----	Other crops..... do.....	10	15	7	4	6	2	3
Total cropland..... do.....	65	68	62	30	47	37	-----	Subregions 118 and 119							
Total pasture..... do.....	124	138	32	15	9	3	-----	Number of farms.....	12, 321	372	2, 576	3, 252	2, 564	2, 567	990
Percent of cropland harvested in—								Average per farm:							
Corn for all purposes..... percent..	7	6	4	-----	-----	-----	-----	All land in farms..... acres..	109	366	167	103	95	73	40
Corn for grain..... do.....	(Z)	(Z)	-----	-----	-----	-----	-----	Cropland harvested..... do.....	29	101	47	27	22	16	10
Small grains..... do.....	12	14	11	2	-----	-----	-----	Cropland pastured..... do.....	24	86	38	25	18	11	6
All hay..... do.....	66	63	85	92	100	97	-----	Cropland not harvested and not pastured..... acres.....	2	8	3	2	2	2	2
Other crops..... do.....	15	17	-----	6	-----	3	-----	Total cropland..... do.....	55	195	88	54	42	29	18
Subregion 116								Total pasture..... do.....	56	196	79	52	50	39	19
Number of farms.....	8, 783	1, 088	2, 099	2, 484	1, 832	1, 125	155	Percent of cropland harvested in—							
Average per farm:								Corn for all purposes..... percent..	2	3	2	2	2	1	1
All land in farms..... acres..	104	346	126	64	44	27	28	Corn for grain..... do.....	(Z)	-----	(Z)	(Z)	(Z)	(Z)	1
Cropland harvested..... do.....	36	127	44	21	12	7	3	Small grains..... do.....	17	20	15	14	21	18	14
Cropland pastured..... do.....	32	97	40	20	15	8	17	All hay..... do.....	74	64	74	79	74	75	83
Cropland not harvested and not pastured..... acres.....	4	14	5	2	2	3	1	Other crops..... do.....	7	13	9	5	3	6	2
Total cropland..... do.....	72	238	89	43	29	18	21								
Total pasture..... do.....	58	190	70	36	26	14	21								

Z Less than 0.5.

¹ Adds to more than 100 in Class VI due to double cropping.

Table 21.—AVERAGE NUMBER OF LIVESTOCK PER FARM FOR DAIRY FARMS, BY ECONOMIC CLASS OF FARM, FOR SPECIAL DAIRY AREAS: 1954

Special dairy area and item	Economic class of farm							Special dairy area and item	Economic class of farm						
	Total	I	II	III	IV	V	VI		Total	I	II	III	IV	V	VI
Subregion 54								Subregion 115							
Number of farms.....	6, 681	37	255	848	1, 396	2, 435	1, 710	Number of farms.....	1, 101	974	54	43	20	10	-----
Average number per farm:								Average number per farm:							
All cattle and calves.....	25	166	86	48	30	17	10	All cattle and calves.....	239	259	120	63	47	22	-----
Cows and heifers.....	16	102	52	30	18	11	6	Cows and heifers.....	181	198	70	45	21	5	-----
Milk cows.....	15	95	43	28	18	10	6	Milk cows.....	178	195	70	40	21	5	-----
Hogs and pigs.....	7	49	19	13	8	5	3	Hogs and pigs.....	1	1	3	-----	1	3	-----
Chickens 4 months old and over.....	58	54	113	71	61	56	45	Chickens 4 months old and over.....	24	24	35	10	20	25	-----
Sheep and lambs.....	5	70	16	8	6	3	1	Sheep and lambs.....	2	2	(Z)	-----	(Z)	-----	-----
Ewes 1 year old and over.....	4	48	11	7	5	2	1	Ewes 1 year old and over.....	1	1	-----	-----	-----	-----	-----
Subregion 58								Subregion 116							
Number of farms.....	2, 730	53	431	996	960	240	50	Number of farms.....	8, 783	1, 088	2, 099	2, 484	1, 832	1, 125	155
Average number per farm:								Average number per farm:							
All cattle and calves.....	53	229	88	50	38	27	24	All cattle and calves.....	72	231	87	47	31	20	12
Cows and heifers.....	33	145	54	32	24	17	13	Cows and heifers.....	42	133	51	28	18	11	8
Milk cows.....	32	105	51	32	23	17	11	Milk cows.....	41	130	51	28	18	11	8
Hogs and pigs.....	3	6	4	3	3	3	5	Hogs and pigs.....	1	1	1	(Z)	1	(Z)	(Z)
Chickens 4 months old and over.....	33	111	39	34	28	25	14	Chickens 4 months old and over.....	30	71	34	18	25	22	6
Sheep and lambs.....	2	45	2	(Z)	1	(Z)	2	Sheep and lambs.....	(Z)	1	1	(Z)	(Z)	(Z)	1
Ewes 1 year old and over.....	1	30	1	(Z)	1	(Z)	1	Ewes 1 year old and over.....	(Z)	1	(Z)	(Z)	(Z)	(Z)	(Z)
Subregions 73 and 82								Subregions 118 and 119							
Number of farms.....	23, 017	39	516	1, 962	5, 182	8, 988	6, 330	Number of farms.....	12, 321	372	2, 576	3, 252	2, 564	2, 567	990
Average number per farm:								Average number per farm:							
All cattle and calves.....	23	150	69	45	28	19	12	All cattle and calves.....	36	132	62	37	25	16	9
Cows and heifers.....	13	83	40	25	16	11	7	Cows and heifers.....	22	84	38	23	15	9	5
Milk cows.....	12	67	36	23	15	10	7	Milk cows.....	21	81	38	23	14	8	5
Hogs and pigs.....	4	33	10	7	5	3	2	Hogs and pigs.....	1	1	1	1	1	1	1
Chickens 4 months old and over.....	53	101	93	75	64	50	38	Chickens 4 months old and over.....	39	43	51	47	37	28	21
Sheep and lambs.....	1	89	3	2	1	1	(Z)	Sheep and lambs.....	2	6	3	2	2	1	(Z)
Ewes 1 year old and over.....	1	6	2	1	1	1	(Z)	Ewes 1 year old and over.....	1	4	2	1	1	1	(Z)
Subregion 112															
Number of farms.....	8, 450	108	766	2, 235	2, 819	2, 010	521								
Average number per farm:															
All cattle and calves.....	32	107	72	41	27	18	12								
Cows and heifers.....	16	67	33	20	13	8	6								
Milk cows.....	15	67	31	18	12	8	5								
Hogs and pigs.....	2	6	3	2	2	2	1								
Chickens 4 months old and over.....	44	94	60	58	42	28	21								
Sheep and lambs.....	3	6	4	3	3	2	1								
Ewes 1 year old and over.....	2	5	2	3	1	1	1								

Z Less than 0.5.

U. S. Department of Agriculture

Ezra Taft Benson, Secretary

Agricultural Research Service

Byron T. Shaw, Administrator

U. S. Department of Commerce

Sinclair Weeks, Secretary

Bureau of the Census

Robert W. Burgess, Director

United States Census of Agriculture: 1954

Volume III

SPECIAL REPORTS

Part 9

Farmers and Farm Production in the United States (A Cooperative Report)

Chapter VI

Western Stock Ranches and Livestock Farms

CHARACTERISTICS OF FARMERS and FARM PRODUCTION •

PRINCIPAL TYPES OF FARMS •



BUREAU OF THE CENSUS
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PREFACE

The purpose of this report is to present an analysis of the characteristics of farmers and farm production for the most important types of farms as shown by data for the 1954 Census of Agriculture. The analysis deals with the relative importance, pattern of resource use, some measures of efficiency, and problems of adjustment and change for the principal types of farms.

The data given in the various chapters of this report have been derived largely from the special tabulation of data for each type of farm, by economic class, for the 1954 Census of Agriculture. The detailed statistics for each type of farm for the United States and the principal subregions appear in Part 8 of Volume III of the reports for the 1954 Census of Agriculture.

This cooperative report was prepared under the direction of Ray Hurley, Chief of the Agriculture Division of the Bureau of the Census, U. S. Department of Commerce, and Kenneth L. Bachman, Head, Production, Income, and Costs Section, Production Economics Research Branch, Agricultural Research Service of the U. S. Department of Agriculture.

Jackson V. McElveen, Agricultural Economist, Production, Income, and Costs Section, Production Economics Research Branch, Agricultural Research Service of the U. S. Department of Agriculture, supervised a large part of the detailed planning and analysis for the various chapters.

The list of chapters and the persons preparing each chapter are as follows:

Chapter I.....	Wheat Producers and Wheat Production A. W. Epp, University of Nebraska.	Chapter VI....	Western Stock Ranches and Livestock Farms Mont H. Saunderson, Western Ranching and Lands Consultant, Bozeman, Mont.
Chapter II.....	Cotton Producers and Cotton Production Robert B. Glasgow, Production Economics Research Branch, Agricultural Research Service, United States Department of Agriculture.	Chapter VII...	Cash-grain and Livestock Producers in the Corn Belt Edwin G. Strand, Production Economics Research Branch, Agricultural Research Service, United States Department of Agriculture.
Chapter III....	Tobacco and Peanut Producers and Production R. E. L. Greene, University of Florida.	Chapter VIII..	Part-time Farming H. G. Halcrow, University of Connecticut.
Chapter IV....	Poultry Producers and Poultry Production William P. Mortenson, University of Wisconsin.	Chapter IX....	Agricultural Producers and Production in the United States—A General View Jackson V. McElveen, Production Economics Research Branch, Agricultural Research Service, United States Department of Agriculture.
Chapter V.....	Dairy Producers and Dairy Production P. E. McNall, University of Wisconsin.		

The editorial work for this report was performed by Caroline B. Sherman, and the preparation of the statistical tables was supervised by Margaret Wood.

December 1956

UNITED STATES CENSUS OF AGRICULTURE: 1954

REPORTS

Volume I.—Counties and State Economic Areas. Statistics for counties include number of farms, acreage, value, and farm operators; farms by color and tenure of operator; facilities and equipment; use of commercial fertilizer; farm labor; farm expenditures; livestock and livestock products; specified crops harvested; farms classified by type of farm and by economic class; and value of products sold by source.

Data for State economic areas include farms and farm characteristics by tenure of operator, by type of farm, and by economic class. Volume I is published in 33 parts.

Volume II.—General Report. Statistics by Subjects, United States Census of Agriculture, 1954. Summary data and analyses of the data for States, for Geographic Divisions, and for the United States by subjects.

Volume III.—Special Reports

Part 1.—Multiple-Unit Operations. This report will be similar to Part 2 of Volume V of the reports for the 1950 Census of Agriculture. It will present statistics for approximately 900 counties and State economic areas in 12 Southern States and Missouri for the number and characteristics of multiple-unit operations and farms in multiple units.

Part 2.—Ranking Agricultural Counties. This special report will present statistics for selected items of inventory and agricultural production for the leading counties in the United States.

Part 3.—Alaska, Hawaii, Puerto Rico, District of Columbia, and U. S. Possessions. These areas were not included in the 1954 Census of Agriculture. The available current data from various Government sources will be compiled and published in this report.

Part 4.—Agriculture, 1954, a Graphic Summary. This report will present graphically some of the significant facts regarding agriculture and agricultural production as revealed by the 1954 Census of Agriculture.

Part 5.—Farm-Mortgage Debt. This will be a cooperative study by the Agricultural Research Service of the U. S. Department of Agriculture and the Bureau of the Census. It will present, by States, data based on the 1954 Census of Agriculture and a special mail survey conducted in January 1956, on the number of mortgaged farms, the amount of mortgage debt, and the amount of debt held by principal lending agencies.

Part 6.—Irrigation in Humid Areas. This cooperative report by the Agricultural Research Service of the U. S. Department of Agriculture and the Bureau of the Census will present data obtained by a mail survey of operators of irrigated farms in 28 States on the source of water, method of applying water, number of pumps used, acres of crops irrigated in 1954 and 1955, the number of times each crop was irrigated, and the cost of irrigation equipment and the irrigation system.

Part 7.—Popular Report of the 1954 Census of Agriculture. This report is planned to be a general, easy-to-read publication for the general public on the status and broad characteristics of United States agriculture. It will seek to delineate such aspects of agriculture as the geographic distribution and differences by size of farm for such items as farm acreage, principal crops, and important kinds of livestock, farm facilities, farm equipment, use of fertilizer, soil conservation practices, farm tenure, and farm income.

Part 8.—Size of Operation by Type of Farm. This will be a cooperative special report to be prepared in cooperation with the Agricultural Research Service of the U. S. Department of Agriculture. This report will contain data for 119 economic sub-

regions (essentially general type-of-farming areas) showing the general characteristics for each type of farm by economic class. It will provide data for a current analysis of the differences that exist among groups of farms of the same type. It will furnish statistical basis for a realistic examination of production of such commodities as wheat, cotton, and dairy products in connection with actual or proposed governmental policies and programs.

Part 9.—Farmers and Farm Production in the United States.

The purpose of this report is to present an analysis of the characteristics of farmers and farm production for the most important types of farms as shown by data for the 1954 Census of Agriculture. The analysis deals with the relative importance, pattern of resource use, some measures of efficiency, and problems of adjustment and change for the principal types of farms. The report was prepared in cooperation with the Agricultural Research Service of the U. S. Department of Agriculture.

The list of chapters (published separately only) and title for each chapter are as follows:

- Chapter I—*Wheat Producers and Wheat Production*
- II—*Cotton Producers and Cotton Production*
- III—*Tobacco and Peanut Producers and Production*
- IV—*Poultry Producers and Poultry Production*
- V—*Dairy Producers and Dairy Production*
- VI—*Western Stock Ranches and Livestock Farms*
- VII—*Cash-Grain and Livestock Producers in the Corn Belt*
- VIII—*Part-Time Farming*
- IX—*Agricultural Producers and Production in the United States—A General View*

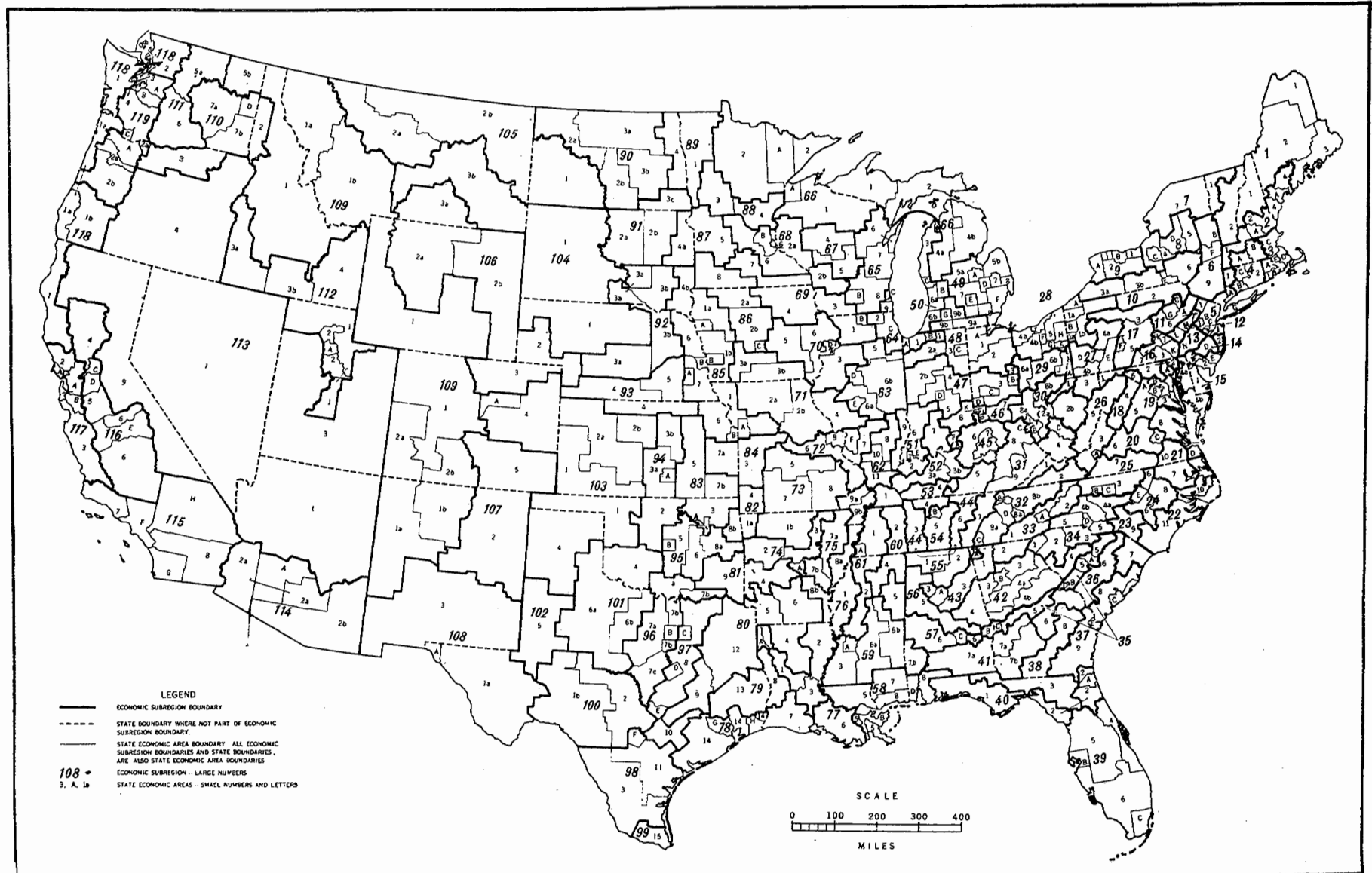
Part 10.—Use of Fertilizer and Lime. The purpose of this report is to present in one publication most of the detailed data compiled for the 1954 Census of Agriculture regarding the use of fertilizer and lime. The report presents data for counties, State economic areas, and generalized type-of-farming areas regarding the quantity used, acreage on which used, and expenditures for fertilizer and lime. The Agricultural Research Service cooperated with the Bureau of the Census in the preparation of this report.

Part 11.—Farmers' Expenditures. This report presents detailed data on expenditures for a large number of items used for farm production in 1955, and on the living expenditures of farm operators' families. The data were collected and compiled cooperatively by the Agricultural Marketing Service of the U. S. Department of Agriculture and the Bureau of the Census.

Part 12.—Methods and Procedures. This report contains an outline and a description of the methods and procedures used in taking and compiling the 1954 Census of Agriculture.

INTRODUCTION

ECONOMIC SUBREGIONS AND STATE ECONOMIC AREAS



INTRODUCTION

Purpose and scope.—American agriculture is exceedingly diverse and is undergoing revolutionary changes. Farmers and their families obtain their income by producing a large variety of products under a large variety of conditions as well as from sources other than farming. The organization of production, type of farming, productivity, income, expenditures, size, and characteristics of operators of the 4.8 million farms in the United States vary greatly. Agriculture has been a dynamic, moving, adjusting part of our economy. Basic changes in farming have been occurring and will continue to be necessary. Adjustments brought by technological change, by changing consumer wants, by growth of population, and by changes in the income of nonfarm people, have been significant forces in changing agriculture since World War II. The transition from war to an approximate peacetime situation has also made it necessary to reduce the output of some farm products. Some of the adjustments in agriculture have not presented relatively difficult problems as they could be made by the transfer of resources from the production of one product to another. Others require substantial shifts in resources and production.

Moreover, a considerable number of farm families, many of whom are employed full time in agriculture, have relatively low incomes. Most of these families operate farms that are small when compared with farms that produce higher incomes. The acreage of land and the amount of capital controlled by the operators of these small farms are too small to provide a very high level of income. In recent years, many farm families on these small farms have made adjustments by leaving the farm to earn their incomes elsewhere, by discontinuing their farm operations, and by earning more non-farm income while remaining on the farm or on the place they farmed formerly.

One objective of this report is to describe and analyze some of the existing differences and recent adjustments in the major types of farming and farm production. For important commodities and groups of farms, the report aims to make available, largely from the detailed data for the 1954 Census of Agriculture but in a more concise form, facts regarding the size of farms, capital, labor, and land resources on farms, amounts and sources of farm income and expenditures, combinations of crop and livestock enterprises, adjustment problems, operator characteristics, and variation in use of resources and in size of farms by areas and for widely differing production conditions. Those types of farms on which production of surplus products is important have been emphasized. The report will provide a factual basis for a better understanding of the widespread differences among farms in regard to size, resources, and income. It will also provide a basis for evaluating the effects of existing and proposed farm programs on the production and incomes of major types and classes of farms.

Income from nonfarm sources is important on a large number of farms. About 1.4 million of the 4.8 million farm-operator families, or about 3 in 10, obtain more income from off-farm sources than from the sale of agricultural products. More than three-fourths of a million farm operators live on small-scale part-time farms and ordinarily are not dependent on farming as the main source of family income. These part-time farmers have a quite different relation to adjustments, changes, and farm problems than do commercial farmers. A description of and facts regarding these part-time farms and the importance of nonfarm income for commercial farms are presented in Chapter 8.

Except for Chapter 8, this report deals with commercial farms (see economic class of farm). The analysis is limited to the major types of agricultural production and deals primarily with geographic areas in which each of the major types of agricultural production has substantial significance.

Source of data.—Most of the data presented in this report are from special compilations made for the 1954 Census of Agriculture, although pertinent data from research findings and surveys of the U. S. Department of Agriculture, State Agricultural Colleges, and other agencies have been used to supplement Census data. The detailed Census data used for this report are contained in Part 8 of Volume III of the reports of the 1954 Census of Agriculture. Reference should be made to that report for detailed explanations and definitions and statements regarding the characteristics and reliability of the data.

Areas for which data are presented.—Data are presented in this report primarily for selected economic subregions and for the United States. The boundaries of the 119 subregions used for the compilation of data on which this report is based are indicated by the map on page vi. These subregions represent primarily general type-of-farming areas. Many of them extend into two or more States. (For a more detailed description of economic subregions, see the publication "Economic Subregions of the United States, Series Census BAE; No. 19, published cooperatively by the Bureau of the Census, and the Bureau of Agricultural Economics, U. S. Department of Agriculture, July 1953.)

DEFINITIONS AND EXPLANATIONS

Definitions and explanations are given only for some of the more important items. For more detailed definitions and explanations, reference can be made to Part 8 of Volume III and to Volume II of the reports of the 1954 Census of Agriculture.

A farm.—For the 1954 Census of Agriculture, places of 3 or more acres were counted as farms if the annual value of agricultural products, exclusive of home-garden products, amounted to \$150 or more. The agricultural products could have been either for home use or for sale. Places of less than 3 acres were counted as farms only if the annual value of sales of agricultural products amounted to \$150 or more. Places for which the value of agricultural products for 1954 was less than these minima because of crop failure or other unusual conditions, and places operated at the time of the Census for the first time were counted as farms if normally they could be expected to produce these minimum quantities of agricultural products.

All the land under the control of one person or partnership was included as one farm. Control may have been through ownership, or through lease, rental, or cropping arrangement.

Farm operator.—A "farm operator" is a person who operates a farm, either performing the labor himself or directly supervising it. He may be an owner, a hired manager, or a tenant, renter, or sharecropper. If he rents land to others or has land cropped for him by others, he is listed as the operator of only that land which he retains. In the case of a partnership, only one partner was included as the operator. The number of farm operators is considered the same as the number of farms.

Farms reporting or operators reporting.—Figures for farms reporting or operators reporting, based on a tabulation of all farms, represent the number of farms, or farm operators, for which the specified item was reported. For example, if there were 11,922 farms in a subregion and only 11,465 had chickens over 4 months old on hand, the number of farms reporting chickens would be 11,465. The difference between the total number of farms and the number of farms reporting an item represents the number of farms not having that item, provided the inquiry was answered completely for all farms.

Farms by type.—The classification of commercial farms by type was made on the basis of the relationship of the value of sales from a particular source, or sources, to the total value of all farm products sold from the farm. In some cases, the type of farm was determined on the basis of the sale of an individual farm product, such as cotton, or on the basis of the sales of closely related products, such as dairy products. In other cases, the type of farm was determined on the basis of sales of a broader group of products, such as grain crops including corn, sorghums, all small grains, field peas, field beans, cowpeas, and soybeans. In order to be classified as a particular type, sales or anticipated sales of a product or group of products had to represent 50 percent or more of the total value of products sold.

The types of commercial farms for which data are shown, together with the product or group of products on which the classification is based are:

Type of farm	Product or group of products amounting to 50 percent or more of the value of all farm products sold
Cash-grain-----	Corn, sorghum, small grains, field peas, field beans, cowpeas, and soybeans.
Cotton-----	Cotton (lint and seed).
Other field-crop-----	Peanuts, Irish potatoes, sweet-potatoes, tobacco, sugarcane, sugar beets for sugar, and other miscellaneous crops.
Vegetable-----	Vegetables.
Fruit-and-nut-----	Berries and other small fruits, and tree fruits, nuts, and grapes.
Dairy-----	Milk and other dairy products. The criterion of 50 percent of the total sales was modified in the case of dairy farms. A farm for which the value of sales of dairy products represented less than 50 percent of the total value of farm products sold was classified as a dairy farm if— (a) Milk and other dairy products accounted for 30 percent or more of the total value of products sold, and (b) Milk cows represented 50 percent or more of all cows, and (c) Sales of dairy products, together with the sales of cattle and calves, amounted to 50 percent or more of the total value of farm products sold.
Poultry-----	Chickens, eggs, turkeys, and other poultry products.
Livestock farms other than dairy and poultry.	Cattle, calves, hogs, sheep, goats, wool, and mohair, provided the farm did not qualify as a dairy farm.

Type of farm

General-----	<p><i>Product or group of products amounting to 50 percent or more of the value of all farm products sold</i></p> <p>Farms were classified as general when the value of products from one source or group of sources did not represent as much as 50 percent of the total value of all farm products sold. Separate figures are given for three kinds of general farms:</p> <p>(a) Primarily crop. (b) Primarily livestock. (c) Crop and livestock.</p> <p><i>Primarily crop</i> farms are those for which the sale of one of the following crops or groups of crops—vegetables, fruits and nuts, cotton, cash grains, or other field crops—did not amount to 50 percent or more of the value of all farm products sold, but for which the value of sales for all these groups of crops represented 70 percent or more of the value of all farm products sold.</p> <p><i>Primarily livestock</i> farms are those which could not qualify as dairy farms, poultry farms, or livestock farms other than dairy and poultry, but on which the sale of livestock and poultry and livestock and poultry products amounted to 70 percent or more of the value of all farm products sold.</p> <p><i>General crop and livestock</i> farms are those which could not be classified as either crop farms or livestock farms, but on which the sale of all crops amounted to at least 30 percent but less than 70 percent of the total value of all farm products sold.</p>
Miscellaneous-----	<p>This group of farms includes those that had 50 percent or more of the total value of products accounted for by sale of horticultural products, or sale of horses, or sale of forest products.</p>

Farms by economic class.—A classification of farms by economic class was made for the purpose of segregating groups of farms that are somewhat alike in their characteristics and size of operation. This classification was made in order to present an accurate description of the farms in each class and in order to provide basic data for an analysis of the organization of agriculture.

The classification of farms by economic class was made on the basis of three factors; namely, total value of all farm products sold, number of days the farm operator worked off the farm, and the relationship of the income received from nonfarm sources by the operator and members of his family to the value of all farm products sold. Farms operated by institutions, experiment stations, grazing associations, and community projects were classified as abnormal, regardless of any of the three factors.

For the purpose of determining the code for economic class and type of farm, it was necessary to obtain the total value of farm products sold as well as the value of some individual products sold.

The total value of farm products sold was obtained by adding the reported or estimated values for all products sold from the farm. The value of livestock, livestock products except wool and mohair, vegetables, nursery and greenhouse products, and forest

products was obtained by the enumerator from the farm operator for each farm. The enumerator also obtained from the farm operator the quantity sold for corn, sorghums, small grains, hays, and small fruits. The value of sales for these crops was obtained by multiplying the quantity sold by State average prices.

The quantity sold was estimated for all other farm products. The entire quantity produced for wool, mohair, cotton, tobacco, sugar beets for sugar, sugarcane for sugar, broomcorn, hops, and mint for oil was estimated as sold. To obtain the value of each product sold, the quantity sold was multiplied by State average prices.

In making the classification of farms by economic class, farms were grouped into two major groups, namely, commercial farms and other farms. In general, all farms with a value of sales of farm products amounting to \$1,200 or more were classified as commercial. Farms with a value of sales of \$250 to \$1,199 were classified as commercial only if the farm operator worked off the farm less than 100 days or if the income of the farm operator and members of his family received from nonfarm sources was less than the total value of all farm products sold.

Land in farms according to use.—Land in farms was classified according to the use made of it in 1954. The classes of land are mutually exclusive, i. e., each acre of land was included only once even though it may have had more than one use during the year.

The classes referred to in this report are as follows:

Cropland harvested.—This includes land from which crops were harvested; land from which hay (including wild hay) was cut; and land in small fruits, orchards, vineyards, nurseries, and greenhouses. Land from which two or more crops were reported as harvested was to be counted only once.

Cropland used only for pasture.—In the 1954 Census, the enumerator's instructions stated that rotation pasture and all other cropland that was used only for pasture were to be included under this class. No further definition of cropland pastured was given the farm operator or enumerator. Permanent open pasture may, therefore, have been included under this item or under "other pasture," depending on whether the enumerator or farm operator considered it as cropland.

Cropland not harvested and not pastured.—This item includes idle cropland, land in soil-improvement crops only, land on which all crops failed, land seeded to crops for harvest after 1954, and cultivated summer fallow.

In the Western States, this class was subdivided to show separately the acres of cultivated summer fallow. In these States, the acreage not in cultivated summer fallow represents largely crop failure. There are very few counties in the Western States in which there is a large acreage of idle cropland or in which the growing of soil-improvement crops is an important use of the land.

In the States other than the Western States, this general class was subdivided to show separately the acres of idle cropland (not used for crops or for pasture in 1954). In these States, the incidence of crop failure is usually low. It was expected that the acreage figure that excluded idle land would reflect the acreage in soil-improvement crops. However, the 1954 crop year was one of low rainfall in many Eastern and Southern States and, therefore, in these areas the acreage of cropland not harvested and not pastured includes more land on which all crops failed than would usually be the case.

Cultivated summer fallow.—This item includes cropland that was plowed and cultivated but left unseeded for several months to control weeds and conserve moisture. No land from which crops were harvested in 1954 was to be included under this item.

Cropland, total.—This includes cropland harvested, cropland used only for pasture, and cropland not harvested and not pastured.

Land pastured, total.—This includes cropland used only for pasture, woodland pastured, and other pasture (not cropland and not woodland).

Woodland, total.—This includes woodland pastured and woodland not pastured.

Value of land and buildings.—The value to be reported was the approximate amount for which the land and the buildings on it would sell.

Off-farm work and other income.—Many farm operators receive a part of their income from sources other than the sale of farm products from their farms. The 1954 Agriculture Questionnaire included several inquiries relating to work off the farm and non-farm income. These inquiries called for the number of days worked off the farm by the farm operator; whether other members of the operator's family worked off the farm; and whether the farm operator received income from other sources, such as sale of products from land rented out, cash rent, boarders, old age assistance, pensions, veterans' allowances, unemployment compensation, interest, dividends, profits from nonfarm business, and help from other members of the operator's family. Another inquiry asked whether the income of the operator and his family from off-farm work and other sources was greater than the total value of all agricultural products sold from the farm in 1954. Off-farm work was to include work at nonfarm jobs, businesses, or professions, whether performed on the farm premises or elsewhere; also, work on someone else's farm for pay or wages. Exchange work was not to be included.

Specified facilities and equipment.—Inquiries were made in 1954 to determine the presence or absence of selected items on each place such as (1) telephone, (2) piped running water, (3) electricity, (4) television set, (5) home freezer, (6) electric pig brooder, (7) milking machine, and (8) power feed grinder. Such facilities or equipment were to be counted even though temporarily out of order. Piped running water was defined as water piped from a pressure system or by gravity flow from a natural or artificial source. The enumerator's instructions stated that pig brooders were to include those heated by an electric heating element, by an infrared or heat bulb, or by ordinary electric bulbs. They could be homemade.

The number of selected types of other farm equipment was also obtained for a sample of farms. The selected kinds of farm equipment to be reported were (1) grain combines (for harvesting and threshing grains or seeds in one operation); (2) cornpickers; (3) pickup balers (stationary ones not to be reported); (4) field forage harvesters (for field chopping of silage and forage crops); (5) motortrucks; (6) wheel tractors (other than garden); (7) garden tractors; (8) crawler tractors (tracklaying, caterpillar); (9) automobiles; and (10) artificial ponds, reservoirs, and earth tanks.

Wheel tractors were to include homemade tractors but were not to include implements having built-in power units such as self-propelled combines, powered buck rakes, etc. Pickup and truck-trailer combinations were to be reported as motortrucks. School buses were not to be reported, and jeeps and station wagons were to be included as motortrucks or automobiles, depending on whether used for hauling farm products or supplies, or as passenger vehicles.

Farm labor.—The farm-labor inquiries for 1954, called for the number of persons doing farmwork or chores on the place during a specified calendar week. Since starting dates of the 1954 enumeration varied by areas or States, the calendar week to which the farm-labor inquiries related varied also. The calendar week was September 26–October 2 or October 24–30. States with the September 26–October 2 calendar week were: Arizona, California, Colorado, Connecticut, Florida, Idaho, Kansas, Kentucky, Louisiana, Maine, Massachusetts, Michigan, Minnesota, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico,

New York, North Dakota, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Dakota, Tennessee, Texas, Utah, Vermont, Washington, Wisconsin, and Wyoming. States with the October 24-30 calendar week were: Alabama, Arkansas, Delaware, Georgia, Illinois, Indiana, Iowa, Maryland, Mississippi, Missouri, North Carolina, Ohio, South Carolina, Virginia, and West Virginia. Farmwork was to include any work, chores, or planning necessary to the operation of the farm or ranch business. Housework, contract construction work, and labor involved when equipment was hired (custom work) were not to be included.

The farm-labor information was obtained in three parts: (1) Operators working, (2) unpaid members of the operator's family working, and (3) hired persons working. Operators were considered as working if they worked 1 or more hours; unpaid members of the operator's family, if they worked 15 or more hours; and hired persons, if they worked any time during the calendar week specified. Instructions contained no specifications regarding age of the persons working.

Regular and seasonal workers.—Hired persons working on the farm during the specified week were classed as "regular" workers if the period of actual or expected employment was 150 days or more during the year, and as "seasonal" workers if the period of actual or expected employment was less than 150 days. If the period of expected employment was not reported, the period of employment was estimated for the individual farm after taking into account such items as the basis of payment, wage rate, expenditures for labor in 1954, and the type and other characteristics of the farm.

Specified farm expenditures.—The 1954 Census obtained data for selected farm expense items in addition to those for fertilizer and lime. The expenditures were to include the total specified expenditures for the place whether made by landlord, tenant, or both.

Expenditures for machine hire were to include any labor included in the cost of such machine hire. Machine hire refers to custom machine work such as tractor hire, threshing, combining, silo filling, baling, ginning, plowing, and spraying. If part of the farm products was given as pay for machine hire, the value of the products traded for this service was to be included in the amount of expenditures reported. The cost of trucking, freight, and express was not to be included.

Expenditures for hired labor were to include only cash payments. Expenditures for housework, custom work, and contract construction work were not to be included.

Expenditures for feed were to include the expenditures for pasture, salt, condiments, concentrates, and mineral supplements, as well as those for grain, hay, and mill feeds. Expenditures for grinding and mixing feeds were also to be included. Payments made by a tenant to his landlord for feed grown on the land rented by the tenant were not to be included.

Expenditures for gasoline and other petroleum fuel and oil were to include only those used for the farm business. Petroleum products used for the farmer's automobile for pleasure or used exclusively in the farm home for heating, cooking, and lighting were not to be included.

Crops harvested.—The information on crops harvested refers to the acreage and quantity harvested for the 1954 crop year. An exception was made for land in fruit orchards and planted nut trees. In this case, the acreage represents that in both bearing and nonbearing trees and vines as of October and November 1954.

Hay.—The data for hay includes all kinds of hay except soybean, cowpea, sorghum, and peanut hay.

Livestock and poultry.—The data on the number of livestock and poultry represent the number on hand on the day of enumera-

tion (October-November 1954). The data relating to livestock products and the number of livestock sold relate to the sales made during the calendar year 1954.

LABOR RESOURCES

The data for labor resources available represent estimates based largely on Census data and developed for the purpose of making comparisons among farms of various size of operations. The labor resources available are stated in terms of man-equivalents.

To obtain the man-equivalents the total number of farm operators as reported by the 1954 Census were adjusted for estimated man-years of work off the farm and for the number of farm operators 65 years old and over. The farm operator was taken to represent a full man-equivalent of labor unless he was 65 years or older or unless he worked at an off-farm job in 1954.

The man-equivalent estimated for farm operators reporting specified amounts of off-farm work were as follows:

<i>Days worked off the farm in 1954</i>	<i>Estimated man-equivalent</i>
1-99 days.....	0.85
100-199 days.....	.50
200 days and over.....	.15

The man-equivalent for farm operators 65 years of age and older was estimated at 0.5.

Man-equivalents of members of the farm operator's family were based upon Census data obtained in response to the question "How many members of your family did 15 or more hours of farm work on this place the week of September 26-October 2 (or, in some areas, the week of October 24-30) without receiving cash wages?" Each family worker was considered as 0.5 man-equivalent. This estimate provides allowance for the somewhat higher incidence of women, children, and elderly persons in the unpaid family labor force.

In addition, the number of unpaid family workers who were reported as working 15 or more hours in the week of September 26-October 2 was adjusted to take account of seasonal changes in farm employment. Using published and unpublished findings of the U. S. Department of Agriculture and State Agricultural Colleges, and depending largely upon knowledge and experience with the geographic areas and type of farming, each author determined the adjustment factor needed to correct the number of family workers reported for the week of September 26-October 2 to an annual average basis.

Man-equivalents of hired workers are based entirely upon the expenditure for cash wages and the average wage of permanent hired laborers as reported in the 1954 Census of Agriculture.

Value of or investment in livestock.—Numbers of specified livestock and poultry in each subregion were multiplied by a weighted average value per head. The average values were computed from data compiled for each kind of livestock for the 1954 Census of Agriculture. The total value does not include the value of goats. (For a description of the method of obtaining the value of livestock, see Chapter VI of Volume II of the reports for the 1954 Census of Agriculture.)

Value of investment in machinery and equipment.—The data on value of investment in machinery and equipment were developed for the purpose of making broad comparisons among types and economic classes of farms and by subregions. Numbers of specified machines on farms, as reported by the Census, were multiplied by estimated average value per machine. Then the total values obtained were adjusted upward to provide for the inclusion of items of equipment not included in the Census inventory of farm machinery.

The estimates for average value of specified machines and the proportion of total value of all machinery represented by the value of these machines were based largely on published and unpublished data from the "Farm Costs and Returns" surveys conducted currently by the Agricultural Research Service, U. S. Department of Agriculture.¹ Modifications were made as needed in the individual chapters on the basis of State and local studies. The total estimated value of all machinery for all types and economic classes of farms is approximately equal to the value of all machinery as estimated by the U. S. Department of Agriculture.

Value of farm products sold, or gross sales.—Data on the value of the various farm products sold were obtained for 1954 by two methods. First, the values of livestock and livestock products sold, except wool and mohair; vegetables harvested for sale; nursery and greenhouse products; and forest products were obtained by asking each farm operator the value of sales. Second, the values of all other farm products sold were computed. For the most important crops, the quantity sold or to be sold was obtained for each farm. The entire quantity harvested for cotton and cottonseed, tobacco, sugar beets for sugar, hops, mint for oil, and sugarcane for sugar was considered sold. The quantity of minor crops sold was estimated. The value of sales for each crop was computed by multiplying the quantity sold by State average prices. In the case of wool and mohair, the value of sales was computed by multiplying the quantity shorn or clipped by the State average prices.

Gross sales include the value of all kinds of farm products sold. The total does not include rental and benefit, soil conservation, price adjustment, Sugar Act, and similar payments. The total

does include the value of the landlord's share of a crop removed from a farm operated by a share tenant. In most of the tables, detailed data are presented for only the more important sources of gross sales and the total for the individual farm products or sources will not equal the total as the values for the less important sources or farm products have been omitted. (For a detailed statement regarding the reliability and method of obtaining the value of farm products sold, reference should be made to Chapter IX of Volume II of the reports for the 1954 Census of Agriculture.)

Livestock and livestock products sold.—The value of sales for livestock and livestock products includes the value of live animals sold, dairy products sold, poultry and poultry products sold, and the calculated value of wool and mohair. The value of bees, honey, fur animals, goats, and goat milk is not included.

The value of dairy products includes the value of whole milk and cream sold, but does not include the value of butter and cheese, made on the farm, and sold. The value of poultry and products includes the value of chickens, broilers, chicken eggs, turkeys, turkey eggs, ducks, geese, and other miscellaneous poultry and poultry products sold. The value does not include the value of baby chicks sold.

Crops sold.—Vegetables sold includes the value of all vegetables harvested for sale, but does not include the value of Irish potatoes and sweetpotatoes.

The value of all crops sold includes the value of all crops sold except forest products. The value of field crops sold includes the value of sales of all crops sold except vegetables, small fruits and berries, fruits, and nuts.

¹ Farm Costs and Returns, 1955 (with comparisons), Agriculture Information Bulletin No. 168, Agricultural Research Service, U. S. Department of Agriculture, June 1956.

CHAPTER VI

WESTERN STOCK RANCHES AND LIVESTOCK FARMS

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WESTERN STOCK RANCHES AND LIVESTOCK FARMS

MONT H. SAUNDERSON

WESTERN REGIONS

Stock ranching, that phase of American agriculture which still has its romantic connotations, is predominant in the land that lies west of a transitional zone which marks the change from successful farming that is not irrigated to the country where crops depend on irrigation or on other special techniques. This transition zone extends north and south through the central and western parts of North Dakota and South Dakota and Nebraska, then through the western part of Kansas, Oklahoma, and Texas.

Within this zone there are localized areas of stock ranching but, as a rule, most of the lands with suitable topography and soils have been plowed and the native rangeland is gone. Characteristically this zone has an average annual rainfall precipitation around 20 inches in the northern plains and 25 inches in the southern plains.

West of this zone are many livestock operations that should be characterized as stock farms rather than stock ranches. These stock farms may have considerable acreages of native grazing lands, but they provide a limited part of the year-round livestock maintenance for such farms. A considerable part of the Great Plains is diversified with livestock and with dry-land agriculture, and a combination of cash-grain production and the production of cultivated livestock feed and forage crops. Then too, in many of the irrigated valleys of the West, a type of operating unit has developed that is characterized as a stock farm rather than as a stock ranch.

Eastward of the transitional zone, which runs north and south through the Plains States, there are many agricultural areas with a predominance of farm types that would be classified as livestock farms, according to Census definitions. These may be farms with a sizable herd of beef cattle, a flock of sheep, a livestock feeding and fattening enterprise, or a hog-production enterprise.

We see then that the livestock ranches differ from the livestock farms in that the stock ranches use extensive acreages of native grazing lands, whereas livestock farms have fewer stock and more cropland. In the arid and semiarid parts of the 17 Western States the stock ranch depends mainly on the forage production of natural grazing lands. The acreage of native rangeland required by a stock ranch usually varies between 12 and 100 acres of rangeland per animal unit, defining the animal unit as 1 head of mature cattle or 5 ewes. It is not, as a rule, economic to use grazing lands of any lower capacity than 100 acres per animal unit.

One may see this picture graphically by referring to Figure 1, which shows by a dot map the location of farms in the United States. The number of farms becomes progressively fewer as one goes westward through the Plains States. This is indicative of the fact that the stock ranches operate very extensively over large acreages. One sees how irrigation projects have influenced the development of farming operations in the West. For example, the irrigation farming development is clearly indicated in central Utah, in the Central Valley of California, and in the Snake River Valley as it extends across southern Idaho.

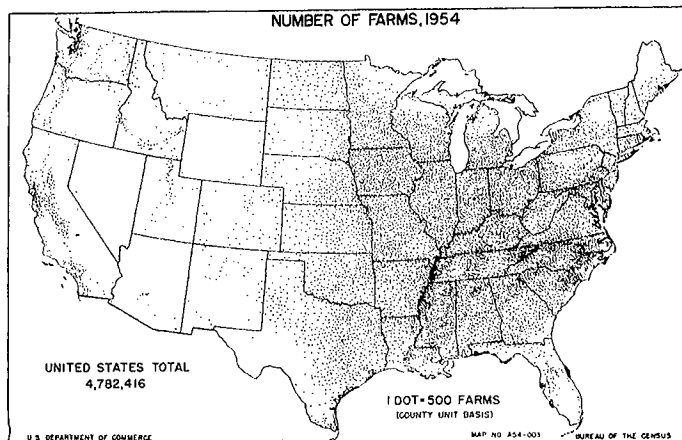


FIGURE 1.

Extensive use of large acreages, both privately owned land and public lands, is a common characteristic of stock ranches (see Figure 2). In the Rocky Mountains and westward there are, in addition to the privately owned lands, large acreages that are not held within the ranches and stock farms; this is especially true of the 11 Western States. These lands that are not in farms are principally in Federal public ownership. They are mainly lands reserved for the national forests, lands of the public domain now held chiefly in Federal grazing districts, lands held in wildlife refuges, lands withdrawn for reclamation development, and the other Federal public lands. In the 11 Western States some 155 million acres of mountainous uplands are in the national forest, and some 140 million acres of arid public domain lands are in the Federal grazing districts.

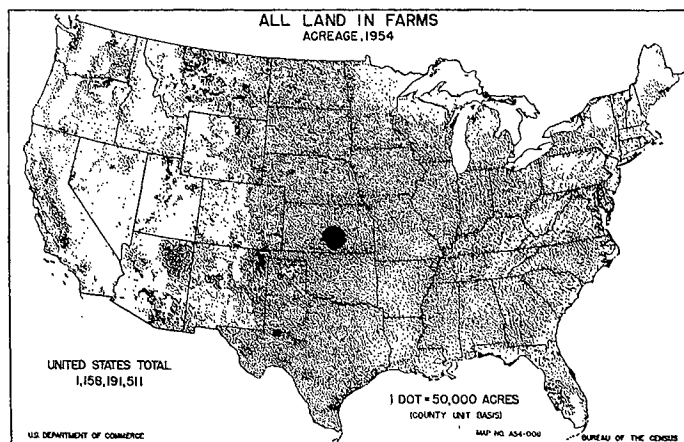


FIGURE 2.

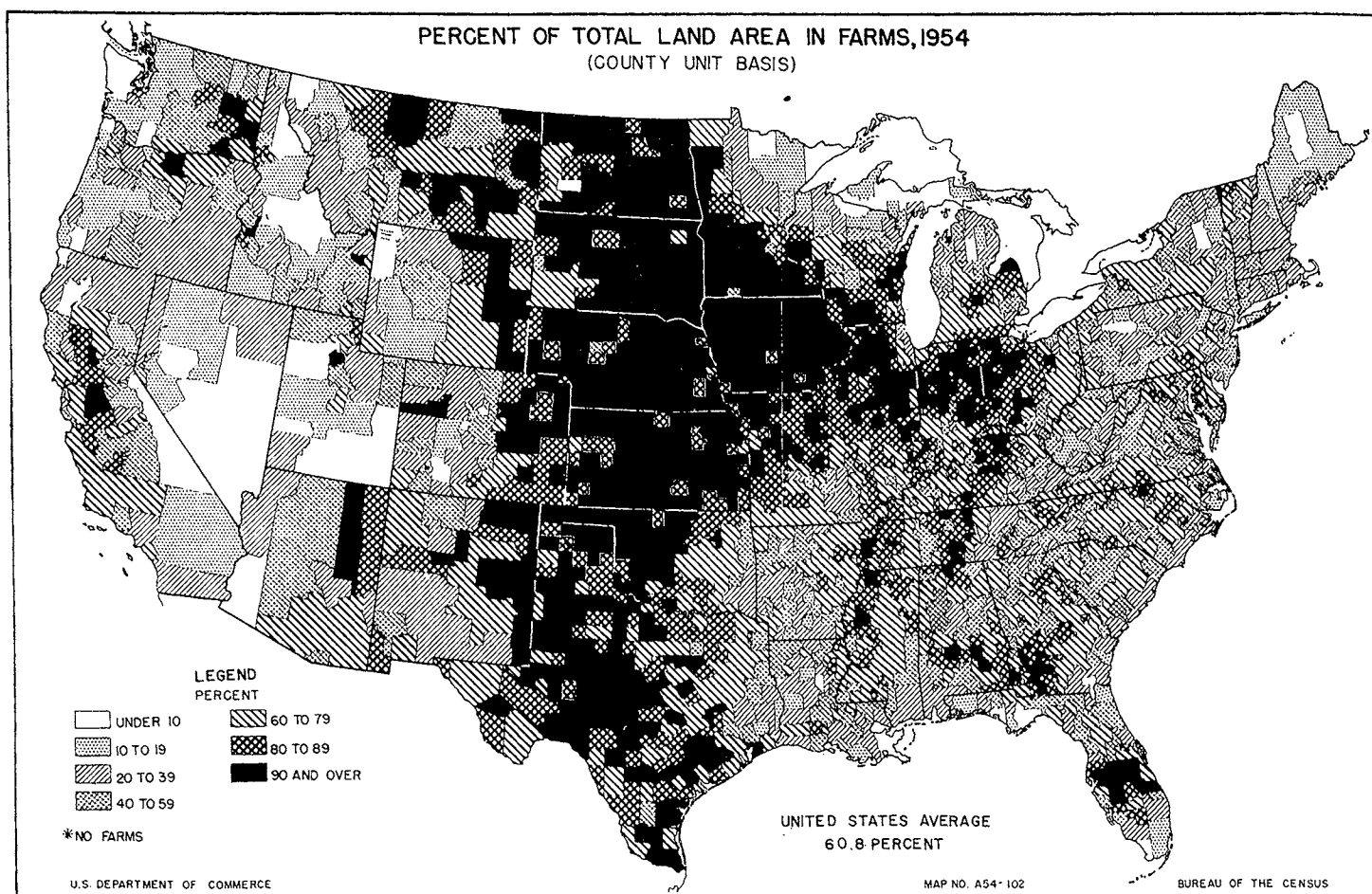


FIGURE 3.

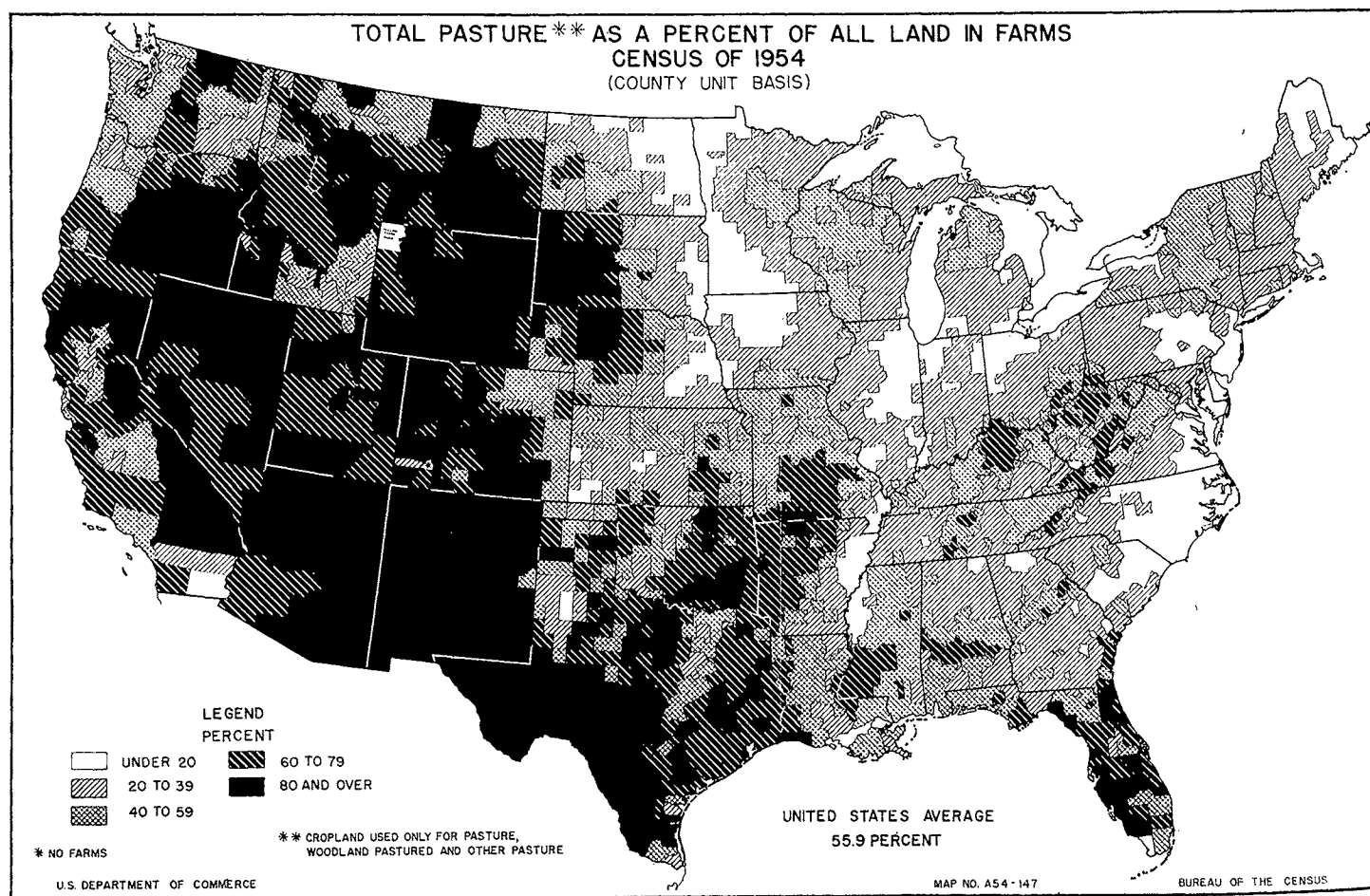


FIGURE 4.

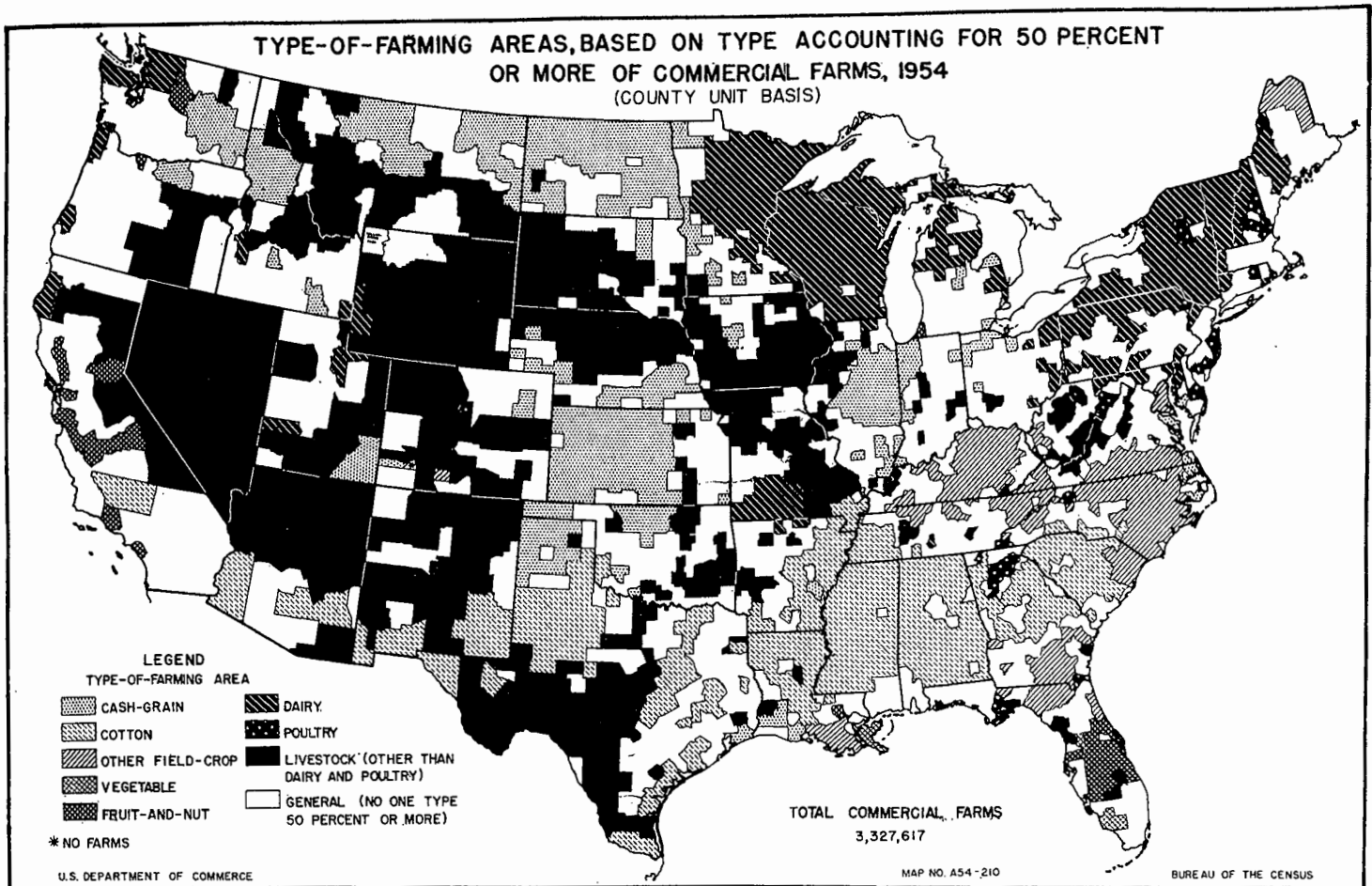


FIGURE 5.

This picture of the importance of the public lands in the operation of the ranches in the 11 Western States is further illustrated by Figure 3. There is a high proportion of land in farms in the States of the upper Mississippi Valley, and the percentage of land in farms becomes less to the west of the Plains States. The map shows that, in most of the 17 Western States, pastureland in farms dominates the land use picture. Most of this pastureland in farms is rangeland used by stock ranches. Evidently, west of what is described as the transition zone of the Plains States, the use of rangeland by the stock ranches is a major feature of land use throughout the stock-ranching areas.

A further illustration of the land use areal importance of the stock ranch in the Western States is given in Figure 5. This map is somewhat influenced in its areal pattern by the areas of irrigation development in the Western States, but the stock ranch is the dominant factor, so far as acreage of land use is concerned, throughout all of the West from the transitional zone westward. There are areas of the Plains States where the development of nonirrigated cash-crop farming has been, and is, such that the number of these farms overshadow the number of stock ranches. This is especially true in northern Montana and western North Dakota.

In its development over the last several decades, western stock ranching has become not only an important factor in the agriculture of the West, but also in the agricultural economy of the United States. Though the parts of the 17 Western States that hold most of the stock ranches do not have a major part of the cattle numbers of the United States, the western stock-ranching

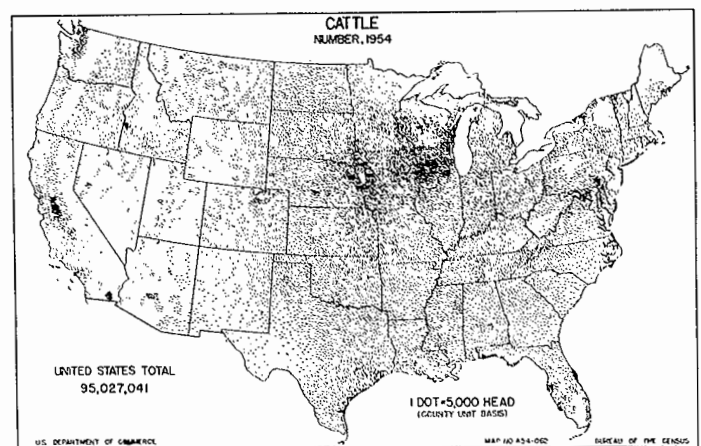


FIGURE 6.

States do have a considerable share of the total beef cattle numbers. The density of cattle numbers shown in Figure 6 (for southern Minnesota, for northern Illinois, and for Wisconsin) is due mainly to the concentration of dairy cattle in these locations. In the western locations a concentration of dairy cattle is due to the development of irrigation. Examples are found in the Fort Collins and Greeley areas of Colorado, in the Salt River Valley of Arizona, in the Central Valley district of California, in the area around Boise, Idaho, in the Snake River Valley, and a few other places.

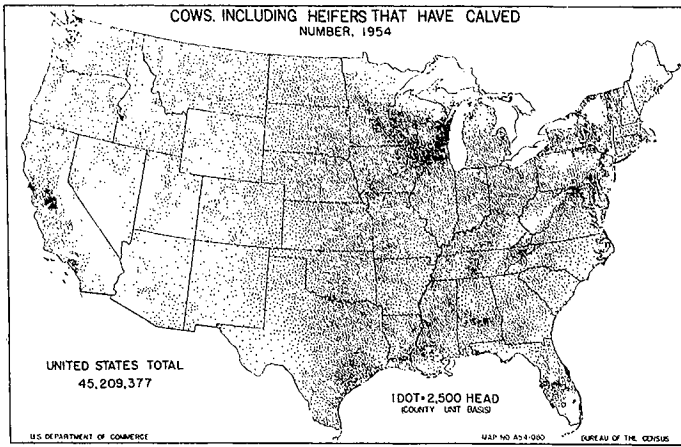


FIGURE 7.

Most of the beef cattle in the Western States are beef cattle on stock ranches and stock farms. In the beef-cattle population of the Western States, there is a somewhat higher proportion of beef breeding cows than is usual for the United States (compare Figures 6 and 7). The western stock ranches are beef breeding and raising operations which produce large numbers of young feeder animals that are marketed to the farms of the upper Mississippi Valley for feed-lot fattening and finishing (see Figure 7). Consequently, the concentration of total cattle numbers in the upper Mississippi Valley States (see Figure 6) is partly due to the export of the feeder animals from the breeding herds of western stock ranches. Thus, as a result of past economic developments, the stock ranches of the Western States have become integrated with the economy of the stock farms in the upper Mississippi Valley.

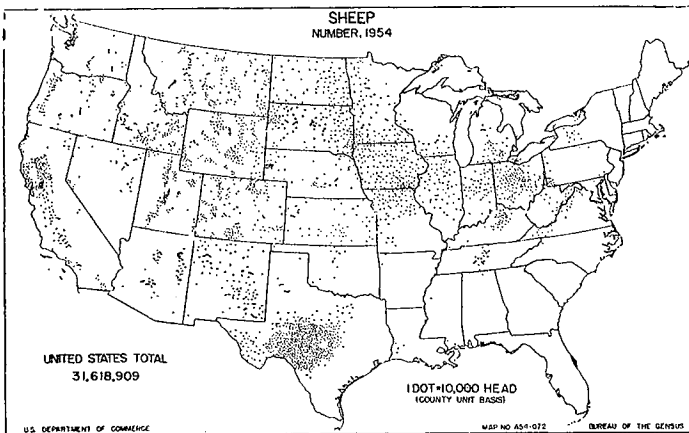


FIGURE 8.

The stock ranches of the West are the dominant factor in the production of sheep in the United States (see Figure 8). The major part of the sheep population of the Western States is on stock ranches rather than on stock farms, although in recent years farm flocks have increased. There is a rather striking concentration of the number of range sheep in the Edwards Plateau district of Texas (see Figure 8). Sheep are widely distributed among the ranches of Montana, Wyoming, Colorado, and New Mexico, and others of the Western States.

The sheep ranches, like the cattle ranches, are considerably integrated with the livestock and feeding and fattening farms of the upper Mississippi Valley. Large numbers of feeder lambs from the range bands of the western stock ranches move into the farm feed lots of this part of the Mississippi Valley for fattening and finishing. Many of the feeder lambs from the western sheep ranches are fed for finishing in the irrigated districts of the West. This accounts for the concentration of sheep numbers in the California Central Valley district.

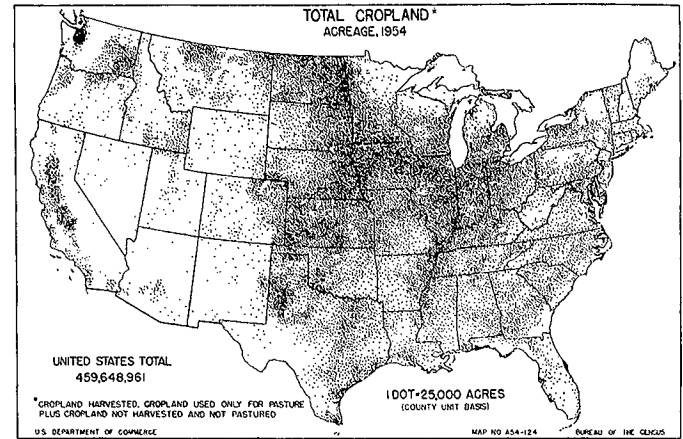


FIGURE 9.

To summarize this general characterization of the stock ranches of the West, it may be said that their economy is that of harvesting large acreages of native forage through the use of grazing animals, with the production and use of a minimum quantity of agricultural crop feeds. This fact is further illustrated by Figure 9. A comparatively limited acreage is devoted to cropland in the 11 Western States. The stock ranches of the West use some agricultural crop feeds and in certain areas may use a considerable quantity, but in the main they derive the major part of the livestock feed from grazing lands. They produce livestock which, generally, go to the farming areas that produce decidedly more crop feeds where they are fed and fattened for market.

Natural Regions

Preliminary to an analysis and discussion of the differences in stock ranching in the Western States, it is illuminating to describe the natural characteristics of the larger natural land areas in the West and their influence upon differences in the stock-ranching operations. A brief discussion of the natural characteristics of the principal physiographic regions of the West, and the influence of the natural factors by regions upon the ranches is valuable as background for understanding the differences in western stock ranching, for the stock ranch must adapt itself to nature and natural environment to a much greater extent than is true of crop agriculture.

There are four principal overall general regions of the West. They are (1) the Great Plains, (2) the Rocky Mountains, (3) the Intermountain Plateau region, and (4) the Pacific Coast region. Within these large general regions there are definitely recognized physiographic areas based upon such considerations as land forms, geologic and soil factors, and climate.

The Great Plains region is recognized as consisting of three major physiographic areas: (1) The Northern Plains extend approximately from the North Platte River northward into Canada, and from the "Coteau du Missouri" escarpment, which is east of the Missouri River, westward to the northern Rocky Mountains. (2) The central or high plains extending southward from the North Platte River to the southern escarpment of the Ogallala limestone cap rock, known as the "break of the plains" which occurs in the Texas Panhandle and in western Oklahoma and eastern New Mexico. The western limit of this area is the southern Rocky Mountains of Colorado and New Mexico. The eastern limit, though not too definite, is approximately the western third of Nebraska and Kansas. (3) The Southern Plains, extending southward from the break of the plains and including the "Staked Plains" of Texas, the Edwards Plateau and the Rio Grande Plain of Texas, and the trans-Pecos part of Texas, and southeastern New Mexico west to the southern Rocky Mountains.

The Rocky Mountain region also is made up of three main physiographic areas. These are (1) the northern Rocky Mountains which include western Montana and northern Idaho; (2) the middle Rocky Mountains which extend from the Madison Plateau of the Yellowstone Park, southward to the approximate location of Provo, Utah; and (3) the southern Rocky Mountains which begin near Laramie, Wyo., and extend southward through Colorado and end at the approximate location of Santa Fe, N. Mex.

The Intermountain Plateau region is the large region comprising four physiographic areas: (1) The Colorado Plateau area, which includes the high plateaus of southern and eastern Utah, western Colorado, northern Arizona, and northwestern New Mexico; (2) the Great Basin area, which includes northern and western Utah, most of Nevada, a large part of southeastern Oregon, and a considerable part of northeastern California; (3) the Columbia Plateaus of Oregon and Washington and including the Snake River Plains of northern Idaho; (4) the southwestern desert, which includes all of Arizona south of the Mogollon rim and including a considerable part of southern and southeastern California. In addition, there is a small physiographic area in southeastern Arizona and southwestern New Mexico known as the Mexican Highlands. It consists of rolling hills and mountain country lying at considerably higher elevation than the desert lands of southern Arizona.

The Pacific Coast region, in general, has for its main physiographic features the area west of the Cascade and Sierra Mountains. West of these mountain ranges is the Willamette Valley, the California Central Valley, and the coastal mountain ranges and coast range intermountain valleys of Washington, Oregon, and California.

The natural factors of climate, soils, topography, and native forage types in these principal physiographic areas to a considerable extent predetermine the nature and differences in stock-ranching operations. Because they use large acreages of native forage lands, stock ranches, much more than the farming operations, must adapt themselves to their natural environment. Within each of these principal physiographic areas there is a large degree of similarity in the organization and operating characteristics of stock ranches.

The Great Plains region.—Stock ranches in the northern Great Plains have relatively productive natural grasslands. Because of the roughlands of much of the northern Great Plains, these ranches have good natural shelter. They usually have adequate surface supplies of stock water, except in the large Nebraska sand-hills area where surface waters are often not available. Livestock ranchers in the northern plains can "range" their livestock most of the year, because of the roughlands terrain and

the snow-clearing action of the plains winds. As a rule, ranchers in this region use their supplies of hay and other winter feed mostly as reserves against winter storms. The rangeland is somewhat better adapted to cattle than to sheep, but in most locations it is and can be used for either cattle or sheep. That part of the northern Great Plains that lies north of the Missouri River in northern Montana and in northwestern North Dakota has a glaciated terrain and is, consequently, somewhat lacking in natural winter shelter. It also has been extensively developed for arable agriculture, principally dry-land wheat farming. The stock ranching of the glaciated part of the northern Great Plains is limited mainly to the local roughlands areas and to the breaks along the principal streams.

The stock ranching of the central plains has been greatly changed over the last several decades by the development of dry-land agriculture. The central plains include southwestern Nebraska, southeastern Wyoming, eastern Colorado, western Kansas, northeastern New Mexico, and the Texas and Oklahoma Panhandles. Here, too, the stock ranches are limited to those areas where topography or soils and climate preclude crop farming. Where there are areas of roughlands, of broken lands, of sandy lands, and of lands inferior as to soils and moisture, stock ranching is found. Lands that are regarded as inferior for agriculture because of soil and moisture deficiencies are not necessarily poor rangelands. In fact, there are some rather productive rangelands where soils are deficient for crop farming.

In the central plains area, a major part of the beef cattle now are on the livestock farms rather than on the stock ranches. There are, for example, in the plains of eastern Colorado, areas in which dry-land crop farms are highly diversified with livestock, principally beef cattle. These farms have some native pasture but in addition they grow some cash-grain and feed crops, such as grain sorghums, for maintenance of the farm herd and for the finishing of young animals.

In the southern plains certain areas are now so much influenced by crop farming that the stock ranches are rather limited and localized. The Staked Plains area of Texas is an illustration. But other considerable areas are predominantly devoted to ranching. The Edwards Plateau of Texas, the trans-Pecos country of Texas, and the Rio Grande Plain remain predominantly stock-ranching territory, so far as major land use is concerned. The Edwards Plateau, owing to the importance of browse in the range forage, is notable for its sheep ranching. Cattle ranching dominates the trans-Pecos part of Texas and the Rio Grande Plain part of Texas.

The Rocky Mountain region.—In the northern part of the Rocky Mountain region both cattle ranching and sheep ranching are very important. These ranches are principally in the mountain valleys; most of their deeded land is irrigated cropland in the valley and bunch-grass rangelands in the foothills. Because of the usual winter snow covering, these ranches must provide cropland feeds adequate to maintain the livestock for 3 to 5 months of the year. The ranches, generally, use several types of native rangeland and crop-feed and forage land that are highly seasonal in character. Such seasonal lands must be fitted together in as good a relationship as possible to attain a year-round balanced ranching unit of spring range, summer range, fall range, and wintering crop feeds and pastures. The foothill grasslands, adjacent to the valleys, usually provide the spring and fall range, and sometimes the summer range too, though the summer grazing is often in the nearby national forests by permit. The valley lands, some of which are irrigated, usually provide the crop feeds and the pasturage for the winter months.

For the middle part of the Rocky Mountain region the most effective natural influence is the proximity of the mountain-valley ranches to considerable stretches of desert and semidesert ranch lands that can be reached by migration from the ranches. This is true in Utah and in western Wyoming and southeastern Idaho. This migration sometimes extends for moderately long distances from the home ranch or base property lands. Since migration over these distances is easier for sheep than for cattle, sheep ranching is predominant over cattle ranching in this area. Such migration to the winter ranges of the desert lands, public domain lands in grazing districts, takes the place of the production and use of crop feeds for wintering.

In the southern part of the Rocky Mountain region much of the stock ranching is in the high mountain valleys. These valleys, such as the North Park and South Park areas of Colorado, are characterized by long winter-feeding periods, which require considerable hay production and feeding. Offsetting this, the ranchers have relatively high-producing mountain rangeland. These high mountain valleys are usually better suited for cattle ranching than for sheep.

The Intermountain Plateau region.—In the rather large Intermountain Plateau region there is a type of sheep-ranching operation that may be characterized as migratory. It is based largely upon the use of seasonal rangelands. These operations, in contrast to the sheep ranches of the central Rocky Mountain areas, use very little crop feed. Sheep ranches of the central Rocky Mountains migrate to seasonal rangelands from a ranching property base, whereas the migratory sheep ranches of the intermountain region have a cycle of migration between the low desert lands for their winter range and the uplands and the national forest for their summer range. Often they have very little in deeded or "base property" lands. Between the summer and winter range the ranchers may own some of the better of the lands of the intermediate elevations, the sagebrush zone, as their ranching base properties. The cattle ranches of the Great Basin usually are located around the mountain ranges; they are based upon the ownership of foothill grasslands below the mountains, and of the better of the sagebrush lands between the mountain foothills and the arid desert lands.

The stock ranches of the Colorado Plateau part of the intermountain plateau country are about equally divided between cattle and sheep ranches. These ranches have the better grasslands of the plateau country for their deeded lands. The summer grazing is both on the deeded lands and on the national forests. The winter grazing is on the lower and dryer lands, considerable extents of which are in Federal public-domain grazing districts.

In the Columbia Plateau of the intermountain country an important natural influence is the fact that an exotic annual grass known as cheat grass now dominates the lower and dryer rangelands of the Columbia River drainage. This grass is highly seasonal and is usable principally during its green period in early spring. As a result, much of the Columbia Plateau country can be used best by sheep for spring and fall range. To fit in with this seasonal use of the rangelands, many of the ranchers have developed a crop-feed and pasture operating base on irrigated lands.

In the lower and more arid parts of the southwestern area, the cattle ranches are organized principally on the basis of an annual herd of the size which can be sustained on dependable forage production of perennial plants. Then, in those years when the winter and spring moisture is adequate to produce a good volume of the desert winter annuals, additional cattle are

purchased and brought in for use of the nondependable desert forage. However, in the higher parts in the southwestern desert, there are locations of grassland hill country on which a good and well-balanced year-round cattle-ranching operation can be maintained on the perennial grasses and shrubs. In the country around Nogales, Ariz., for example, the annual rainfall is about 16 inches and a rather good grassland resource supports productive and well-balanced year-round ranching. In contrast, the rangelands of the Salt River Valley, near Phoenix, have an average annual precipitation of about 6 inches, which means that the rangeland must be used mainly as seasonal range in those years when the desert winter annuals are relatively abundant.

The Pacific Coast region.—Cattle ranching in the Pacific Northwest part of the Pacific Coast region is limited to certain rather minor areas where natural grasslands prevail and can be maintained in the competition with natural forest production.

Stock ranching in the California part of this region is found mainly along the Sierra foothills, and in the coastal mountain ranges. Because of intensive development of crop farming in the Central Valley of California there are not many stock ranches in the valley. But the stock ranches of the border lands make extensive use of the crop feeds and pastures that are available from the large irrigation developments of the valley.

There are many local areas of stock ranching in the coastal ranges of California, but as winter rainfall type of climate prevails here, the rangelands are highly seasonal. Most of the production of forage on these lands is from the annual grasses which are green in the winter and become very dry in late May. As the summer is hot and almost rainless, it is necessary to supplement the herd of year-round ranching operations with hay or concentrate supplement during the summer, much as during the winter, in the ranches of the northern climates.

The ranches bordering the southern part of the California Central Valley, and those of the southern California coastal ranges, are comparable with the ranches of the southwestern desert in that many of them maintain a basic herd that can be sustained through the summer on the limited feeds from the dry annuals, and then buy additional stocker animals in the fall for pasture on the green annuals during the winter and spring. In fact, the import of cattle into California for use of the lush growth of the annual grasses during these seasons dominates the California ranching economy. These additional stocker animals are marketed in the spring, principally as feeder livestock, to the farm and feed-lot feeders of the Central Valley of California.

INSTITUTIONAL AND ECONOMIC FACTORS

Besides these natural factors that bear upon the organization and operational characteristics of stock ranches, certain legislative and economic factors have had and do have decided influence upon the characteristics of western stock ranches. Some of these factors have more influence in some regions than others.

One of the most important of the legislative influences upon the growth and present organization of stock ranches has been the laws relating to the acquiring of land from the Federal Government. The original Homestead Act limited the homestead acreage to 160 acres of land, and, except for some of the large Spanish land grants in the Southwest, the deeded lands had to go to private ownership through the homesteading of acreages that are very small in terms of the requirements of the ranch.

This meant that the better and more productive lands could be, and eventually would be, brought into private ownership through homesteading; but it also meant that in the desert and semidesert areas only the more productive of the rangelands, and the lands with water, would come into private ownership. Practically all of the lands in the Great Plains, nearly all of the foothill lands of the Rocky Mountains, and all of the valley lands of the Rocky Mountains were homesteaded. Eventually they were organized into economic-sized ranching units. In the intermountain region only the mountain foothill lands and the better of the sagebrush lands were homesteaded for ranching ownership and use.

As a result, there are now approximately 178 million acres of remaining public domain land in the 11 Western States. The major concentrations of this land are in western Wyoming, western Colorado, southeastern Oregon, northeastern and southeastern California, and in Utah, Nevada, Arizona, and New Mexico. Most of this public domain is now organized into Federal grazing districts, as provided in the Taylor Act of 1934. This land is used for grazing and at a rather low fee. The base property for such use is the lands with water and the preferred rangelands.

Besides the desert lands, approximately 155 million acres of mountain lands were withdrawn from the public domain and national forest reserves in the late 1890's and early 1900's. Some of this land eventually would have been brought into private ownership through homesteading, but for several natural and economic reasons most of it would have remained as public land. The national forests are principally the higher mountain locations throughout the 11 Western States. Approximately half of the national forest area is used for the grazing of domestic livestock. Primarily, this is highly seasonal grazing land usable principally during the summer. The charge for grazing on it is generally below the competitive rate for the leasing of comparable lands in private ownership.

Therefore in the 11 Western States, particularly, there has evolved an interdependence in the economy and use of the privately owned lands and of the public lands, so far as the ranches are concerned. This does not apply to the ranches of the Great Plains, for most of the land there is privately owned. But in the Rocky Mountains and westward there is an economic dependence of the lands owned by the stock ranchers on the various kinds of Federal public lands and, to some extent, on the lands owned by the States and that granted to the States by the Federal Government.

In the general picture, the public lands are used at low cost by the ranches and this fact is reflected in higher values for the deeded lands of the ranches. This has resulted in higher tax rates for the deeded lands. As a consequence, there now prevails a rather definite economic impediment to the movement of the lower grade lands into private ownership. In the present tax structure, and in the classification of lands for taxation purposes, the tendency in land classification for taxation is to adhere to an average, rather than to recognize extreme differences, as would be necessary for the movement of low-grade grazing lands in private ownership.

Another legislative factor of influence in the economy of stock ranches is the policy, in the administration of the Taylor Act, to require a standard of ownership of land and/or water as an operating basis for the use of the public domain. This has reduced drastically the migratory sheep operations which once prevailed extensively in the Great Basin and, to some extent, in the Colorado Plateau region.

Tariff legislation on wool has been an important influence in the

economy of western sheep ranching. Until recently the sheep-ranching operations in the West developed significantly under the protection of wool tariffs. During recent years, however, there has been a drastic decline in sheep numbers throughout the ranching areas of the West. This has been brought about chiefly by certain worldwide developments in textiles, by labor problems of the sheep ranchers, by the unsettled outlook concerning wool as a textile fiber, and by the fact that there is relatively more profit from cattle than from sheep. This is true despite the subsidization by the Federal Government of wool prices.

Another recent economic trend in western stock ranching has been the purchase of considerable land once leased by ranch owners. Along with this there has been a rather sharp rise in ranchland prices and values so that now the capital required in real estate for ranching is approximately four times as much as it was in 1940. In 1940, the value of real estate per animal unit averaged around \$75 to \$125. Data given later in this chapter show a present general average for this of about \$450.

In the overall picture the production costs or annual operating costs of western stock ranches now stand at approximately three times their prewar World War II level. Part of this is due to the general rise in prices; and part of it, to such changes in the organization and operation of the ranches as the greater mechanization of the haying operations, of the hay-feeding operations, of the transportation, and of the fencing and maintenance of fences. Another influential cause of this rise in production costs has been the purchase of considerably larger quantities of protein concentrate feeds to be used as range supplements. This economic development has brought a considerable rise in livestock output by western stock ranches, generally.

In addition, stock ranchers have had a considerable part in the improvement of rangeland. This applies especially to ranches of a rangeland type, where there is competition between the brush plants and the grasses. Use of mechanical and chemical means of brush removal followed by rangeland reseeding is now in progress. This is found especially in parts of the Texas Rio Grande Plain and Gulf coast areas, in certain locations in the intermountain plateau country, in the Southwest, and in the brush zone of the foothills and coastal mountains around the California Central Valley. This also has increased ranching costs. This recent development has not as yet reached large proportions, in terms of acreage covered.

Along with rising land values, taxes on land have approximately doubled since 1940.

On western stock ranches certain noteworthy developments also have occurred in livestock markets and marketing methods. There has been a rather general shift in markets, especially for the 11 Western States, toward the West Coast consuming centers and away from the livestock markets of the Missouri River and eastward. Moreover, the West Coast markets appear to be demanding more of the better quality of meat. This in turn has stimulated the feeding and fattening on the ranches and farms in the Western States. One of the most significant changes in marketing methods has been the rise of the local auction market to which local producers bring their livestock, and to which buyers from considerable distances often come. As a result, the country buyer who buys on order or for his own speculative purposes has been largely displaced. Also, fewer of the feeder livestock move into central markets for purchase by feeders. The livestock feeders are now more likely to come to the local auction market for their purchases of feeder animals.

SOME DIFFERENCES BY STATES

A summary of stock farms by States gives some general insight into the characteristics of western stock ranching, and reveals more of the differences in this important feature of the western rural economy. Certain of these data are given by States in Tables 1 through 5 (pp. 8 and 9). It should be noted that these data concern all of the farms that have the designation "stock farms." Included in this designation of stock farms there are, as has already been noted, not only the stock ranches of the Western States, but also a considerable number of operations that should be characterized as stock farms rather than as stock ranches. However, for the 17 Western States, and particularly for the 11 Western States, these summary data by States are sufficiently applicable to stock ranches that they may be studied, compared, and analyzed with reference to cattle and sheep ranching.

The materials in Table 1 afford an index of the relative importance of stock ranching in the economy of these 17 Western States. They also give an indication of the relative differences for each State in the average size of ranches. A comparison between States shows that both in terms of acres and in size of enterprise the stock ranch is likely to be larger in the States that have the more arid lands.

The comparisons in Table 2 show the relative importance, for the 17 Western States, of the acreage devoted to livestock ranching. In the Plains States, which have a large acreage of dry-land agriculture, the land in the livestock farms is not predominant in the total land in farms. In certain of these States a considerable part of the total acreage is in the form of public land. Nevada is an outstanding example, there the land in farms approximates about 12 percent of the total land of the State.

In certain of the States, the land in Indian reservations has considerable influence upon data concerning the acreage in farms. That is, Indian reservation land, not being regarded as public

TABLE 1.—NUMBER AND AVERAGE SIZE OF FARM FOR ALL FARMS AND FOR LIVESTOCK FARMS OTHER THAN DAIRY AND POULTRY, 17 WESTERN STATES: 1954

State	Total number of farms	Livestock farms other than dairy and poultry		Average size of farm (acres)	
		Number	Percent of total	All farms	Livestock farms other than dairy and poultry
Total, 17 Western States..	1, 180, 054	242, 018	20.5	20, 634	46, 800
Arizona.....	9, 285	1, 866	20.1	4, 492	9, 706
California.....	123, 002	10, 363	8.4	307	2, 010
Colorado.....	40, 672	12, 806	31.5	946	2, 061
Idaho.....	38, 810	4, 883	12.6	308	1, 254
Kansas.....	120, 201	25, 410	21.1	417	618
Montana.....	32, 056	10, 668	32.4	1, 855	3, 551
Nebraska.....	100, 733	42, 127	41.8	472	708
Nevada.....	2, 808	1, 212	43.2	2, 029	5, 720
New Mexico.....	20, 977	5, 665	27.0	2, 358	6, 677
North Dakota.....	61, 808	7, 740	12.5	681	1, 075
Oklahoma.....	119, 270	22, 341	18.7	269	636
Oregon.....	54, 442	6, 085	11.2	387	1, 943
South Dakota.....	62, 360	28, 081	45.0	721	1, 022
Texas.....	293, 152	48, 048	16.4	498	1, 944
Utah.....	23, 008	4, 544	19.7	537	1, 824
Washington.....	65, 135	4, 289	6.6	271	1, 019
Wyoming.....	11, 356	5, 890	51.9	3, 086	5, 023

land, may be included in the figures of land in all farms and yet not be included in the land acreage for the livestock farms in the Census. Arizona is an example. Table 2, showing the land in all farms and in the livestock farms, gives an indication as to the relative importance in use of land acreage for livestock farms and for the several other types of farms.

TABLE 2.—LAND AREA, LAND IN FARMS, AND PASTURELAND, FOR ALL FARMS AND FOR LIVESTOCK FARMS OTHER THAN DAIRY AND POULTRY, 17 WESTERN STATES: 1954

State	Land area (thousand acres)	Land in farms				Pastureland			
		Total, all farms		Livestock farms other than dairy and poultry		Total, all farms		Livestock farms other than dairy and poultry	
		Thousand acres	Percent of land area	Thousand acres	Percent of total	Thousand acres	Percent of land area	Thousand acres	Percent of land in farms
Total, 17 Western States.....	1, 161, 537	704, 090	60.6	308, 321	56.6	484, 283	41.7	344, 523	48.9
Arizona.....	72, 688	41, 705	57.4	18, 112	43.4	30, 198	53.9	17, 657	42.3
California.....	100, 314	37, 784	37.7	20, 829	55.1	25, 027	24.9	18, 742	40.6
Colorado.....	66, 510	38, 469	57.8	26, 387	68.6	27, 202	40.9	22, 231	57.8
Idaho.....	52, 972	14, 276	27.0	6, 125	42.9	8, 375	15.8	5, 301	37.1
Kansas.....	52, 459	50, 210	95.7	15, 697	31.3	19, 757	37.7	9, 755	19.4
Montana.....	93, 362	61, 463	65.8	37, 879	61.6	46, 675	50.0	34, 633	56.3
Nebraska.....	49, 064	47, 556	96.9	29, 827	62.7	24, 211	49.3	19, 229	40.4
Nevada.....	70, 265	8, 225	11.7	6, 944	84.4	7, 634	10.9	6, 547	79.6
New Mexico.....	77, 767	49, 455	63.6	37, 825	76.5	46, 543	59.8	36, 050	74.1
North Dakota.....	44, 836	42, 097	93.9	8, 319	19.8	12, 520	27.9	4, 754	11.3
Oklahoma.....	44, 180	35, 678	80.8	14, 216	39.8	22, 031	49.9	11, 526	32.3
Oregon.....	61, 642	21, 066	34.2	11, 820	56.1	15, 209	24.7	10, 614	50.4
South Dakota.....	48, 983	44, 970	91.8	28, 706	63.8	24, 577	50.2	19, 377	43.1
Texas.....	168, 648	140, 083	86.6	93, 393	63.9	113, 606	67.4	87, 940	60.2
Utah.....	52, 701	12, 354	23.4	8, 289	67.1	10, 031	19.0	7, 609	62.3
Washington.....	42, 743	17, 648	41.3	4, 369	24.8	9, 175	21.5	3, 816	21.6
Wyoming.....	62, 403	35, 042	56.2	29, 584	84.4	32, 512	52.1	28, 052	80.1

The comparison given in Table 3 regarding the difference by States in the average investment per farm for all farms and for stock farms, shows rather clearly that stock ranching now has a higher investment requirement than do most other types of farming, in the Western States. These data also show that the arid and semidesert areas have larger operating units in terms of acres, and larger operating units in terms of scale of enterprise. Arizona and Nevada are outstanding examples.

TABLE 3.—AVERAGE VALUE PER FARM OF LAND AND BUILDINGS, FOR ALL FARMS AND FOR LIVESTOCK FARMS OTHER THAN DAIRY AND POULTRY, 17 WESTERN STATES: 1954

State	Average value of land and buildings per farm		State	Average value of land and buildings per farm	
	All farms (dollars)	Livestock farms other than dairy and poultry ¹ (dollars)		All farms (dollars)	Livestock farms other than dairy and poultry ¹ (dollars)
Arizona.....	83,530	95,768	North Dakota....	24,505	26,504
California.....	80,118	90,384	Oklahoma.....	18,913	26,655
Colorado.....	36,389	54,372	Oregon.....	27,803	40,431
Idaho.....	31,662	41,856	South Dakota....	28,083	33,160
Kansas.....	34,711	40,473	Texas.....	29,265	65,565
Montana.....	43,108	53,549	Utah.....	23,398	36,855
Nebraska.....	34,395	37,681	Washington.....	29,116	35,885
Nevada.....	61,056	95,838	Wyoming.....	45,887	67,162
New Mexico.....	38,774	76,525			

¹ The arithmetic mean is about \$56,000, for the 17 Western States.

In addition to its larger requirements for capital investment in land and buildings, the stock ranch has the investment requirement for the livestock. As a rule, this runs higher than the personal-property investment requirements for most of the types of farms other than the stock ranch. That is to say, in terms of total enterprise the stock ranch has one of the highest, if not the highest, investment requirement for any type of agricultural enterprise.

In Tables 4 and 5, a comparison is given by States concerning the trend of the last 35 years in the population of grazing animals for the 17 Western States. The pattern of this trend is fairly similar for all of the States, except for certain of the Plains States. Certain of the Plains States have not followed the trend in the reduction of sheep numbers from the 1930 peak to 1954. An analysis of this information in somewhat more detail indicates that this situation is due to an increase in farm-flock sheep operations in the eastern parts of the Plains States.

Sheep numbers in this area now stand near the very low point reached in 1920. A peak in sheep numbers was reached in 1930. There has been a considerable liquidation in sheep numbers since World War II and this was accentuated somewhat by the Korean conflict of 1950. Something comparable to this took place in World War I resulting in reduced numbers of sheep for the year 1920. Over the last 50 years or more a rather definite interrelated cyclical shift has taken place between cattle numbers and sheep numbers on western stock ranches. Ranches tend to go out of sheep when cattle become relatively more profitable and to go back to sheep when the reverse situation develops. The trends of livestock population shown in Tables 4 and 5 should be interpreted with this in mind.

TABLE 4.—ALL CATTLE, 17 WESTERN STATES: 1920 TO 1954

(Number in thousands)

State	1920	1925	1930	1935	1940	1945	1950	1954
Total, 17 Western States.....	29,075	27,907	28,726	30,481	25,552	37,682	34,747	43,334
Arizona.....	822	1,069	695	771	638	750	656	950
California.....	2,008	1,918	2,103	2,132	2,056	2,831	2,757	3,745
Colorado.....	1,757	1,436	1,454	1,590	1,144	1,781	1,776	2,098
Idaho.....	715	606	622	784	663	949	949	1,357
Kansas.....	2,975	3,068	3,224	3,386	2,508	4,062	3,509	4,305
Montana.....	1,269	1,322	1,290	1,530	1,040	1,817	1,758	2,600
Nebraska.....	3,154	3,283	3,150	3,232	2,559	3,979	3,629	4,899
Nevada.....	356	419	308	342	339	479	424	555
New Mexico.....	1,300	1,267	1,055	1,071	843	1,091	1,138	1,160
North Dakota.....	1,335	1,341	1,454	1,219	1,178	1,878	1,588	2,104
Oklahoma.....	2,074	1,657	2,098	2,632	2,195	3,101	2,658	3,302
Oregon.....	851	784	805	928	799	1,101	1,099	1,490
South Dakota.....	2,348	2,022	1,974	1,632	1,496	2,544	2,513	3,440
Texas.....	6,157	5,846	6,603	7,222	6,282	8,864	7,825	8,240
Utah.....	506	504	442	411	374	562	562	728
Washington.....	573	582	625	741	698	910	878	1,126
Wyoming.....	875	783	824	858	740	983	1,028	1,235

TABLE 5.—SHEEP AND LAMBS, 17 WESTERN STATES: 1920 TO 1954

(Number in thousands)

State	1920	1925	1930	1935	1940	1945	1950	1954
Total, 17 Western States.....	22,988	25,583	39,872	34,466	29,059	30,922	22,763	22,655
Arizona.....	882	1,164	1,340	931	624	511	473	489
California.....	2,400	3,045	4,084	2,724	1,707	2,396	2,057	2,050
Colorado.....	1,813	2,244	2,605	2,449	1,681	2,394	1,657	1,914
Idaho.....	2,366	1,746	3,302	2,209	1,372	1,336	1,509	1,198
Kansas.....	361	315	574	714	547	943	511	555
Montana.....	2,083	2,188	4,027	3,823	3,010	2,906	1,337	1,732
Nebraska.....	673	647	496	689	510	931	314	602
Nevada.....	881	1,184	1,202	834	514	534	321	370
New Mexico.....	1,640	1,743	2,291	1,801	1,554	1,618	1,197	1,011
North Dakota.....	299	311	857	740	823	810	386	698
Oklahoma.....	105	62	222	309	313	231	151	223
Oregon.....	2,002	1,775	3,319	2,210	1,423	1,032	913	861
South Dakota.....	844	644	1,150	1,320	1,370	1,771	880	1,395
Texas.....	2,573	3,137	7,021	7,027	8,448	8,586	7,750	5,734
Utah.....	1,692	2,355	2,922	2,452	1,597	1,672	1,101	1,397
Washington.....	624	516	1,143	748	487	447	368	252
Wyoming.....	1,860	2,507	3,417	3,476	3,079	2,804	1,829	2,084

Cattle numbers in the Western States are now at an all-time peak. It is much above anything previously shown by recorded statistics. It seems probable that this is, in some degree, a trend in itself, not too much associated with any economic interrelationship with the trend in sheep numbers. This rise in cattle population in the Western States was generated partly by the high prices and profits prevailing during the years 1950, 1951, and 1952; but it also is the result of the rising human population on the West Coast and of the consequent enlarged market for livestock in the West and in the United States as a whole.

For later comments on this subject of differences in stock ranching by States for the Western States, reference is here made to the concept of principal economic subregions and of the State economic areas as shown in Figure 10. A considerable summation of Census data has been made for such subregions. These subregions have been delineated on the basis of similarity in the characteristics of the land resources of the economic factors and of the types of farming.

ECONOMIC SUBREGIONS AND STATE ECONOMIC AREAS: 1950

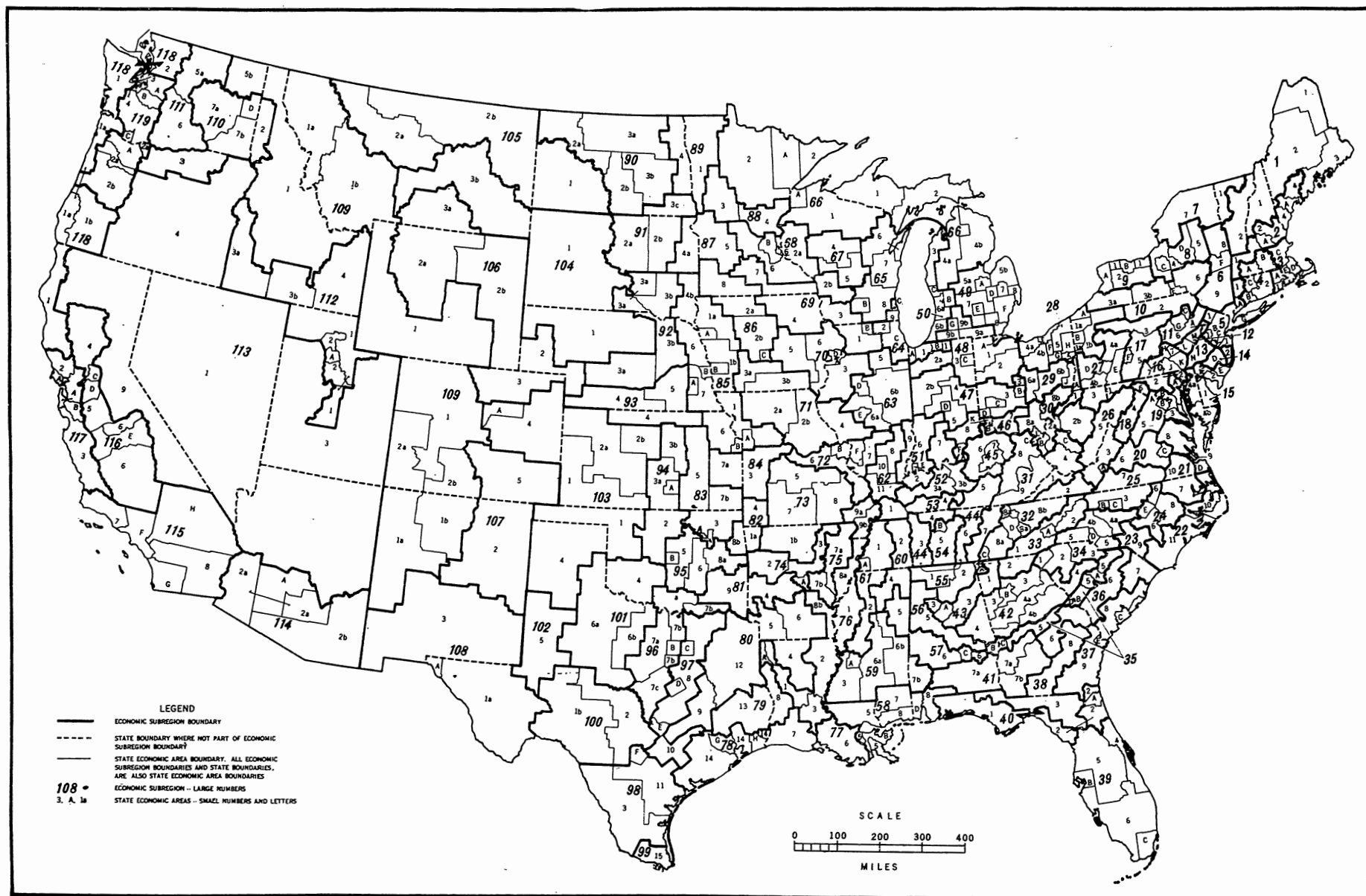


FIGURE 10.

SOME DIFFERENCES BY ECONOMIC SUBREGIONS

The economic subregions are quite large in the Western States (see Figure 10). This is necessarily so because of the extensive nature of the ranching and farming there. As the ranching and farming units are large and there are fewer farms in terms of area, the statistical summaries must be on a basis of large subregions. As a result there may be considerable dissimilarities within some of the subregions. Where this situation prevails, an attempt will be made to point out some explanation of major differences.

For each of the economic subregions, the Census materials have been summarized for all farms to give a classification of major farming types. In addition, within each of these types of farming a summarization has been made by economic size classes for each type. The concern here is with the summaries of the economic size classes for the major farm types known as livestock farms, which, in the Western States, contain most of the stock ranches. The economic size classes into which each major farm type is divided are (1) Class I farms, with an income from sales, in 1954, in excess of \$25,000; (2) Class II farms, with an income of \$10,000 to \$24,999; (3) Class III farms, with an income of \$5,000 to \$9,999; (4) Class IV farms, with an income of \$2,500 to \$4,999; (5) Class V farms, with an income of \$1,200 to \$2,499; (6) Class VI farms, with an income of \$250 to \$1,199.

This part of the analysis of differences in western stock ranching, consequently, concerns the differences in certain of the economic aspects of the several different economic size classes of stock ranches in the Western States, and this analysis is made by economic subregions. These data are analyzed in the following pages, with a summarizing table for each of the western subregions where livestock ranching is important. A brief description is given concerning the resources, the geography, and the natural and economic factors for each subregion within the four general livestock regions of the West.

The Great Plains

The Great Plains area is divided into several economic subregions, each having within it physical and economic phenomena common to the livestock ranches in the area but somewhat different in combination or magnitude from those in other economic subregions.

Economic subregion 98.—This subregion consists principally of the Rio Grande Plain of Texas (see Figure 10). It is essentially a livestock ranching subregion, but within it are local crop-specialty farming areas and other types of farming. The Rio Grande Plain merges with the Gulf coastal prairies in this subregion, which is natural grassland territory that has a problem of brush control on rangeland.

This subregion has a few very large livestock ranches. Only about one-eighth of the livestock farms were classified in Economic Classes I and II (see Table 6). The average number of animal units per ranch for all ranches (an animal unit calculated as 1 head of stock cattle or 5 ewes) is not so large as for many of the other western subregions, but the average size of the Class I ranches is by far the largest of all of the western subregions. The largest size class of the ranches accounts for approximately 5 percent of the ranches and 44 percent of the animal units of livestock for the subregion. The two smallest of the ranch size classes account for approximately 51 percent of the ranches and 13½ percent of the animal units of livestock for the subregion.

This subregion then has the greatest extreme in the contrast between large and small ranches. The small ranches, with less than 100 animal units of livestock, do not afford a full-time job for an operator; those with less than 60 animal units are definitely subeconomic in size unless there is some complementary enterprise.

Table 6 shows that there is a great contrast between large and small ranch units in the number of animal units of livestock handled per worker (family and hired) and consequently in the efficiency in the use of labor. A comparison of Table 6 with the following tables reveals that a considerable proportion of subeconomic ranching units prevails in nearly all of the western subregions.

This picture of the few animal units of livestock per worker on the small ranches is distorted somewhat by the fact that a considerable number of these small units do have some other agricultural enterprise. Essentially, however, most of these operations in the small size classes are subeconomic stock ranches.

Land values are high and there is a consequent high investment in land and buildings per animal unit of livestock. This averages approximately \$497 per animal unit for all size classes, and only the largest size class averages much below the general average. Drought and the consequent decrease in livestock numbers probably has accentuated this extreme. The general average for all western subregions of the investment per animal unit, in land and buildings, is approximately \$450.

TABLE 6.—LIVESTOCK FARMS IN SUBREGION 98, BY ECONOMIC CLASS OF FARM: 1954

Item	Total	Economic class of farm					
		I	II	III	IV	V	VI
Number of farms.....	4,384	215	335	650	935	1,284	945
Percent distribution.....	100.0	4.9	7.7	14.9	21.4	29.4	21.7
Livestock, average number per farm:							
Cattle.....	177	1,588	385	164	97	58	33
Sheep.....	12	114	29	8	8	4	1
Animal units.....	180	1,611	391	166	99	59	33
Animal units, total.....	783,891	346,331	131,106	107,611	92,364	75,388	31,091
Percent distribution.....	100.0	44.2	16.7	13.7	11.8	9.6	4.0
Man-equivalent per farm.....	1.8	9.5	2.8	1.9	1.4	1.1	1.1
Animal units per man-equivalent.....	99	170	141	86	73	54	30
Hired labor per farm.....							
dollars.....	1,294	12,878	2,875	1,231	585	357	117
Hired labor per animal unit.....							
dollars.....	7.20	7.99	7.35	7.43	5.92	6.07	3.55
Investment in land and buildings per animal unit.....							
dollars.....	497	385	519	544	530	639	614
Value of land and buildings, per farm.....	89,385	620,362	203,058	90,343	52,463	37,707	20,264
Value of livestock per farm.....	12,255	107,903	26,761	11,476	6,960	4,026	2,304
Value of land and buildings and livestock per farm.....	101,640	728,265	229,819	101,819	59,423	41,733	22,558
Value of all farm products sold per farm.....	8,345	91,799	15,877	7,360	3,682	1,832	831
Livestock and livestock products sales as a percent of value of all farm products sold.....	93.7	95.4	93.1	89.8	91.0	93.2	94.4

Economic subregion 100.—This southern plains subregion is the Edwards Plateau district of west-central Texas (see Figure 10). This is a subregion of combination cattle and sheep ranching. In its high investment in land and buildings per animal unit of livestock, it exceeds that of subregion 98. Because of drought, a considerable reduction in livestock has taken place in this subregion.

The livestock require only a small quantity of winter supplemental feedings, and ranching operations of adequate economic size consist of 125 to 150 animal units per man-year of work. Table 7 shows that only the Class I ranches meet this standard, as in Rio Grande Plains district more than half of the livestock farms are small units with gross income of under \$5,000.

TABLE 7.—LIVESTOCK FARMS IN SUBREGION 100, BY ECONOMIC CLASS OF FARM: 1954

Item	Total	Economic class of farm					
		I	II	III	IV	V	VI
Number of farms.....	8,325	497	1,272	1,696	2,031	1,957	872
Percent distribution.....	100.0	6.0	15.3	20.4	24.4	23.5	10.5
Livestock, average number per farm:							
Cattle.....	60	320	97	52	34	23	17
Sheep.....	410	2,568	870	326	155	70	30
Animal units.....	142	834	271	118	65	37	23
Animal units, total.....	1,183,289	414,342	344,565	199,407	132,812	71,069	20,194
Percent distribution.....	100.0	35.0	29.1	16.9	11.2	6.1	1.7
Man-equivalent per farm.....	1.5	4.9	2.3	1.4	1.2	0.9	1.0
Animal units per man-equivalent.....	92	172	120	83	54	40	24
Hired labor per farm.....							
dollars.....	889	5,708	1,887	634	336	168	60
Hired labor per animal unit.....							
dollars.....	6.26	6.92	6.96	5.39	5.13	4.57	2.57
Investment in land and buildings per animal unit.....							
dollars.....	665	540	686	703	784	776	821
Value of land and buildings, per farm.....	94,496	450,755	185,909	82,991	50,985	28,698	18,881
Value of livestock per farm.....	8,409	48,044	15,620	7,056	4,087	2,372	1,546
Value of land and buildings and livestock per farm.....							
dollars.....	102,905	498,799	201,529	90,047	55,072	31,070	20,427
Value of all farm products sold per farm.....	8,226	50,885	15,476	6,996	3,625	1,823	810
Livestock and livestock products sales as a percent of value of all farm products sold.....	97.7	98.4	98.6	96.9	96.1	94.6	93.8

Economic subregion 101.—This subregion consists of the rolling plains country of the southern plains, just south of the break of the plains, in southwestern Oklahoma and north-central Texas (see Figure 10). It consists mostly of a good bunch-grass range-land which is more suited to cattle than to sheep. It is primarily a stock-ranching country although considerable crop agriculture is now in the region.

The first three of the economic classes of ranches of this subregion account for most of the units that are stock ranches (see Table 8). But more than two-thirds of the livestock farms are in Economic Classes IV through VI. The stock ranches do not need supplemental feed in winter and this fact is reflected in the large number of cattle handled per man for the ranches of Class I size. Investment in land and buildings is high for the stock ranches.

Economic subregion 103.—This large subregion constitutes the eastern part of the central High Plains (see Figure 10). It extends well into the crop farming areas of Kansas and Oklahoma, and consequently includes the transition zone from crop farming to stock ranching. It has only localized areas devoted primarily to stock ranching. As a result, the figures given in Table 9 reflect comparatively small average size stock farms and stock ranches. Most of the stock-ranching operations are accounted for by the Economic Classes I, II, and III (see Table 9). Slightly more than half of the livestock farms fall in these classes.

The stock ranches have a high investment in land and buildings per animal unit of livestock. These land value and investment figures per animal unit are inflated somewhat by the inclusion of relatively high value lands used for crop production.

TABLE 8.—LIVESTOCK FARMS IN SUBREGION 101, BY ECONOMIC CLASS OF FARM: 1954

Item	Total	Economic class of farm					
		I	II	III	IV	V	VI
Number of farms.....	6,822	336	752	1,151	1,525	1,944	1,114
Percent distribution.....	100.0	4.9	11.0	16.9	22.4	28.5	16.3
Livestock, average number per farm:							
Cattle.....	108	890	195	95	56	35	23
Sheep.....	70	344	149	109	56	16	6
Animal units.....	122	959	225	117	67	38	24
Animal units, total.....	829,073	322,240	168,967	134,101	102,267	74,799	26,689
Percent distribution.....	100.0	38.9	20.4	16.2	12.3	9.0	3.2
Man-equivalent per farm.....	1.3	5.2	2.0	1.4	1.0	0.8	1.0
Animal units per man-equivalent.....	93	185	115	86	65	50	25
Hired labor per farm.....							
dollars.....	813	7,654	1,788	723	306	109	109
Hired labor per animal unit.....							
dollars.....	6.69	7.98	7.06	6.20	4.56	2.82	4.55
Investment in land and buildings per animal unit.....							
dollars.....	551	552	562	541	553	525	566
Value of land and buildings, per farm.....	67,258	529,322	120,495	62,799	37,031	10,963	13,586
Value of livestock per farm.....	8,038	63,265	14,774	7,666	4,418	2,605	1,654
Value of land and buildings and livestock per farm.....							
dollars.....	75,296	592,587	141,269	70,465	41,449	22,568	15,240
Value of all farm products sold per farm.....	7,874	70,279	15,731	7,261	3,653	1,800	758
Livestock and livestock products sales as a percent of value of all farm products sold.....	86.4	91.0	82.2	81.4	83.8	83.8	92.2

TABLE 9.—LIVESTOCK FARMS IN SUBREGION 103, BY ECONOMIC CLASS OF FARM: 1954

Item	Total	Economic class of farm					
		I	II	III	IV	V	VI
Number of farms.....	13,673	1,542	2,626	2,803	3,157	2,523	1,022
Percent distribution.....	100.0	11.3	19.2	20.5	23.1	18.5	7.5
Livestock, average number per farm:							
Cattle.....	126	485	161	91	57	37	23
Sheep.....	20	92	22	18	4	3	1
Animal units.....	130	504	166	94	58	37	23
Animal units, total.....	1,776,065	776,468	434,945	264,230	182,662	94,304	23,456
Percent distribution.....	100.0	43.7	24.5	14.9	10.3	5.3	1.3
Man-equivalent per farm.....	1.5	3.1	1.7	1.4	1.1	1.0	1.0
Animal units per man-equivalent.....	89	162	100	70	51	37	25
Hired labor per farm.....							
dollars.....	823	4,181	1,024	437	183	106	47
Hired labor per animal unit.....							
dollars.....	6.34	8.30	6.18	4.64	3.16	2.83	2.04
Investment in land and buildings per animal unit.....							
dollars.....	549	472	583	597	615	619	804
Value of land and buildings, per farm.....	71,400	237,867	96,808	56,119	35,663	22,898	18,501
Value of livestock per farm.....	10,781	41,532	13,706	7,814	4,878	3,190	1,974
Value of land and buildings and livestock per farm.....							
dollars.....	82,181	279,399	110,514	63,933	40,541	26,088	20,475
Value of all farm products sold per farm.....	13,642	69,577	15,836	7,152	3,709	1,939	988
Livestock and livestock products sales as a percent of value of all farm products sold.....	83.4	86.3	77.9	78.4	83.1	86.3	86.2

TABLE 10.—LIVESTOCK FARMS IN SUBREGION 104, BY ECONOMIC CLASS OF FARM: 1954

Item	Total	Economic class of farm					
		I	II	III	IV	V	VI
Number of farms.....	14,132	1,126	2,884	3,830	3,417	2,085	790
Percent distribution.....	100.0	8.0	20.4	27.1	24.2	14.8	5.6
Livestock, average number per farm:							
Cattle.....	180	745	261	133	85	56	35
Sheep.....	80	308	128	54	23	8	5
Animal units.....	195	824	286	144	90	57	30
Animal units, total.....	2,761,473	928,133	825,063	551,966	307,997	119,641	28,673
Percent distribution.....	100.0	33.6	29.9	20.0	11.2	4.3	1.0
Man-equivalent per farm.....	1.6	3.6	1.9	1.5	1.2	1.1	1.0
Animal units per man-equivalent.....	124	226	150	100	75	55	37
Hired labor per farm.....							
dollars.....	771	4,735	1,178	359	167	82	65
Hired labor per animal unit.....	3.95	5.74	4.12	2.49	1.86	1.43	1.79
Investment in land and buildings per animal unit.....							
dollars.....	395	264	370	440	573	423	422
Value of land and buildings, per farm.....	77,046	217,731	105,838	63,426	51,542	24,117	15,199
Value of livestock per farm.....	18,697	76,830	27,239	14,064	8,914	5,743	3,612
Value of land and buildings and livestock per farm.....	95,743	294,561	133,077	77,490	60,456	29,860	18,811
Value of all farm products sold per farm.....	10,233	50,091	14,895	7,163	3,852	1,914	846
Livestock and livestock products sales as a percent of value of all farm products sold.....	93.1	96.5	91.4	90.1	90.5	93.9	95.2

TABLE 11.—LIVESTOCK FARMS IN SUBREGION 105, BY ECONOMIC CLASS OF FARM: 1954

Item	Total	Economic class of farm					
		I	II	III	IV	V	VI
Number of farms.....	6,336	427	1,176	1,769	1,613	1,007	344
Percent distribution.....	100.0	6.7	18.6	27.9	25.5	15.9	5.4
Livestock, average number per farm:							
Cattle.....	143	489	228	132	81	53	36
Sheep.....	105	803	180	44	12	15	2
Animal units.....	164	649	264	141	83	56	36
Animal units, total.....	1,039,727	277,304	309,945	249,467	134,584	55,985	12,442
Percent distribution.....	100.0	26.7	29.8	24.0	12.9	5.4	1.2
Man-equivalent per farm.....	1.6	4.3	1.9	1.5	1.3	1.1	1.1
Animal units per man-equivalent.....	101	152	138	94	63	52	33
Hired labor per farm.....							
dollars.....	889	6,371	1,414	473	187	97	45
Hired labor per animal unit.....	5.42	9.81	5.37	3.36	2.24	1.75	1.24
Investment in land and buildings per animal unit.....							
dollars.....	257	230	247	257	200	328	408
Value of land and buildings, per farm.....	42,116	149,558	65,104	36,306	24,069	18,386	14,706
Value of livestock per farm.....	16,540	62,766	26,238	14,560	8,776	5,860	3,852
Value of land and buildings and livestock per farm.....	58,656	212,324	91,342	50,866	32,845	24,246	18,558
Value of all farm products sold per farm.....	9,375	47,984	15,143	7,309	3,850	1,480	920
Livestock and livestock products sales as a percent of value of all farm products sold.....	81.1	85.9	79.7	76.9	80.3	74.8	88.0

Economic subregion 104.—This is a large subregion that includes the middle and eastern parts of the northern Great Plains region. It includes the Nebraska sand-hills country, that portion of western South Dakota that is west of the Missouri River, and a considerable part of the Yellowstone Valley of Montana. Except for the localities of irrigated farming, it is essentially a livestock-ranching country. But there are significant differences in the characteristics of the livestock ranching within the subregion as the western part is mountain foothill ranching, and the eastern part is distinctly Great Plains ranching. The size classes are influenced considerably by the very large ranching operations of the Nebraska sandhills.

The ranching operations can be characterized as medium-to-large. The lower economic classes account for a considerable proportion of the operating units but most of the units of the first four economic classes are large enough to be economic units from the standpoint of operation. This is indicated by the rather high labor efficiency for these operations (see Table 10), and by comparison with other data. The ranches in the top economic class handle the largest number of animal units of livestock per worker of any subregion in the West. This is due in part to the fact that generally the ranching operations do not have to grow very much hay and do very little winter feeding of the livestock.

Table 10 shows that the investments in land and buildings per animal unit of livestock average much lower than for any of the subregions previously discussed. This is chiefly because most of the stock ranches were fully stocked in 1954, in contrast to the relatively small number of livestock in 1954 in the southern plains because of drought.

Economic subregion 105.—This subregion comprises the northern part of the northern Great Plains. It is important stock-ranching territory and includes a considerable part of the dry-land wheat farming of Montana. As a general rule, there is not much economic association or interrelationship between the stock ranches and the wheat farms. A limited number of combination stock-ranch and wheat-farm operations are found in the Montana portion but generally these are large operating units.

The higher labor requirement shown for the livestock operations in this region, in comparison with subregion 104, is due primarily to the higher winter-feeding requirements for the livestock (see Tables 10 and 11). As a rule, the stock ranches must produce enough hay and other feed crops for 2 to 3 months of winter feeding.

An analysis of land and buildings values for stock ranches in this subregion shows that stock ranches have a comparatively low investment per animal unit. Though this is partly due to the generally fully stocked condition of these stock ranches in 1954, it also reflects the historically lower land and buildings values in the "North Country."

Economic subregion 106.—Subregions 104, 105, and 106 constitute the northern Great Plains. Subregion 106 is rather diverse. It includes the Big Horn Basin in Wyoming and surrounding mountains, the plains of eastern Wyoming, northeastern Colorado, and southwestern Nebraska. Except for small localized irrigation farming, this subregion is distinctly one of stock ranching. Nearly 60 percent of the livestock farms are in Economic Classes I through III.

Labor requirements for the stock ranches are similar to those in subregion 105 (see Tables 11 and 12). Winter-feeding requirements for livestock are similar and the size of the ranches is comparable.

Land and buildings investment per animal unit averages somewhat higher in subregion 106 than in subregions 104 and 105.

TABLE 12.—LIVESTOCK FARMS IN SUBREGION 106, BY ECONOMIC CLASS OF FARM: 1954

Item	Total	Economic class of farm					
		I	II	III	IV	V	VI
Number of farms.....	10,283	1,794	2,120	2,178	2,035	1,488	668
Percent distribution.....	100.0	17.4	20.6	21.2	19.8	14.5	6.5
Livestock, average number per farm:							
Cattle.....	152	416	175	111	61	43	27
Sheep.....	162	603	161	65	36	16	6
Animal units.....	184	536	207	124	68	46	28
Animal units, total.....	1,897,173	961,798	438,735	270,811	138,769	68,255	18,805
Percent distribution.....	100.0	50.7	23.1	14.3	7.3	3.6	1.0
Man-equivalent per farm.....	1.7	3.5	1.8	1.4	1.1	1.0	1.0
Animal units per man-equivalent.....	108	152	113	88	60	51	29
Hired labor per farm.....							
dollars.....	1,380	5,234	1,379	537	238	123	62
per animal unit.....	7.48	9.76	6.66	4.32	3.48	2.67	2.19
Investment in land and buildings per animal unit.....							
dollars.....	316	308	326	348	403	478	579
Value of land and buildings, per farm.....	58,237	165,602	67,420	43,154	27,387	21,975	16,219
Value of livestock per farm.....	17,086	48,837	19,201	11,764	6,555	4,429	2,762
Value of land and buildings and livestock per farm.....	75,323	214,439	86,621	54,908	33,942	26,404	18,981
Value of all farm products sold per farm.....	19,972	80,698	15,777	7,405	3,744	1,929	808
Livestock and livestock products sales as a percent of value of all farm products sold.....	89.6	91.0	84.3	88.0	89.0	92.7	93.4

high number of animal units of livestock per man-year of work for the ranches reflects the fact that stock ranches in this subregion have a low winter-feeding requirement. In most of the years the cattle and sheep can be "ranged" through the winter.

Investment in land and buildings per animal unit in the ranches is moderate and more comparable to the ranches in the northern plains than to those of the southern plains (see Table 13).

Desert Region

Economic subregion 108.—The western part of the southern Great Plains lies in this subregion. The rangeland resources are the southern plains semidesert grasslands. This definitely is a livestock-ranching subregion, though as in most subregions in the West it contains some other kinds of agriculture. In subregion 108 most of the farms other than stock ranches are located in the irrigation districts along the Rio Grande. The livestock ranches have a large average size (see Table 14). In fact, the average size of the stock ranch is the largest among the western subregions. Sixteen percent of the livestock farms in this area were classified as Class I farms. The values of land, buildings, and livestock on these farms average over one-half million dollars.

The labor requirements on these livestock ranches are low because of their favorable size and because very little winter feeding is required. The general efficiency on the Class I ranches, however, is not as high as might be expected. One possible explanation is the general use of untrained workers.

The investment per animal unit in land and buildings is about the same as in other subregions. Ranches in this subregion have a lower land and buildings investment per animal unit than that of most subregions in the southern plains. Probably this is due to the use of considerable acreages of public land by the stock ranches in the New Mexico part.

TABLE 14.—LIVESTOCK FARMS IN SUBREGION 108, BY ECONOMIC CLASS OF FARM: 1954

Item	Total	Economic class of farm					
		I	II	III	IV	V	VI
Number of farms.....	2,003	322	448	383	337	356	157
Percent distribution.....	100.0	16.1	22.4	19.1	16.8	17.8	7.8
Livestock, average number per farm:							
Cattle.....	244	702	281	176	115	69	40
Sheep.....	454	1,691	585	193	42	34	9
Animal units.....	335	1,041	398	215	123	76	42
Animal units, total.....	670,962	335,046	178,485	82,298	41,510	27,048	6,575
Percent distribution.....	100.0	49.9	26.6	12.3	6.2	4.0	1.0
Man-equivalent per farm.....	2.2	5.6	2.1	1.6	1.4	1.1	1.3
Animal units per man-equivalent.....	152	186	186	138	87	70	32
Hired labor per farm.....							
dollars.....	2,420	9,203	2,198	1,080	902	410	341
per animal unit.....	7.25	8.84	5.52	5.03	7.32	5.40	8.15
Investment in land and buildings per animal unit.....							
dollars.....	467	487	452	489	505	544	623
Value of land and buildings, per farm.....	156,504	507,418	170,786	105,142	62,105	41,322	26,185
Value of livestock per farm.....	23,374	71,280	27,613	15,444	9,120	5,636	3,183
Value of land and buildings and livestock per farm.....	179,878	578,698	207,399	120,586	71,225	46,958	29,368
Value of all farm products sold per farm.....	17,588	60,340	17,895	7,417	3,830	1,819	674
Livestock and livestock products sales as a percent of value of all farm products sold.....	94.3	92.1	98.4	97.8	96.8	98.5	99.7

TABLE 13.—LIVESTOCK FARMS IN SUBREGION 107, BY ECONOMIC CLASS OF FARM: 1954

Item	Total	Economic class of farm					
		I	II	III	IV	V	VI
Number of farms.....	5,024	420	710	829	1,117	1,161	787
Percent distribution.....	100.0	8.4	14.1	16.5	22.2	23.1	15.7
Livestock, average number per farm:							
Cattle.....	155	706	250	150	80	52	30
Sheep.....	73	449	133	44	23	16	6
Animal units.....	169	795	286	168	84	55	31
Animal units, total.....	850,893	334,050	203,002	131,287	94,030	64,182	24,341
Percent distribution.....	100.0	39.3	23.9	15.4	11.1	7.5	2.9
Man-equivalent per farm.....	1.5	4.0	2.0	1.5	1.2	1.0	1.1
Animal units per man-equivalent.....	112	198	146	107	73	58	28
Hired labor per farm.....							
dollars.....	873	5,702	1,510	585	237	123	36
per animal unit.....	5.16	7.17	5.28	3.69	2.82	2.23	1.16
Investment in land and buildings per animal unit.....							
dollars.....	386	350	336	391	486	458	573
Value of land and buildings, per farm.....	65,288	278,332	96,202	61,764	40,849	25,172	17,749
Value of livestock per farm.....	13,774	63,985	23,106	12,915	6,970	4,620	2,624
Value of land and buildings and livestock per farm.....	79,062	342,317	119,308	74,679	47,819	29,792	20,373
Value of all farm products sold per farm.....	512	2,863	1,083	357	188	71	15
Livestock and livestock products sales as a percent of value of all farm products sold.....	95.0	95.9	92.9	93.6	94.5	95.9	97.4

Economic subregion 107.—This subregion constitutes the western part of the central Great Plains (see Figure 10). The rather

Economic subregion 114.—The southern third of Arizona makes up this subregion. It is desert land with the exception of the high rolling hill country of southeastern Arizona. It has a high proportion of public lands, and large livestock ranching operations. For this reason it is comparable with economic subregion 113 in the size and characteristics of the ranches.

The labor efficiency for the ranches is not as high as may be expected for desert ranching where comparatively little winter feeding of the livestock is required. This is especially true with respect to Class I ranches (see Table 15). There is considerable use of untrained employees on the ranches and this may explain part of the low labor efficiency.

The investment in land and buildings per animal unit is below the average of western subregions but it is rather high considering the extent of public land use and desert ranching here. The extensive buying of ranches for winter recreation and for "dude" ranching probably explains in part the high value of land and buildings per animal unit.

The subregion has a relatively higher percent of very large ranches. Nearly a fifth of the livestock farms had sales of over \$25,000 in 1954.

TABLE 15.—LIVESTOCK FARMS IN SUBREGION 114, BY ECONOMIC CLASS OF FARM: 1954

Item	Total	Economic class of farm					
		I	II	III	IV	V	VI
Number of farms.....	1,111	209	191	209	195	200	107
Percent distribution.....	100.0	18.8	17.2	18.8	17.6	18.0	9.6
Livestock, average number per farm:							
Cattle.....	311	1,010	362	167	87	48	31
Sheep.....	79	380	27	3	4	10	1
Animal units.....	326	1,086	367	167	88	50	32
Animal units, total.....	362,658	226,989	70,150	34,998	17,075	10,067	3,379
Percent distribution.....	100.0	62.6	19.3	9.7	4.7	2.8	0.9
Man-equivalent per farm.....	2.4	7.1	2.0	1.3	1.1	1.0	1.0
Animal units per man-equivalent.....	137	152	187	127	83	53	33
Hired labor per farm, dollars.....	4,172	17,509	2,797	1,111	690	306	128
Hired labor per animal unit, dollars.....	12.78	16.12	7.62	6.64	7.88	6.08	4.06
Investment in land and buildings per animal unit, dollars.....	326	285	284	477	456	628	690
Value of land and buildings, per farm.....dollars.....	106,143	309,382	104,300	79,671	40,145	31,390	22,095
Value of livestock per farm, dollars.....	30,186	98,984	34,517	15,816	8,425	4,848	3,161
Value of land and buildings and livestock per farm, dollars.....	136,329	408,366	138,817	95,487	48,570	36,238	25,256
Value of all farm products sold per farm.....dollars.....	41,693	193,613	16,346	7,425	3,773	1,891	635
Livestock and livestock products sales as a percent of value of all farm products sold.....	87.7	86.5	93.6	96.9	98.0	98.1	99.6

Economic subregion 115.—The southern part of California makes up this subregion. Most of the stock ranching here is on the desert lands east of the coastal mountain ranges of southern California (see Figure 10).

Large stock ranches predominate. About 23 percent of the operators have 83.9 percent of the animal units (see Table 16).

Considering the fact that only limited supplemental feeding is necessary here the labor efficiency in the handling of livestock is low. On the ranches with low gross income this is due to the small size of the ranches. The large amount of hired labor on the small ranches suggests that many are part-time operations probably owned by people with other income who have what they call a stock ranch as an avocation. This characteristic is indicated also by the very high land and building investment per animal unit for all except the Class I ranches.

TABLE 16.—LIVESTOCK FARMS IN SUBREGION 115, BY ECONOMIC CLASS OF FARM: 1954

Item	Total	Economic class of farm					
		I	II	III	IV	V	VI
Number of farms.....	1,715	395	251	256	252	428	133
Percent distribution.....	100.0	23.0	14.6	14.9	14.7	25.0	7.8
Livestock, average number per farm:							
Cattle.....	242	875	109	66	40	27	19
Sheep.....	149	565	117	2	5	1	7
Animal units.....	271	988	132	67	41	28	20
Animal units, total.....	465,522	390,378	33,159	17,044	10,429	11,809	2,703
Percent distribution.....	100.0	83.9	7.1	3.7	2.2	2.5	0.6
Man-equivalent per farm.....	2.2	5.9	1.7	1.3	1.0	0.7	1.1
Animal units per man-equivalent.....	122	168	77	51	41	38	19
Hired labor per farm, dollars.....	4,720	16,732	2,884	1,381	800	395	283
Hired labor per animal unit, dollars.....	17.39	16.93	21.83	20.74	19.33	14.32	13.93
Investment in land and buildings per animal unit, dollars.....	493	256	1,450	1,629	1,449	2,488	1,902
Value of land and buildings, per farm.....dollars.....	133,565	252,478	191,430	109,155	59,307	69,655	38,031
Value of livestock per farm, dollars.....	33,638	122,297	15,951	8,777	5,115	3,526	2,504
Value of land and buildings and livestock per farm, dollars.....	167,203	374,775	207,381	117,932	64,512	73,181	40,535
Value of all farm products sold per farm.....dollars.....	53,651	214,540	14,482	7,459	3,495	1,750	712
Livestock and livestock products sales as a percent of value of all farm products sold.....	91.2	91.2	89.0	92.7	93.1	93.3	99.4

Rocky Mountain Region

Economic subregion 109.—This is one of the largest subregions. It includes most of the Rocky Mountains, from the Canadian border to the southern end of the Rocky Mountain system. It is essentially a country of livestock ranching, though it contains important irrigated areas in the mountain valleys. For the most part, the stock ranches are of an economically sized operating unit. Though there are many large ranching operations, an appreciable proportion of the stock ranches fall in Economic Classes II to IV.

Labor requirements average rather high (see Table 17) notwithstanding favorable size of units. This results from the ranching operations having rather high winter-feeding requirements. As a rule, hay and other feed crops sufficient for 3 to 5 months of winter maintenance must be grown.

The investment in land and buildings per animal unit is moderate in subregion 109 and considerably below the average for western subregions. Use of considerable acreages of public land, especially by the larger ranches, probably accounts for this low investment.

TABLE 17.—LIVESTOCK FARMS IN SUBREGION 109, BY ECONOMIC CLASS OF FARM: 1954

Item	Total	Economic class of farm					
		I	II	III	IV	V	VI
Number of farms.....	12,549	1,171	2,003	2,741	2,754	2,400	1,480
Percent distribution.....	100.0	9.3	16.0	21.8	21.9	19.1	11.8
Livestock, average number per farm:							
Cattle.....	145	532	256	127	73	41	23
Sheep.....	221	1,686	198	74	47	26	18
Animal units.....	189	866	296	142	83	46	27
Animal units, total.....	2,373,904	1,013,675	592,197	389,830	227,849	110,666	39,686
Percent distribution.....	100.0	42.7	24.9	16.4	9.6	4.7	1.7
Man-equivalent per farm.....	2.0	6.9	2.4	1.6	1.3	1.0	1.2
Animal units per man-equivalent.....	95	125	124	88	65	45	23
Hired labor per farm, dollars.....	1,687	11,139	2,213	762	345	195	123
Hired labor per animal unit, dollars.....	8.92	12.87	7.48	5.36	4.17	4.22	4.58
Investment in land and buildings per animal unit, dollars.....	279	232	270	306	336	433	461
Value of land and buildings, per farm, dollars.....	52,704	201,273	82,516	43,347	27,909	19,924	12,400
Value of livestock per farm, dollars.....	17,571	77,850	27,673	13,541	7,994	4,511	2,673
Value of land and buildings and livestock per farm, dollars.....	70,275	279,123	110,189	56,888	35,903	24,435	15,133
Value of all farm products sold per farm, dollars.....	10,967	61,201	15,321	7,133	3,718	1,818	758
Livestock and livestock products sales as a percent of value of all farm products sold.....	93.7	95.7	92.4	89.7	91.7	92.7	90.7

The Intermountain Region

Economic subregion 110.—This economic subregion consists of the plateaus of the Columbia River in Washington and Oregon, the Palouse Hills of eastern Washington, and the Panhandle of Idaho. Within this subregion are important wheat-farming area and irrigation developments. Livestock ranching is relatively less important here than in most subregions in the West.

TABLE 18.—LIVESTOCK FARMS IN SUBREGION 110, BY ECONOMIC CLASS OF FARM: 1954

Item	Total	Economic class of farm					
		I	II	III	IV	V	VI
Number of farms.....	1,480	128	174	231	347	340	269
Percent distribution.....	100.0	8.6	11.7	15.5	23.3	22.8	18.1
Livestock, average number per farm:							
Cattle.....	107	486	191	124	55	32	22
Sheep.....	109	1,141	17	15	21	4	1
Animal units.....	129	714	194	127	59	33	22
Animal units, total.....	192,361	91,440	33,812	29,303	20,632	11,202	5,973
Percent distribution.....	100.0	47.5	17.6	15.2	10.7	5.8	3.1
Man-equivalent per farm.....	1.5	5.0	1.9	1.5	1.0	0.8	1.0
Animal units per man-equivalent.....	88	143	102	87	57	42	23
Hired labor per farm, dollars.....	1,431	10,525	1,979	1,166	266	171	71
Hired labor per animal unit, dollars.....	11.07	14.73	10.18	9.19	4.47	5.19	3.19
Investment in land and buildings per animal unit, dollars.....	360	342	320	363	487	427	741
Value of land and buildings, per farm, dollars.....	46,395	244,508	63,783	46,143	28,759	14,008	16,310
Value of livestock per farm, dollars.....	12,654	66,101	19,639	13,244	6,126	3,363	2,364
Value of land and buildings and livestock per farm, dollars.....	59,049	310,609	83,422	59,387	34,885	17,461	18,674
Value of all farm products sold per farm, dollars.....	11,273	78,365	16,249	7,634	3,703	1,903	783
Livestock and livestock products sales as a percent of value of all farm products sold.....	86.0	86.0	83.4	86.6	88.6	87.6	89.7

The average size stock ranch here is rather small and there is a high concentration of livestock numbers on Classes I and II ranches (see Table 18). This probably is due to the fact that there is a considerable number of large sheep-ranching operations. These large ranches have a relatively high labor efficiency, and the amount of labor used on the smaller units is unusually high.

The investment in land and buildings per animal unit is below the average of western subregions and is generally comparable with that in the northern plains subregions and in the Rocky Mountain subregions.

Economic subregion 111.—This subregion consists of the central part of the State of Washington (see Figure 10). It is, principally, the drainage areas of the Okanogan and Yakima Rivers. Though this is not primarily a stock-ranching territory, the Okanogan Country does have a considerable number of stock ranches.

This subregion has essentially the same characteristics as the stock ranches in other subregions. Man-labor per unit of livestock averages relatively high for the stock ranches. Land and buildings investment per animal unit averages somewhat below the general average for the West (see Table 19).

TABLE 19.—LIVESTOCK FARMS IN SUBREGION 111, BY ECONOMIC CLASS OF FARM: 1954

Item	Total	Economic class of farm					
		I	II	III	IV	V	VI
Number of farms.....	1,461	168	197	291	345	393	67
Percent distribution.....	100.0	11.5	13.5	19.9	23.6	26.9	4.6
Livestock, average number per farm:							
Cattle.....	118	389	216	99	51	42	29
Sheep.....	65	400	51	33	17	6	4
Animal units.....	131	469	226	105	54	43	29
Animal units, total.....	191,722	78,857	44,577	30,662	18,647	17,011	1,973
Percent distribution.....	100.0	41.1	23.2	16.0	9.7	8.9	1.0
Man-equivalent per farm.....	1.5	3.5	1.8	1.3	1.1	0.9	1.0
Animal units per man-equivalent.....	89	133	124	79	50	46	29
Hired labor per farm, dollars.....	1,377	6,685	1,912	900	312	349	92
Hired labor per animal unit, dollars.....	10.50	14.24	8.45	8.54	5.77	8.06	3.12
Investment in land and buildings per animal unit, dollars.....	327	279	258	321	442	489	745
Value of land and buildings, per farm, dollars.....	42,777	130,665	58,344	33,685	23,892	21,040	21,611
Value of livestock per farm, dollars.....	13,067	45,666	22,394	10,822	5,532	4,423	3,152
Value of land and buildings and livestock per farm, dollars.....	55,844	176,331	80,738	44,507	29,424	25,463	24,763
Value of all farm products sold per farm, dollars.....	13,390	74,502	14,716	7,061	3,924	1,742	814
Livestock and livestock products sales as a percent of value of all farm products sold.....	90.3	91.9	87.0	84.3	87.0	96.3	74.8

Economic subregion 112.—This includes the Snake River Valley and the Snake River plains of Idaho, and northern and central Utah. Some very important irrigation developments occur within it but except for these, the main type of agriculture is stock ranching. In the upper parts of the Snake River Valley stock ranching is associated closely with irrigated farming. In the other parts there is not much association between stock ranching and irrigated farming.

The number of animal units of livestock handled per man-year averages rather low even on Classes I and II stock ranches. This situation probably is explained by (1) the larger number of family workers per ranch, (2) winter feeding, and (3) the movement of livestock in many instances from the farm to the feeding area or from feeding area to feeding area. Investment in land and buildings is below the average for the stock ranches in the West (see Table 20).

TABLE 20.—LIVESTOCK FARMS IN SUBREGION 112, BY ECONOMIC CLASS OF FARM: 1954

Item	Total	Economic class of farm					
		I	II	III	IV	V	VI
Number of farms.....	5,485	802	1,136	1,163	1,136	954	294
Percent distribution.....	100.0	14.6	20.7	21.2	20.7	17.4	5.4
Livestock, average number per farm:							
Cattle.....	100	258	130	81	50	34	31
Sheep.....	282	1,407	236	81	34	16	6
Animal units.....	156	539	177	97	56	37	32
Animal units, total.....	855,401	432,284	201,394	112,860	64,020	35,325	9,509
Percent distribution.....	100.0	50.5	23.5	13.2	7.5	4.1	1.1
Man-equivalent per farm.....	1.7	4.5	1.9	1.3	1.0	1.0	1.0
Animal units per man-equivalent.....	92	120	96	74	59	49	36
Hired labor per farm.....							
dollars.....	1,774	8,208	1,730	630	261	128	98
Hired labor per animal unit.....	11.37	15.23	9.76	6.49	4.63	3.46	3.02
Investment in land and buildings per animal unit.....							
dollars.....	289	819	285	356	376	521	568
Value of land and buildings, per farm.....	45,117	171,919	50,460	34,514	21,050	19,293	18,187
Value of livestock per farm.....	14,842	40,617	17,095	9,652	5,688	3,726	3,248
Value of land and buildings and livestock per farm.....	59,959	221,536	67,555	44,166	26,738	23,019	21,435
Value of all farm products sold per farm.....	15,810	64,613	15,751	7,091	3,559	1,837	741
Livestock and livestock products sales as a percent of value of all farm products sold.....	86.9	87.8	84.2	86.1	87.2	92.0	93.0

TABLE 21.—LIVESTOCK FARMS IN SUBREGION 113, BY ECONOMIC CLASS OF FARM: 1954

Item	Total	Economic class of farm					
		I	II	III	IV	V	VI
Number of farms.....	8,902	1,067	1,622	1,839	1,973	1,759	642
Percent distribution.....	100.0	12.0	18.2	20.7	22.2	19.8	7.2
Livestock, average number per farm:							
Cattle.....	231	930	307	157	88	47	38
Sheep.....	149	891	138	39	23	18	7
Animal units.....	261	1,109	334	165	93	50	40
Animal units, total.....	2,324,983	1,182,817	542,040	303,670	182,661	88,342	25,454
Percent distribution.....	100.0	50.9	23.3	13.1	7.9	3.8	1.1
Man-equivalent per farm.....	1.8	5.4	2.1	1.5	1.2	0.9	1.0
Animal units per man-equivalent.....	142	204	162	112	78	57	42
Hired labor per farm.....							
dollars.....	1,849	9,947	2,057	788	364	159	103
Hired labor per animal unit.....	7.08	8.97	6.16	4.77	3.94	3.17	2.59
Investment in land and buildings per animal unit.....							
dollars.....	251	210	246	286	370	468	505
Value of land and buildings, per farm.....	65,474	232,612	82,016	47,130	34,442	23,409	20,184
Value of livestock per farm.....	25,121	105,225	32,267	16,093	9,113	5,058	3,964
Value of land and buildings and livestock per farm.....	90,595	337,837	114,283	63,223	43,555	28,467	24,148
Value of all farm products sold per farm.....	13,027	61,326	16,046	7,282	3,720	1,853	796
Livestock and livestock products sales as a percent of value of all farm products sold.....	93.9	95.4	92.2	90.9	91.7	94.3	96.9

Economic subregion 113.—This is the largest subregion in the country and it contains most of what has been characterized as the intermountain region. It has a high proportion of public land,

and except for local irrigation developments, is devoted almost entirely to stock ranching that may be characterized as desert and semidesert ranching.

Livestock ranching operations have a relatively high average size but have considerable range in size. They are generally adequate for reasonably high efficiency of operation. The average size for the Class I ranches is extremely large; 12 percent of the ranching units have approximately 51 percent of the livestock (see Table 21). The earliest of the ranchers here were able to obtain control and use of large acreages of public lands through selection of land located near water supplies—a very important factor in ranch operations and particularly in this subregion.

Because year-long grazing is possible in most of this subregion, labor requirements are low. The number of animal units per man-year is high, especially for the Class I ranches.

Because the ranchers use much public land, their investment in land and buildings per animal unit is low. Also contributing to this is the low feed crop requirement.

Pacific Coast Region

Economic subregion 116.—The Central Valley of California makes up this economic subregion. It includes the lower foothills of the Sierras and some of the coastal mountain ranges. Stock ranches comprise a minor part of the agriculture here.

Class I stock ranches have a large average size and a very high efficiency in the use of labor (see Table 22). Probably operations of many of the small livestock units are affected by outside work by the operators. This probably explains the employment of considerably more hired labor on the smaller ranches than on the small ranches in most of the other subregions.

For all except Class I ranches the investment in land and buildings per animal unit of livestock is much above the average of that of the western subregion.

TABLE 22.—LIVESTOCK FARMS IN SUBREGION 116, BY ECONOMIC CLASS OF FARM: 1954

Item	Total	Economic class of farm					
		I	II	III	IV	V	VI
Number of farms.....	3,612	590	589	600	668	913	252
Percent distribution.....	100.0	16.3	16.3	16.6	18.5	25.3	7.0
Livestock, average number per farm:							
Cattle.....	192	818	168	81	51	28	18
Sheep.....	184	915	127	45	13	14	4
Animal units.....	229	1,001	194	90	53	31	19
Animal units, total.....	827,281	590,328	114,063	54,171	35,530	28,448	4,741
Percent distribution.....	100.0	71.4	13.8	6.5	4.3	3.4	0.6
Man-equivalent per farm.....	1.7	5.2	1.6	1.1	0.9	0.8	0.9
Animal units per man-equivalent.....	133	102	125	79	58	40	21
Hired labor per farm.....							
dollars.....	2,728	13,472	1,850	655	400	128	84
Hired labor per animal unit.....	11.89	13.46	9.55	7.25	7.53	4.10	4.48
Investment in land and buildings per animal unit.....							
dollars.....	407	333	607	623	737	737	661
Value of land and buildings, per farm.....	93,296	333,209	117,301	56,112	39,073	22,854	12,555
Value of livestock per farm.....	25,722	110,374	22,069	10,759	6,485	3,776	2,203
Value of land and buildings and livestock per farm.....	119,018	443,583	139,870	66,871	45,558	26,629	14,758
Value of all farm products sold per farm.....	33,538	174,965	16,112	6,864	3,674	1,807	788
Livestock and livestock products sales as a percent of value of all farm products sold.....	92.1	92.6	86.6	90.5	92.9	92.6	79.6

Economic subregion 117.—This subregion covers the middle coastal parts of California. There are many other kinds of farming other than stock ranching here but there is a sizable number of livestock ranches in this subregion (see Table 23). These ranches are principally cattle ranches in the hill country of the coastal mountain ranges.

Class I and II ranches comprise most of the stock ranches of this subregion and have about average labor efficiency. All except Class I units have a high investment per animal unit in the land and buildings. Many of the smaller units have cash-crop enterprises in addition to the livestock enterprise. The value of the croplands is included in the average value of land and buildings.

TABLE 23.—LIVESTOCK FARMS IN SUBREGION 117, BY ECONOMIC CLASS OF FARM: 1954

Item	Total	Economic class of farm					
		I	II	III	IV	V	VI
Number of farms.....	2,201	312	344	439	426	502	178
Percent distribution.....	100.0	14.2	15.6	19.9	19.4	22.8	8.1
Livestock, average number per farm:							
Cattle.....	147	595	175	94	47	27	19
Sheep.....	132	454	201	98	55	20	12
Animal units.....	174	686	215	114	58	31	22
Animal units, total.....	381,997	214,081	74,064	50,036	24,573	15,391	3,852
Percent distribution.....	100.0	56.0	19.4	13.1	6.4	4.0	1.0
Man-equivalent per farm.....	1.5	3.8	1.6	1.3	1.0	0.8	1.0
Animal units per man equivalent.....	115	179	131	87	60	39	22
Hired labor per farm.....							
dollars.....	1,872	8,311	1,842	1,244	379	288	234
Hired labor per animal unit.....	10.79	12.11	8.56	10.91	6.56	9.38	10.80
Investment in land and buildings per animal unit.....	650	552	697	837	933	1,475	1,515
Value of land and buildings, per farm.....	114,196	378,571	149,817	95,362	54,127	45,739	33,320
Value of livestock per farm.....	20,060	79,463	24,392	13,103	6,853	3,687	2,576
Value of land and buildings and livestock per farm.....	134,262	458,034	174,209	108,465	60,980	49,426	35,896
Value of all farm products sold per farm.....	18,890	97,251	15,812	7,174	3,652	1,934	740
Livestock and livestock products sales as a percent of value of all farm products sold.....	91.5	92.3	89.4	89.2	91.7	87.2	96.9

Economic subregion 118.—This subregion consists of the northern parts of the Pacific coast coastal ranges, from northern California to the Washington-Canadian line. The average size of livestock-ranch operations here is small, and the distribution of livestock ranches among the economic classes does not follow the pattern in other subregions. Most of the ranching units and numbers of livestock are ranches in Classes III and IV. Only 12 percent of the ranches are in Economic Classes I and II (see Table 24).

Except for the Class I ranches, the number of animal units of livestock handled per man-year is rather low. The investment in land and buildings per animal unit for Class I ranches is near the average, but for other classes is considerably higher than the average for corresponding classes in western subregions.

Economic subregion 119.—This subregion consists of the Willamette Valley in Oregon and the Puget Sound drainage in Washington, with a considerable part of the adjacent mountain country included. The average size of stock ranches is small and the size characteristics of the ranches is about the same as in subregion 118 (see Tables 24 and 25). Extremes of size are not found and do not have the same pattern of the stock-ranch size characteristics as the other subregions in the west. Most of the stock ranches in this subregion are located within the smaller valleys of the

Cascades and have decidedly limited opportunities for combination with other enterprises or for other means of expansion. It also appears probable that the stock ranchers of both subregions 118 and 119 may have considerable opportunity for outside work in forestry work, in recreational developments in adjacent areas, and in nearby towns.

TABLE 24.—LIVESTOCK FARMS IN SUBREGION 118, BY ECONOMIC CLASS OF FARM: 1954

Item	Total	Economic class of farm					
		I	II	III	IV	V	VI
Number of farms.....	2,778	82	261	402	640	945	448
Percent distribution.....	100.0	3.0	9.4	14.5	23.0	34.0	16.1
Livestock, average number per farm:							
Cattle.....	52	294	113	75	43	26	18
Sheep.....	109	746	334	137	85	44	12
Animal units.....	74	443	180	102	59	35	20
Animal units, total.....	204,911	36,361	46,976	41,193	38,071	33,309	9,002
Percent distribution.....	100.0	17.7	22.9	20.1	18.6	16.3	4.4
Man-equivalent per farm.....	1.2	3.6	2.1	1.4	1.0	0.8	0.9
Animal units per man equivalent.....	64	122	87	76	59	42	22
Hired labor per farm.....							
dollars.....	709	6,226	2,346	927	412	186	76
Hired labor per animal unit.....	9.61	14.04	13.04	9.04	6.92	5.29	3.79
Investment in land and buildings per animal unit.....	580	441	481	500	610	840	953
Value of land and buildings, per farm.....	42,803	195,453	86,509	57,101	35,985	29,404	19,065
Value of livestock per farm.....	7,452	43,391	18,158	10,355	5,964	3,698	2,074
Value of land and buildings and livestock per farm.....	50,345	238,844	104,667	67,456	41,940	33,102	21,139
Value of all farm products sold per farm.....	5,290	46,149	14,011	7,332	3,817	1,653	674
Livestock and livestock products sales as a percent of value of all farm products sold.....	86.4	85.8	86.0	91.8	81.2	89.6	90.0

TABLE 25.—LIVESTOCK FARMS IN SUBREGION 119, BY ECONOMIC CLASS OF FARM: 1954

Item	Total	Economic class of farm					
		I	II	III	IV	V	VI
Number of farms.....	2,401	63	122	243	529	906	538
Percent distribution.....	100.0	2.6	5.1	10.1	22.0	37.8	22.4
Livestock, average number per farm:							
Cattle.....	33	175	102	53	32	20	15
Sheep.....	32	34	131	68	35	19	11
Animal units.....	39	182	128	67	39	24	17
Animal units, total.....	94,688	11,448	15,651	16,176	20,561	21,495	9,357
Percent distribution.....	100.0	12.1	16.5	17.1	21.7	22.7	9.9
Man-equivalent per farm.....	1.0	4.3	1.9	1.3	1.0	0.7	0.8
Animal units per man equivalent.....	38	42	66	50	40	32	19
Hired labor per farm.....							
dollars.....	533	7,776	1,857	677	363	192	60
Hired labor per animal unit.....	13.51	42.79	14.48	10.17	9.35	8.07	3.43
Investment in land and buildings per animal unit.....	784	802	553	641	766	981	980
Value of land and buildings, per farm.....	30,573	145,883	70,802	42,937	29,873	23,544	16,653
Value of livestock per farm.....	4,430	31,712	13,029	6,988	4,045	2,609	1,781
Value of land and buildings and livestock per farm.....	35,012	177,595	83,831	49,925	33,918	26,053	18,434
Value of all farm products sold per farm.....	4,542	56,035	14,789	7,271	3,500	1,741	698
Livestock and livestock products sales as a percent of value of all farm products sold.....	89.2	94.2	87.6	84.7	86.7	84.6	90.4

SUMMARY AND PROBLEMS

Throughout most of the major stock-ranching regions of the West, livestock operations are in the process of economic transition. The transition is continuing largely because the control and private ownership of nearly all of the deeded land now in ranches was secured through homestead settlement. Except in the desert and semidesert subregions there remain many small units that are trying to make the transition from cash-grain or other dry-land farming over to stock farming or stock ranching. This change is in process especially in those parts of the Great Plains where the nonirrigated farming has not been successful. In time, many of these small livestock operations may be acquired by the adjacent larger-sized operations or may be gradually consolidated into efficiently-sized units comprising several small and subeconomic units.

In the desert and semidesert country, development toward more efficient economic units and fewer subeconomic units will apparently have to take a somewhat different course. There it appears probable that in time more of the smaller units may attain economic status through governmental and administrative policies designed to effect a wider distribution among the stock ranches and stock farms of public-land grazing privileges.

Because of certain inherent characteristics, western stock ranches have not changed as much in recent years as have farms in most parts of the United States. Successful stock ranching requires good biological adaptation to the local natural environment. Owing to the genetic and biological character of stock ranching the operating program must be a long-range program.

Many of the national programs for the benefit of American agriculture have had little direct or indirect effect on stock-ranch operations. Programs designed to assist crop farmers, dairy farmers, or livestock feeders have not influenced greatly the physical or economic operations of livestock ranchers. In fact, the trend has been to higher wage rates and higher prices of roughages and feed grains. Prices of livestock also have been higher but droughts in recent years have forced early liquidation of sheep and cattle numbers and have forced ranchers to buy feed to maintain their livestock operations.

Probably the greatest possibilities in an agricultural program for livestock ranches lie in the realm of land-resource conservation. Over great areas of the West there has been a shift from the soil-conserving perennial grasses to the annuals and to the brush plants with adverse effects both upon animal production and upon soil conservation. Much better understanding and remedies, both educational and in administrative programs, are essential for continued growth and improved economic welfare of the ranching industry.

RANCHING IN SELECTED STATE ECONOMIC AREAS IN WESTERN STATES

In this section a somewhat more detailed analysis of livestock ranching by States and by State economic areas is presented. It should be emphasized that a fairly definite transition zone extends from north to south through the Plains States and that only limited areas of the kind of stock farming described as stock ranching may be found to the east of this transition zone.

North Dakota.—From an analysis of the data given in Tables 1 through 5, one must conclude that North Dakota is primarily a farming State. Stock ranching is secondary and less important

than stock farming. Most of the stock ranching of North Dakota is now found in what is designated as State economic area 1 (see Figure 10).

This is the stock ranching part of the State. It is the part of North Dakota that lies west of the Missouri River and is known locally as the "West River Country." It was not influenced by the last Pleistocene glaciation. Consequently, it has considerable roughlands country, and is not topographically as well suited to crop agriculture as are the northern and eastern parts of the State. There are some localized stock-ranching lands along the "stream breaks" in northern and central North Dakota, but most of that country in North Dakota is now devoted to crop agriculture rather than to stock ranching.

Stock ranching in economic area 1 of North Dakota is based almost entirely upon native rangeland use. This is especially true for the Badlands country along the Little Missouri River. Eastward of these rough and broken Badlands there is a gradual change from stock ranching toward stock farming with a considerable combination of dry-land crop production and farm beef cattle and farm flocks of sheep.

South Dakota.—South Dakota stock ranching, like that of North Dakota, lies mostly west of the Missouri River, which flows from north to south through the central part of the State. This part of South Dakota is shown as area 1 on Figure 10. A notable feature is its stock ranching in the Black Hills country and in the surrounding roughlands country. Stock ranching in and around the Black Hills is a rather unique combination of the Great Plains type of ranching and the mountain-valley and foothill type of ranching in the intermountain region. In general, around the Black Hills area is very good ranch land.

Eastward from the Black Hills toward the Missouri River there occurs a gradual change from stock ranching to a combination of ranching and stock farming. In this transition the operating units are smaller and produce more in cultivated crop feeds. Dry-land corn is important in the crop-feed production of these stock farms. They also combine a considerable amount of dry-land cash-grain production, especially wheat, with farm herds of beef cattle and farm flocks of sheep.

Nebraska.—Nebraska reaches well into the Corn Belt and is not generally thought of as a ranching State. It has, however, a very large and important stock-ranching area. It is known as the Nebraska sand-hills country and is approximately outlined by State economic area 1 (Figure 10). It includes somewhat more than the sandhills, but roughly defines them. The general area of the sandhills proper lies between the Niobrara and Platte Rivers, and westward almost to the town of Alliance, Nebr.

This large and very productive ranching area consisting of some 18 million acres has not and cannot be used for farming because of the characteristics of the soil. Most of the soil consists of wind-formed sandy soils with a topographic aspect similar to that of sand dunes. When plowed or otherwise exposed to the wind it is readily subjected to wind erosion. Stock ranching here is limited almost entirely to cattle mainly because the type of native grasses produced by the sand-dune soils are too coarse for sheep and are otherwise not well suited for sheep grazing. The ranches tend to be rather large and are operated on a year-round grazing basis, or nearly so. Some of the ranches produce considerable native hay from the natural meadows in the lower and more level lands along the streams. Where the sand-hills country fringes out into the "hard" lands there is found a rather quick transition to stock farming, with much smaller operating units.

Kansas.—With the exception of the Flint Hills of Kansas little remains in the way of native land resources in that State. Most of the State is now devoted to general farming with a predominance of crop farming. The Flint Hills area (Figure 10, area 5) has wide native bluestem pastures which are used largely for a rather specialized type of livestock grazing. The stock farms as a rule have rather limited numbers of breeding livestock and use pastures principally for the grazing of stocker animals, either on a lease basis or through purchase by the operators of farms and ranches. Many cattle come from the western ranches for summer and fall pasturage and for later shipment to markets for slaughter or to feedlots for further feeding and finishing. The ranching in this economic area thus functions mainly as an intermediary between the economy of the western stock ranches and the Corn Belt livestock fattening operations.

Oklahoma.—Oklahoma has two State economic areas in which stock ranching is economically important. These are areas 1 and 3 (see Figure 10). Area 1 consists of the Oklahoma "Panhhandle" and area 3 consists of what is known as the Osage Hills district. The stock ranching in area 1 is principally found along the breaks of the North Canadian River. These ranches tend to be medium-to-small cattle-ranch units with some diversified crop farming. The stock ranching in the Osage Hills country bears considerable similarity to that in the Kansas Flint Hills country, except that breeding-herd ranching operations are more numerous in the Osage Hills. In both the Osage Hills and the Flint Hill country the ranching resources consist of highly productive native bluestem pastures.

Texas.—Texas stock ranching occurs mainly in the southern plains. This is southward of the "Break of the plains" which marks the southern limit of the Ogalalla limestone caprock of the central high plains. This transition is marked roughly by the line between economic area 4 and areas 5 and 6 to the south. For the southern plains ranching in Texas the east-west transition zone from farming to stock ranching is indicated by subregion 96 which is the subregion consisting of the "Cross Timbers" and the Grand Prairie districts of central Texas.

In the southern plains ranching of Texas the area designated 6a is known as the Rolling Plains section of Texas. Although there is a considerable mixture of crop farming in some places here it consists mainly of rather good grassland and rangeland resource, with cattle predominating over sheep ranching. The ranches are likely to be of medium size. West of area 6a lies area 5 which consists principally of the Staked Plains district of Texas. Area 5 is now devoted principally to crop farming; only a small amount of stock ranching remains.

Southward lies the Edwards Plateau district of Texas, designated as State economic areas 1b and 2 (see Figure 10). This large and important ranching area is devoted mainly to sheep, but there is a considerable combination of sheep and cattle enterprises and sometimes mohair goat enterprises on the same ranch. Rangeland resources consist of a mixture of brush, grass, and weeds. This characteristic of grazing lands favors a ranch combination of cattle and sheep. The ranches in these areas tend to be medium to small and, though livestock is ranged the year round, ranchers grow a considerable quantity of feed crops, such as grain sorghums, for use as a supplement to the range forage in the winter.

Southward from the Edwards Plateau country of Texas lies a wide and important ranching area known as the Rio Grande Plain, economic areas 3 and 11 (see Figure 10). These two State

economic areas coincide approximately with economic subregion 98. In it are some very large ranches such as the King Ranch. The grassland is relatively productive but there the control of the brush growth presents a problem especially the mesquite brush which reproduces and grows vigorously in this part of Texas. Where it is possible to control the mesquite adequately and economically the grazing capacity of the rangelands is relatively high as the rainfall here is around 25 inches annually.

West of the Edwards Plateau of Texas lies area 1a. This is the part of Texas west of the Pecos River known as the trans-Pecos country. This area is part of the southern plains desert grasslands which extend also across a considerable part of southern New Mexico. The rangeland in area 1a is better suited to cattle than to sheep. The rangeland resource varies from some extremely arid and low-capacity lands, as in the southern or Big Bend part, to some very good grasslands as in the Davis Mountain section of the western part of the area. The ranches tend to be medium to large in size. Ranch operators graze the livestock year round, with only a minimum quantity of supplemental feeding.

New Mexico.—The influence of the Spanish-American settlers is readily noted in the ranching operations in most of New Mexico. The rather small average acreage per farm, for all farms, reflects the large number of small farms on the irrigation developments along the Rio Grande River. However, the average size of stock ranch in New Mexico is rather large, and considerably above the average for the Western States (see Table 1). Stock ranching is predominant in the State as indicated by data in Tables 1 and 2.

Much of the difference between the average acreage of livestock farms and that for all farms is accounted for by the dry-land farming development in the high plains of eastern and northeastern New Mexico. Table 3 shows that the average size of stock-ranching enterprise in New Mexico is rather large and considerably above the average for the Western States.

There are four State economic areas in New Mexico. Area 1a coincides approximately with the Colorado Plateau country of the northwestern part of the State. Much of this is in the Navajo Indian Reservation, but to the east of the reservation and within area 1a there is a type of stock ranching that is characteristic of ranching in the Colorado Plateau. Most of these ranch operations are large with year-round grazing on rangelands that are typically fenced into large range pastures. Area 1b of New Mexico comprises the upper Rio Grande Valley and includes the southern parts of the southern Rocky Mountain region. The ranches are typically mountain-valley operating units with a combination of valley land and foothill and mountainous upland grazing lands. With the prevalence of the Spanish-American settlements here the average size of the stock ranch is rather small.

State economic area 2 coincides roughly with the high central plains part of northeastern New Mexico. It has been locally developed into dry-land farms but in it are several localities that have always remained in stock-ranch units. Most of these ranches are medium-to-large size. Economic area 3 comprises the desert grassland plains of New Mexico and the rangeland and ranching operations are substantially the same as those in the trans-Pecos part of western Texas. The ranches in area 3 are medium to large, and as they are subject to considerable climatic risk from drought, they have to operate on a rather speculative basis of buying and selling considerable numbers of cattle, as dictated by the trends of climate and weather.

Colorado.—Tables 1 and 2 indicate that stock ranching is relatively important in the agricultural economy and land use of Colorado. In terms of acreage per ranch, stock ranches in Colorado compare favorably with the average for the West.

Economic area 1 of Colorado includes the mountain valley country of northwestern Colorado and some of the plateau country of southwestern Colorado. It also includes the stock ranching in the high country along the Yampa River drainage in northwestern Colorado. This is principally an area of high-mountain-valley stock ranching as typified by that of the North Park, Middle Park, and South Park ranching country along the eastern part of this area. Operators in these high mountain valleys have long winter-feeding periods and high operating costs which they must offset by high production from their usually good and productive foothill and upland summer rangelands. Both cattle and sheep ranches prevail but cattle ranches predominate in the high mountain valleys.

Area 2a in southwestern Colorado is a part of the Colorado Plateau natural region. In it is a combination of high plateaus and lower semidesert lands interspersed along the plateaus. The stock ranching combines the use of the lower semidesert country for winter grazing and the plateaus for summer grazing.

Economic area 2b comprises the upper Rio Grande drainage including what is locally known as the San Louis Valley district of Colorado. This is mountain-valley ranching but has valley lands at somewhat lower elevations than those of area 1 and with somewhat less requirements in winter feeding for most of the ranches. There is considerable development of irrigated farming in some parts of this valley. The stock ranches tend to be rather large.

Economic area 3 in Colorado is a part of the central plains natural region. Some acreage is devoted to dry-land crop farming. The livestock enterprises here are likely to be stock farms rather than stock ranches. They are rather small and raise considerable amounts of cultivated feed crops such as grain sorghums. They sometimes combine some cash-crop production, especially dry-land wheat with the livestock operations. They have only a limited extent of native grassland pastures.

Economic area 4 extends eastward from the Rocky Mountain front to the Colorado-Kansas State line. Livestock ranching operations are limited and are confined mainly to the locality of the sand hills and to the rough and broken lands along the stream drainages. The livestock enterprises are generally small and are stock farms rather than stock ranches.

Economic area 5 coincides approximately with the part of southeastern Colorado that lies within the high plains part of the central plains region. This is approximately the drainage area of the Arkansas River extending eastward across southeastern Colorado from the Rocky Mountain front range. Here again stock ranching is confined principally to those localities where the land is not arable because of the characteristics of the topography, soils, and climate. An example is found in the stock-ranching locations along the Purgatoire River of southeastern Colorado.

Wyoming.—Wyoming has predominantly a ranching economy (see Tables 1 and 2). Wyoming has a large number of stock ranches and they average rather large, both as to acreage and size of enterprise. Data in Table 2 show that stock ranches predominate in the State's total farming acreage.

The part of Wyoming designated as State economic area 1 is relatively large; in it there are noteworthy natural and economic differences. The stock ranching can best be described with reference to operators in certain parts and localities of the area.

The eastern third of this area is in the drainage of the North Platte River which flows northward out of Colorado and turns eastward approximately at the location of Casper. This is productive stock-ranching country in which the livestock ranches are likely to be a combination of Great Plains and of mountain-valley ranching. This is because the northern parts of the southern Rocky Mountains and the western parts of the northern Great Plains merge in this area. Westward from the Platte River drainage area is the relatively arid "Red Desert" part of Wyoming. The "Red Desert" includes several million acres in southwestern Wyoming. The lands in this area are used primarily for winter grazing of sheep. Range bands of sheep are trailed into the area from ranching locations around the margin of the "Red Desert." The part of area 1 extending northward toward Yellowstone Park includes much of the middle Rocky Mountains physiographic province. Stock ranching here is quite typical of the mountain-valley ranching in the northern Rocky Mountains. The stock-ranching operations are usually rather large.

Area 2a includes the intermountain basin lying between the Big Horn Mountain Range on the east and the Shoshone Mountain Range on the west. It includes these mountain ranges, the Big Horn Basin lands, the lands of the Shoshone Indian Reservation, and certain semidesert lands extending southward from the Shoshone Reservation. There is within the Big Horn Basin a large acreage of extremely arid land which is almost entirely public domain. This vast public domain and the national forest bordering the Big Horn Basin cause the use of public lands to be extremely important and almost dominant in the make-up and organization of the stock ranching for the entire area. Typically, the stock rancher owns some irrigated meadowland along the stream bottoms and may also own some adjacent foothill grassland. The combination of owned land and public grazing land provides winter grazing on the low and arid country of the public domain lands and summer grazing permits on the rangeland parts of the national forest. Ranching in this area is about equally divided between cattle and sheep. The ranches are medium to large in size.

Area 2b in Wyoming constitutes the northern plains country of eastern Wyoming. It consists primarily of rolling roughlands, plains, and grasslands with relatively high-producing rangeland and has a topography that gives natural shelter to livestock. It has a favorable combination of productive land resources and low-cost ranching operations. Cattle ranching is dominant and only a limited quantity of winter feed is required.

Montana.—Approximately one-third of all Montana farms are classed as stock farms (see Table 1). The majority of these operations are really stock ranches. The average size of all Montana farms in terms of acreage is large relative to most of the Western States. This is because stock ranches and wheat farms which are of some importance in Montana both average large. The importance of stock farms in the total agricultural land use of the State is reflected in Table 2. Approximately 24 million acres or nearly two-fifths of all land in farms in Montana are used for types of farms other than the livestock farms.

Land in Montana designated as area 1a is part of the northern Rocky Mountain region. The ranching here is definitely of the mountain-valley type of stock ranching. The mountain uplands are heavily forested which limits the use of the uplands for live-stock grazing. Typically, the stock ranchers operate largely upon their own deeded lands consisting of lands in the valley and on adjacent foothills.

Area 1b, which includes all of southwestern Montana from the Rocky Mountain front range westward to the Continental Divide, is an area of mountain-valley ranching, with some rather extensive areas of foothill grasslands suitable for livestock ranching. Thus, this area has some localities of the mountain-valley ranching typical of the northern Rocky Mountains, and some localities of what may be termed lower-mountain and foothill ranching. Ranches in this area differ from the mountain-valley ranches in that they are in lower elevations and have a shorter period of winter snow covering. These ranchers have to raise considerable hay for winter feeding and therefore have rather high-cost operations. As a rule the ranches are productive with a high stability of range production and of the crop-feed production. The ranchers tend to operate with straight breeding herds and to sell young livestock as feeder animals.

Montana area 2a may be described as consisting of low-mountain and foothill ranching. It extends from the Rocky Mountain front eastward toward the northern plains—the eastern border of this area. It has a considerable development of both dry-land and irrigation farming. The stock ranching is found principally along the streams that run eastward toward the Missouri River and around the lesser mountain ranges at some distance eastward and detached from the Rocky Mountain system. More specifically the ranches are located along the Marias and Teton Rivers and along the Sun River west of Great Falls, Mont. They also are located around the local mountainous roughlands as the Judith Mountains, the Little Belt Mountains, and the Highwood Mountains. This is an area of very productive stock ranching, with the ranches fairly well balanced in their seasonal capacities. The ranches are generally medium to large in size.

Area 2b includes the northern Great Plains parts of northern and eastern Montana. It has been extensively developed for dry-land agriculture. The stock ranches are confined mainly to the roughlands and to the lands of inferior soils and broken topography along the streams. The characteristics and size of ranching operations vary considerably between localities. Some localities of low mountainous lands such as the Bear Paw Mountains are entirely in fairly large stock-ranching operations. There also are roughlands along the break of the Missouri River with rather large acreages of public domain. The stock-ranching operations along the break of the Missouri River generally average medium to large in size. The wheat-farming parts of area 2b are interspersed with many rather small stock-ranching and stock-farming operations.

Area 3a is a northward extension into Montana of the Big Horn Basin country of Wyoming. It has, like the Wyoming Big Horn Basin, a combination of arid and semidesert valley lands and high and rugged mountainous lands. In between the higher uplands and the low and arid valley lands there are locally some very productive foothill lands. This area contains the rather large Crow Indian Reservation which has large acreages of excellent grazing lands used for the grazing of the livestock of both Indians and others. The latter are permitted to graze their herds under lease. Typically the livestock ranches are medium to large in size.

Area 3b in Montana coincides approximately with the middle and lower valley of the Yellowstone River. It has dissimilarities in ranching resources and type-of-ranching operations. The western part consists mainly of foothill ranching with very stable and productive ranching. The central part consists of some quite arid and very broken rangelands that are relatively low in productivity. The ranching in this part of the area tends to be speculative in character and the ranching units usually are rather large. The eastern part, which includes the drainages of the Powder River, the Tongue River, and the Little Missouri River, has ranching that is typical of the northern Great Plains. Medium-to-large ranches that operate year-round on large fenced pastures of plains grasslands are common. Crop agriculture has not been developed because of the generally rough topography. However, there are numbers of rather small livestock farms and ranches in this part of the area, located along the bottomlands of the Yellowstone River and the Powder River.

Idaho.—Stock ranch numbers are relatively few in Idaho's total number of farms (Table 1). Because of the predominance of irrigated farms in Idaho, the average size of all farms is small. These irrigated farms are in the extensive irrigated districts of the Snake River Plains of eastern Idaho, and extending across southern Idaho.

The average size of livestock farms (see Table 1) indicates that stock farms in Idaho are rather small in terms of acreage. This figure, however, is rather misleading because a comparatively small part of the total land acreage in Idaho is in farms. Large acreages are in national forest and public domain lands in Idaho. Probably a majority of the stock ranches in this State have grazing permits and leases on some one of the several kinds of public lands. These public lands used by the stock farms are not counted as land in farms. Table 3 shows that the average size of stock-ranching enterprise in Idaho is somewhat below average for the Western States as a group.

Economic area 1 in Idaho covers nearly all of the northern Rocky Mountains part of the State. Within it the stock ranches are of the mountain-valley type and have for their land resources the valley bottomlands, the foothill grasslands, and grazing permits on the national forests for the summer. The cattle ranches tend to be medium to small. However, there are a considerable number of rather large sheep-ranching operations. The sheep ranchers graze their sheep on the public domain lands of the Snake River Plains during the spring and fall months and as a rule buy hay from the irrigated farms for wintering their range sheep.

Economic area 2 in Idaho is rather small and lies along the western side of the Panhandle of the State. It is an eastward extension into Idaho of the Palouse prairies of southeastern Washington. It is a high producing wheat and wheat-pea farming area.

Area 3a comprises the southwestern part of the Snake River Valley and it includes the Owyhee hills district and the lower parts of the Snake River Plains. The stock ranchers here use a large acreage of public lands, most of which is public domain. The ranches are mostly medium to small in size.

The area designated as 3b consists of the middle plains of the Snake River. Irrigation developments are very important. The livestock enterprises may be characterized as stock farms rather than stock ranches. This is chiefly because farmers on the irrigated land make extensive use of adjacent grazing lands for their beef cattle and farm flocks of sheep.

Area 4, covering southeastern and eastern Idaho consists of the upper Snake River Plains and of its mountainous and foothill

lands along the eastern border of the State. These mountainous lands are part of the middle Rocky Mountain system. Except for the extensive irrigated farms along the Snake River and the adjacent "bench" and foothill wheat farms this is essentially a stock-ranching area. The stock ranching is characteristically mountain-valley ranching, as the upper Snake River Valley is at a rather high elevation, and a good deal of winter feeding of livestock is required. The lower Snake River Plains, are principally range-lands because they are too arid for nonirrigated agriculture. Much of the Snake River Plains country of southern Idaho lies within the 8- to 10-inch isohyetal of average annual precipitation.

Utah.—Although stock farms are important in Utah's total agriculture, they form a rather small percentage of the total number of farms. Stock farms account for approximately two-thirds of all of the land in farms (see Table 2). In addition, the stock ranches in the State use large acreages of public land for grazing. This public land is not counted in the Census as land in farms. In terms of size of enterprise Utah stock farms are considerably below the average of the Western States (see Table 3).

Area I in Utah consists of the northern, northeastern, and central parts of the State. This area is generally mountainous. The northern part contains the Wasatch Mountain Range and other associated mountain ranges that form the southern part of the middle Rocky Mountains. Most of the mountain-valley stock ranging in Utah is found in this area. The stock ranches in the southern part make good use of the adjacent desert land, mostly public-domain grazing lands, that lie both to the west and to the east of the principal mountain ranges that extend north and south through central Utah. The stock ranches in the northern part of this area are typical of the mountain-valley ranching in that they make rather extensive use of irrigated hay meadows for the production of winter feed.

Economic area 2 is principally the intensively developed irrigated farming country which lies just west of the Wasatch Mountain Range. There is comparatively little stock ranching here.

The large area designated as economic area 3 consists mainly of the desert lands lying to the east and to the west of the mountainous "spine" that runs from north to south through central Utah. Within this area there is a considerable amount of the desert and semidesert type of sheep and cattle ranching. Locally this area is known to the ranch people as consisting of the "west desert" and the "east desert." This differentiation is rather significant as the lands in the west desert country have very little in ranch settlement and are used largely as sheep winter ranges through migration of range bands of sheep from area 1. These west desert lands are principally public domain. The Utah lands known as the east desert have within them many small settlements along the valleys. The livestock from these valleys are ranged on the public domain lands of the east desert country.

Arizona.—Arizona has a limited number of stock farms with a rather large average size (see Table 1). Next to the States of California and Nevada, the stock ranches in this State have the largest size of enterprise of any of the Western States (see Table 3). Arizona has comparatively little dry-land agriculture and Census data indicate that less than half of the total land in all farms is in livestock farms. This apparent discrepancy probably is accounted for by the fact that part or all of the extensive acreage of lands in the Indian reservations of Arizona have been included in the Census count for land in farms.

Approximately the northern half of Arizona has been designated as State economic area 1. It approximates the part of the State

that lies above the Mogollon Rim, the escarpment of the Colorado plateau province, which runs from east to west across Arizona through the central part of the State. Above this rim to the north the lands of the Colorado Plateaus have a type of ranching that is comparable with that of area 1a in northwestern New Mexico. This plateau country is fairly high in elevation, with ranches mainly at an elevation of 5,500 to 7,000 feet. At this elevation the precipitation averages about 12 to 14 inches annually and supports a fairly good range forage-plant cover. The ranching operations in this area average rather large in size and in addition in some places the ranches use considerable public land for grazing either on the national forests for summer range or on the public domain of the lower country for winter grazing. The northeastern part of this area includes the rather large Navajo Indian Reservation which also extends into northwestern New Mexico.

Economic area 2a and the intermediate area designated with the large letter A (see Figure 10) consists principally of low desert country most of which is very arid. Stock ranchers have made a careful selection of the better ranch lands and there operate their year-round herds. From these more favorable locations they make use of the desert lands seasonally, as growth of the winter annuals permit. Economic area 2b consists of the high rolling hill country of southern and southeastern Arizona and eastward into southwestern New Mexico. In this area of good semidesert grassland is some of the most stable and most productive of the Arizona ranching. Most of the operations are medium-to-large cattle ranches operating principally on the basis of a breeding herd, and selling feeder calves in the fall of the year.

Nevada.—Nevada has relatively few farms and, consequently, comprises only 1 economic area (see Figure 10). Stock ranches, however, are very important in the State's economy (see Tables 1 and 2). Land in livestock farms constitutes the preponderance of all land in farms. The stock ranches tend to be large (see Table 3) and almost without exception their operators make extensive use of large acreages of the public lands, both in the national forests and on the public domain. Next to California, this State has the second largest average size of stock-ranching enterprises of all of the 17 Western States.

Stock ranches in the Humboldt River Valley of northern Nevada are essentially mountain-valley operations and are comparable with those in western Utah. Both have access to large acreages of adjacent public domain and of the national forests. The ranches in the Humboldt River Valley are rather stable and productive and are rather large on the average. The lands southward from the Humboldt River Valley into central and southern parts of Nevada become more and more arid; ranching becomes marginal and encounters high risks from fluctuations in climate. In central Nevada, however, there are certain semidesert mountain locations that have fairly stable and fairly productive ranches. There are local areas along the western border of the State that adequately support livestock ranching. The ranches are chiefly in the river valley trending eastward from the Sierra Mountain Range of California into Nevada. The valleys of the Truckee River, the Walker River, and the Carson River are some of the more important localities. The rivers flow eastward into the desert sinks and the interior lakes of the Great Basin.

California.—Stock ranching in California is overshadowed by the immense farming developments in the irrigated sections of Central Valley (see Table 1). Stock farms, however, are decidedly important in terms of the proportion of total land in farms, and

the stock farms in California are among the largest in the West (see Tables 2 and 3).

Economic areas 1, 2, and 3 of California consist essentially of the coastal mountain ranges of the western side of that State (see Figure 10). Within these mountain ranges are numerous small valleys, some of which support many stock farms and ranches. The land consists of low mountain and foothill grasslands and the ranches in these local areas as a rule average medium to small. As this part of the State has a winter-rainfall type of climate with warm and almost rainless summers the green-feed season for these ranches is through the winter months, November to June. Ranchers in these localities consequently buy considerable numbers of stocker animals to use the lush growth of the grasses through the winter. They then sell all livestock except the breeding herd which is maintained on the dry-range feed through the summer with supplemental feeding.

Economic areas 4, 5, and 6 are in the large Central Valley of California. Central Valley is very extensive, running nearly 400 miles from north to south. It is bounded on the east by the Sierra Mountains and on the west by the coastal mountain ranges. Livestock ranching is limited in Central Valley but around the fringes there is a type of stock ranching that is comparable with that found on the coastal mountain ranges.

Economic areas 7 and 8 have only limited stock ranching and are not discussed in detail here. The area designated "H" and consisting of San Bernardino County, has considerable stock ranching, mostly of the desert type and comprising mainly a few rather large ranching operations.

Economic area 9 is comprised of a large and noteworthy stock-ranching area east of the Sierra Mountains in northern California. The ranching in this area is fairly comparable with that in the northern part of Nevada. The bases of the operations are on deeded lands along the valley streams from which extensive acreages of public lands are grazed. Stock ranches in area 9, like those in northern Nevada, are relatively large.

Oregon.—In the Willamette Valley along the coastal reaches of Oregon there are intensive developments of small farms. As a result, stock ranching in Oregon assumes a secondary role. But there are important ranching areas in the State (Table 2). Livestock farms account for slightly more than half of the total acres in all farms. The average size of the stock farms in the State is somewhat below that for the Western States as a group (see Table 3).

Most of the stock ranches in Oregon are in area 4 (see Figure 10). The northeastern part of this area is comprised of the Blue

Mountain section in Oregon and is an important and productive livestock ranching area. Stock ranching is comparable in many respects to the type and organization of that in the northern Rocky Mountain region. The major part of economic area 4 includes central and southeastern Oregon, an area of semidesert ranching. This is not low and extremely arid desert country, but is comprised of high desert lands. Within this area are several sizable mountain ranges. Cattle ranches predominate here located along the streams and on the foothills around the mountains. Between the mountains are plateaus of sagebrush grasslands mostly in public domain.

State economic area 3 lies in the drainages of the Deschutes, John Day, and Umatilla Rivers. It has a combination of mountain-valley ranching with adjacent localities of desert and semidesert sagebrush lands. It is essentially a stock-ranching area and contains some very good ranching resources. The ranching is comparable with that of the northern Rocky Mountains.

Washington.—Washington does not have very many livestock farms, and their average size of ranch is relatively small (see Table 1). The livestock farms are not as important in total land use as is generally the case with the others of the Western States (see Table 2). Livestock enterprises in Washington generally average considerably smaller than is typical of those in the other Western States (see Table 3).

Most of the stock ranches in Washington are in areas 5a, 5b, and 7a. Area 5a is known as the Okanogan Highlands area; area 6 is the Yakima River drainage area; and area 7a is known as the Big Bend area. Except for these three areas, most of the State is in either forest land or valley land where crop farming has been developed. Area 5a and area 6 have a type of stock ranching rather similar to that in the mountain-valley areas in the northern Rocky Mountain region.

The stock ranching in area 7a has been developed mostly on the sagebrush grasslands of the Columbia Plateau, and is comparable in type with that in southeastern Oregon and northern Nevada. There are some sheep ranching operations in this area that, because of the lack of mountain summer rangelands, ship their range bands by rail as far as northwestern Montana for summer grazing, and then in the fall market the lambs and ship the breeding stock back to the base lands in area 7a.

Area 5a in Washington consists largely of forest land and, therefore, has a limited amount of stock ranching. Area 7b is comprised principally of the Palouse Prairie. This is productive wheat and wheat-pea farming country, but it once had many relatively profitable ranches.

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Agricultural Research Service
Byron T. Shaw, Administrator

U. S. Department of Commerce
Sinclair Weeks, Secretary

Bureau of the Census
Robert W. Burgess, Director

United States Census of Agriculture: 1954

Volume III SPECIAL REPORTS

Part 9

Farmers and Farm Production in the United States (A Cooperative Report)

Chapter VII

Cash-Grain and Livestock Producers in the Corn Belt

CHARACTERISTICS OF FARMERS and FARM PRODUCTION •
PRINCIPAL TYPES OF FARMS •



BUREAU OF THE CENSUS
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PREFACE

The purpose of this report is to present an analysis of the characteristics of farmers and farm production for the most important types of farms as shown by data for the 1954 Census of Agriculture. The analysis deals with the relative importance, pattern of resource use, some measures of efficiency, and problems of adjustment and change for the principal types of farms.

The data given in the various chapters of this report have been derived largely from the special tabulation of data for each type of farm, by economic class, for the 1954 Census of Agriculture. The detailed statistics for each type of farm for the United States and the principal subregions appear in Part 8 of Volume III of the reports for the 1954 Census of Agriculture.

This cooperative report was prepared under the direction of Ray Hurley, Chief of the Agriculture Division of the Bureau of the Census, U. S. Department of Commerce, and Kenneth L. Bachman, Head, Production, Income, and Costs Section, Production Economics Research Branch, Agricultural Research Service of the U. S. Department of Agriculture.

Jackson V. McElveen, Agricultural Economist, Production, Income, and Costs Section, Production Economics Research Branch, Agricultural Research Service of the U. S. Department of Agriculture, supervised a large part of the detailed planning and analysis for the various chapters.

The list of chapters and the persons preparing each chapter are as follows:

Chapter I-----	Wheat Producers and Wheat Production A. W. Epp, University of Nebraska.	Chapter VI-----	Western Stock Ranches and Livestock Farms Mont H. Saunderson, Western Ranching and Lands Consultant, Bozeman, Mont.
Chapter II-----	Cotton Producers and Cotton Production Robert B. Glasgow, Production Economics Research Branch, Agricultural Research Service, United States Department of Agriculture.	Chapter VII-----	Cash-grain and Livestock Producers in the Corn Belt Edwin G. Strand, Production Economics Research Branch, Agricultural Research Service, United States Department of Agriculture.
Chapter III-----	Tobacco and Peanut Producers and Production R. E. L. Greene, University of Florida.	Chapter VIII-----	Part-time Farming H. G. Halcrow, University of Connecticut.
Chapter IV-----	Poultry Producers and Poultry Production William P. Mortenson, University of Wisconsin.	Chapter IX-----	Agricultural Producers and Production in the United States—A General View Jackson V. McElveen, Production Economics Research Branch, Agricultural Research Service, United States Department of Agriculture.
Chapter V-----	Dairy Producers and Dairy Production P. E. McNall, University of Wisconsin.		

The editorial work for this report was performed by Caroline B. Sherman, and the preparation of the statistical tables was supervised by Margaret Wood.

December 1956

UNITED STATES CENSUS OF AGRICULTURE: 1954

REPORTS

Volume I.—Counties and State Economic Areas. Statistics for counties include number of farms, acreage, value, and farm operators; farms by color and tenure of operator; facilities and equipment; use of commercial fertilizer; farm labor; farm expenditures; livestock and livestock products; specified crops harvested; farms classified by type of farm and by economic class; and value of products sold by source.

Data for State economic areas include farms and farm characteristics by tenure of operator, by type of farm, and by economic class.

Volume I is published in 33 parts.

Volume II.—General Report. Statistics by Subjects, United States Census of Agriculture, 1954. Summary data and analyses of the data for States, for Geographic Divisions, and for the United States by subjects.

Volume III.—Special Reports

Part 1.—Multiple-Unit Operations. This report will be similar to Part 2 of Volume V of the reports for the 1950 Census of Agriculture. It will present statistics for approximately 900 counties and State economic areas in 12 Southern States and Missouri for the number and characteristics of multiple-unit operations and farms in multiple units.

Part 2.—Ranking Agricultural Counties. This special report will present statistics for selected items of inventory and agricultural production for the leading counties in the United States.

Part 3.—Alaska, Hawaii, Puerto Rico, District of Columbia, and U. S. Possessions. These areas were not included in the 1954 Census of Agriculture. The available current data from various Government sources will be compiled and published in this report.

Part 4.—Agriculture, 1954, a Graphic Summary. This report will present graphically some of the significant facts regarding agriculture and agricultural production as revealed by the 1954 Census of Agriculture.

Part 5.—Farm-Mortgage Debt. This will be a cooperative study by the Agricultural Research Service of the U. S. Department of Agriculture and the Bureau of the Census. It will present, by States, data based on the 1954 Census of Agriculture and a special mail survey conducted in January 1956, on the number of mortgaged farms, the amount of mortgage debt, and the amount of debt held by principal lending agencies.

Part 6.—Irrigation in Humid Areas. This cooperative report by the Agricultural Research Service of the U. S. Department of Agriculture and the Bureau of the Census will present data obtained by a mail survey of operators of irrigated farms in 28 States on the source of water, method of applying water, number of pumps used, acres of crops irrigated in 1954 and 1955, the number of times each crop was irrigated, and the cost of irrigation equipment and the irrigation system.

Part 7.—Popular Report of the 1954 Census of Agriculture. This report is planned to be a general, easy-to-read publication for the general public on the status and broad characteristics of United States agriculture. It will seek to delineate such aspects of agriculture as the geographic distribution and differences by size of farm for such items as farm acreage, principal crops, and important kinds of livestock, farm facilities, farm equipment, use of fertilizer, soil conservation practices, farm tenure, and farm income.

Part 8.—Size of Operation by Type of Farm. This will be a cooperative special report to be prepared in cooperation with the Agricultural Research Service of the U. S. Department of Agriculture. This report will contain data for 119 economic sub-

regions (essentially general type-of-farming areas) showing the general characteristics for each type of farm by economic class. It will provide data for a current analysis of the differences that exist among groups of farms of the same type. It will furnish statistical basis for a realistic examination of production of such commodities as wheat, cotton, and dairy products in connection with actual or proposed governmental policies and programs.

Part 9.—Farmers and Farm Production in the United States. The purpose of this report is to present an analysis of the characteristics of farmers and farm production for the most important types of farms as shown by data for the 1954 Census of Agriculture. The analysis deals with the relative importance, pattern of resource use, some measures of efficiency, and problems of adjustment and change for the principal types of farms. The report was prepared in cooperation with the Agricultural Research Service of the U. S. Department of Agriculture.

The list of chapters (published separately only) and title for each chapter are as follows:

Chapter I—*Wheat Producers and Wheat Production*

II—*Cotton Producers and Cotton Production*

III—*Tobacco and Peanut Producers and Production*

IV—*Poultry Producers and Poultry Production*

V—*Dairy Producers and Dairy Production*

VI—*Western Stock Ranches and Livestock Farms*

VII—*Cash-Grain and Livestock Producers in the Corn Belt*

VIII—*Part-Time Farming*

IX—*Agricultural Producers and Production in the United States—A General View*

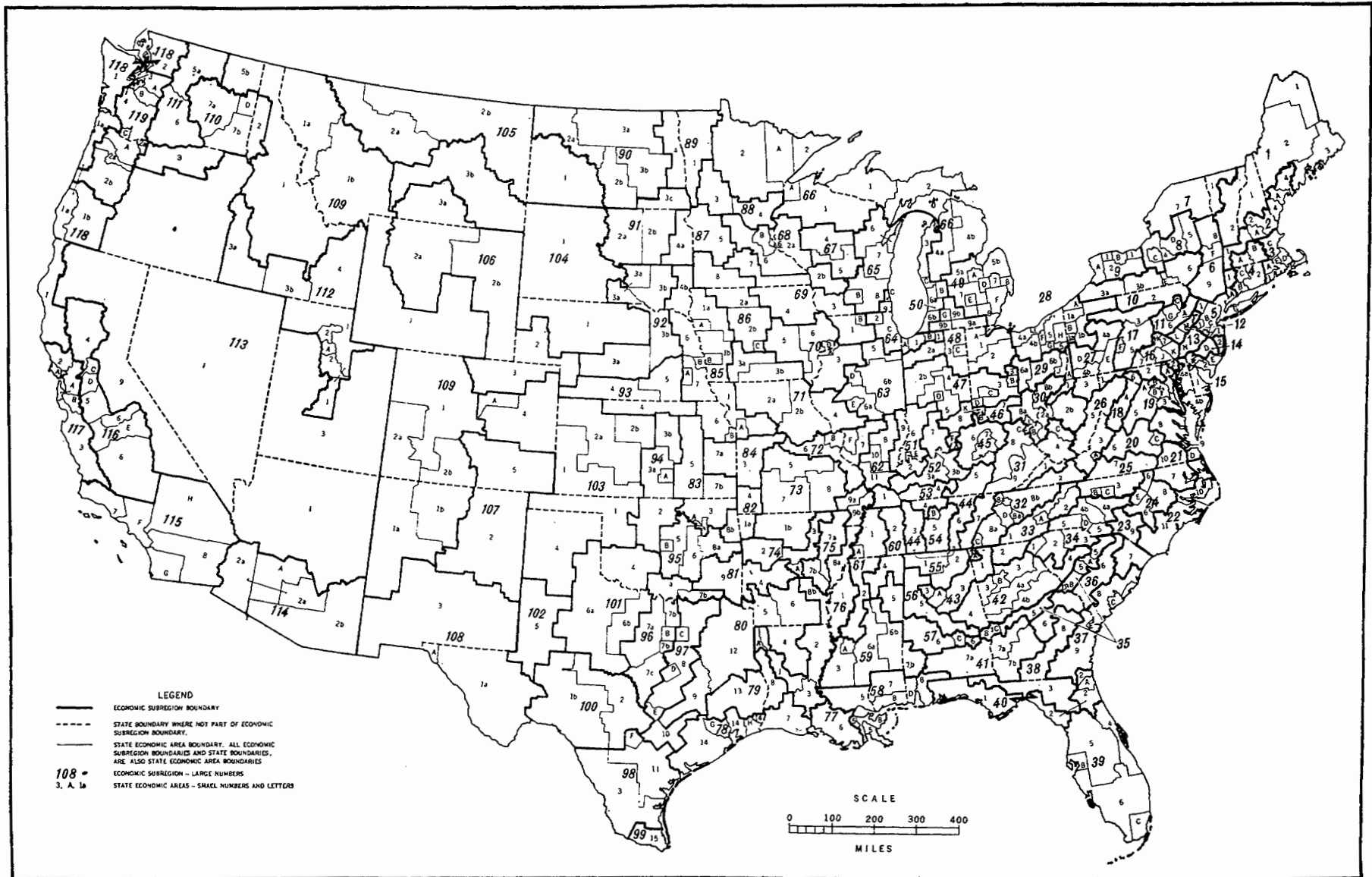
Part 10.—Use of Fertilizer and Lime. The purpose of this report is to present in one publication most of the detailed data compiled for the 1954 Census of Agriculture regarding the use of fertilizer and lime. The report presents data for counties, State economic areas, and generalized type-of-farming areas regarding the quantity used, acreage on which used, and expenditures for fertilizer and lime. The Agricultural Research Service cooperated with the Bureau of the Census in the preparation of this report.

Part 11.—Farmers' Expenditures. This report presents detailed data on expenditures for a large number of items used for farm production in 1955, and on the living expenditures of farm operators' families. The data were collected and compiled cooperatively by the Agricultural Marketing Service of the U. S. Department of Agriculture and the Bureau of the Census.

Part 12.—Methods and Procedures. This report contains an outline and a description of the methods and procedures used in taking and compiling the 1954 Census of Agriculture.

INTRODUCTION

ECONOMIC SUBREGIONS AND STATE ECONOMIC AREAS



INTRODUCTION

Purpose and scope.—American agriculture is exceedingly diverse and is undergoing revolutionary changes. Farmers and their families obtain their income by producing a large variety of products under a large variety of conditions as well as from sources other than farming. The organization of production, type of farming, productivity, income, expenditures, size, and characteristics of operators of the 4.8 million farms in the United States vary greatly. Agriculture has been a dynamic, moving, adjusting part of our economy. Basic changes in farming have been occurring and will continue to be necessary. Adjustments brought by technological change, by changing consumer wants, by growth of population, and by changes in the income of nonfarm people, have been significant forces in changing agriculture since World War II. The transition from war to an approximate peacetime situation has also made it necessary to reduce the output of some farm products. Some of the adjustments in agriculture have not presented relatively difficult problems as they could be made by the transfer of resources from the production of one product to another. Others require substantial shifts in resources and production.

Moreover, a considerable number of farm families, many of whom are employed full time in agriculture, have relatively low incomes. Most of these families operate farms that are small when compared with farms that produce higher incomes. The acreage of land and the amount of capital controlled by the operators of these small farms are too small to provide a very high level of income. In recent years, many farm families on these small farms have made adjustments by leaving the farm to earn their incomes elsewhere, by discontinuing their farm operations, and by earning more non-farm income while remaining on the farm or on the place they farmed formerly.

One objective of this report is to describe and analyze some of the existing differences and recent adjustments in the major types of farming and farm production. For important commodities and groups of farms, the report aims to make available, largely from the detailed data for the 1954 Census of Agriculture but in a more concise form, facts regarding the size of farms, capital, labor, and land resources on farms, amounts and sources of farm income and expenditures, combinations of crop and livestock enterprises, adjustment problems, operator characteristics, and variation in use of resources and in size of farms by areas and for widely differing production conditions. Those types of farms on which production of surplus products is important have been emphasized. The report will provide a factual basis for a better understanding of the widespread differences among farms in regard to size, resources, and income. It will also provide a basis for evaluating the effects of existing and proposed farm programs on the production and incomes of major types and classes of farms.

Income from nonfarm sources is important on a large number of farms. About 1.4 million of the 4.8 million farm-operator families, or about 3 in 10, obtain more income from off-farm sources than from the sale of agricultural products. More than three-fourths of a million farm operators live on small-scale part-time farms and ordinarily are not dependent on farming as the main source of family income. These part-time farmers have a quite different relation to adjustments, changes, and farm problems than do commercial farmers. A description of and facts regarding these part-time farms and the importance of nonfarm income for commercial farms are presented in Chapter 8.

Except for Chapter 8, this report deals with commercial farms (see economic class of farm). The analysis is limited to the major types of agricultural production and deals primarily with geographic areas in which each of the major types of agricultural production has substantial significance.

Source of data.—Most of the data presented in this report are from special compilations made for the 1954 Census of Agriculture, although pertinent data from research findings and surveys of the U. S. Department of Agriculture, State Agricultural Colleges, and other agencies have been used to supplement Census data. The detailed Census data used for this report are contained in Part 8 of Volume III of the reports of the 1954 Census of Agriculture. Reference should be made to that report for detailed explanations and definitions and statements regarding the characteristics and reliability of the data.

Areas for which data are presented.—Data are presented in this report primarily for selected economic subregions and for the United States. The boundaries of the 119 subregions used for the compilation of data on which this report is based are indicated by the map on page vi. These subregions represent primarily general type-of-farming areas. Many of them extend into two or more States. (For a more detailed description of economic subregions, see the publication "Economic Subregions of the United States, Series Census BAE; No. 19, published cooperatively by the Bureau of the Census, and the Bureau of Agricultural Economics, U. S. Department of Agriculture, July 1953.)

DEFINITIONS AND EXPLANATIONS

Definitions and explanations are given only for some of the more important items. For more detailed definitions and explanations, reference can be made to Part 8 of Volume III and to Volume II of the reports of the 1954 Census of Agriculture.

A farm.—For the 1954 Census of Agriculture, places of 3 or more acres were counted as farms if the annual value of agricultural products, exclusive of home-garden products, amounted to \$150 or more. The agricultural products could have been either for home use or for sale. Places of less than 3 acres were counted as farms only if the annual value of sales of agricultural products amounted to \$150 or more. Places for which the value of agricultural products for 1954 was less than these minima because of crop failure or other unusual conditions, and places operated at the time of the Census for the first time were counted as farms if normally they could be expected to produce these minimum quantities of agricultural products.

All the land under the control of one person or partnership was included as one farm. Control may have been through ownership, or through lease, rental, or cropping arrangement.

Farm operator.—A "farm operator" is a person who operates a farm, either performing the labor himself or directly supervising it. He may be an owner, a hired manager, or a tenant, renter, or sharecropper. If he rents land to others or has land cropped for him by others, he is listed as the operator of only that land which he retains. In the case of a partnership, only one partner was included as the operator. The number of farm operators is considered the same as the number of farms.

Farms reporting or operators reporting.—Figures for farms reporting or operators reporting, based on a tabulation of all farms, represent the number of farms, or farm operators, for which the specified item was reported. For example, if there were 11,922 farms in a subregion and only 11,465 had chickens over 4 months old on hand, the number of farms reporting chickens would be 11,465. The difference between the total number of farms and the number of farms reporting an item represents the number of farms not having that item, provided the inquiry was answered completely for all farms.

Farms by type.—The classification of commercial farms by type was made on the basis of the relationship of the value of sales from a particular source, or sources, to the total value of all farm products sold from the farm. In some cases, the type of farm was determined on the basis of the sale of an individual farm product, such as cotton, or on the basis of the sales of closely related products, such as dairy products. In other cases, the type of farm was determined on the basis of sales of a broader group of products, such as grain crops including corn, sorghums, all small grains, field peas, field beans, cowpeas, and soybeans. In order to be classified as a particular type, sales or anticipated sales of a product or group of products had to represent 50 percent or more of the total value of products sold.

The types of commercial farms for which data are shown, together with the product or group of products on which the classification is based are:

Type of farm	Product or group of products amounting to 50 percent or more of the value of all farm products sold
Cash-grain-----	Corn, sorghum, small grains, field peas, field beans, cowpeas, and soybeans.
Cotton-----	Cotton (lint and seed).
Other field-crop-----	Peanuts, Irish potatoes, sweet potatoes, tobacco, sugarcane, sugar beets for sugar, and other miscellaneous crops.
Vegetable-----	Vegetables.
Fruit-and-nut-----	Berries and other small fruits, and tree fruits, nuts, and grapes.
Dairy-----	Milk and other dairy products. The criterion of 50 percent of the total sales was modified in the case of dairy farms. A farm for which the value of sales of dairy products represented less than 50 percent of the total value of farm products sold was classified as a dairy farm if— (a) Milk and other dairy products accounted for 30 percent or more of the total value of products sold, and (b) Milk cows represented 50 percent or more of all cows, and (c) Sales of dairy products, together with the sales of cattle and calves, amounted to 50 percent or more of the total value of farm products sold.
Poultry-----	Chickens, eggs, turkeys, and other poultry products.
Livestock farms other than dairy and poultry.	Cattle, calves, hogs, sheep, goats, wool, and mohair, provided the farm did not qualify as a dairy farm.

Type of farm	Product or group of products amounting to 50 percent or more of the value of all farm products sold
General-----	Farms were classified as general when the value of products from one source or group of sources did not represent as much as 50 percent of the total value of all farm products sold. Separate figures are given for three kinds of general farms: (a) Primarily crop. (b) Primarily livestock. (c) Crop and livestock. <i>Primarily crop farms</i> are those for which the sale of one of the following crops or groups of crops—vegetables, fruits and nuts, cotton, cash grains, or other field crops—did not amount to 50 percent or more of the value of all farm products sold, but for which the value of sales for all these groups of crops represented 70 percent or more of the value of all farm products sold. <i>Primarily livestock farms</i> are those which could not qualify as dairy farms, poultry farms, or livestock farms other than dairy and poultry, but on which the sale of livestock and poultry and livestock and poultry products amounted to 70 percent or more of the value of all farm products sold. <i>General crop and livestock farms</i> are those which could not be classified as either crop farms or livestock farms, but on which the sale of all crops amounted to at least 30 percent but less than 70 percent of the total value of all farm products sold.
Miscellaneous-----	This group of farms includes those that had 50 percent or more of the total value of products accounted for by sale of horticultural products, or sale of horses, or sale of forest products.

Farms by economic class.—A classification of farms by economic class was made for the purpose of segregating groups of farms that are somewhat alike in their characteristics and size of operation. This classification was made in order to present an accurate description of the farms in each class and in order to provide basic data for an analysis of the organization of agriculture.

The classification of farms by economic class was made on the basis of three factors; namely, total value of all farm products sold, number of days the farm operator worked off the farm, and the relationship of the income received from nonfarm sources by the operator and members of his family to the value of all farm products sold. Farms operated by institutions, experiment stations, grazing associations, and community projects were classified as abnormal, regardless of any of the three factors.

For the purpose of determining the code for economic class and type of farm, it was necessary to obtain the total value of farm products sold as well as the value of some individual products sold.

The total value of farm products sold was obtained by adding the reported or estimated values for all products sold from the farm. The value of livestock, livestock products except wool and mohair, vegetables, nursery and greenhouse products, and forest

products was obtained by the enumerator from the farm operator for each farm. The enumerator also obtained from the farm operator the quantity sold for corn, sorghums, small grains, hays, and small fruits. The value of sales for these crops was obtained by multiplying the quantity sold by State average prices.

The quantity sold was estimated for all other farm products. The entire quantity produced for wool, mohair, cotton, tobacco, sugar beets for sugar, sugarcane for sugar, broomcorn, hops, and mint for oil was estimated as sold. To obtain the value of each product sold, the quantity sold was multiplied by State average prices.

In making the classification of farms by economic class, farms were grouped into two major groups, namely, commercial farms and other farms. In general, all farms with a value of sales of farm products amounting to \$1,200 or more were classified as commercial. Farms with a value of sales of \$250 to \$1,199 were classified as commercial only if the farm operator worked off the farm less than 100 days or if the income of the farm operator and members of his family received from nonfarm sources was less than the total value of all farm products sold.

Land in farms according to use.—Land in farms was classified according to the use made of it in 1954. The classes of land are mutually exclusive, i. e., each acre of land was included only once even though it may have had more than one use during the year.

The classes referred to in this report are as follows:

Cropland harvested.—This includes land from which crops were harvested; land from which hay (including wild hay) was cut; and land in small fruits, orchards, vineyards, nurseries, and greenhouses. Land from which two or more crops were reported as harvested was to be counted only once.

Cropland used only for pasture.—In the 1954 Census, the enumerator's instructions stated that rotation pasture and all other cropland that was used only for pasture were to be included under this class. No further definition of cropland pastured was given the farm operator or enumerator. Permanent open pasture may, therefore, have been included under this item or under "other pasture," depending on whether the enumerator or farm operator considered it as cropland.

Cropland not harvested and not pastured.—This item includes idle cropland, land in soil-improvement crops only, land on which all crops failed, land seeded to crops for harvest after 1954, and cultivated summer fallow.

In the Western States, this class was subdivided to show separately the acres of cultivated summer fallow. In these States, the acreage not in cultivated summer fallow represents largely crop failure. There are very few counties in the Western States in which there is a large acreage of idle cropland or in which the growing of soil-improvement crops is an important use of the land.

In the States other than the Western States, this general class was subdivided to show separately the acres of idle cropland (not used for crops or for pasture in 1954). In these States, the incidence of crop failure is usually low. It was expected that the acreage figure that excluded idle land would reflect the acreage in soil-improvement crops. However, the 1954 crop year was one of low rainfall in many Eastern and Southern States and, therefore, in these areas the acreage of cropland not harvested and not pastured includes more land on which all crops failed than would usually be the case.

Cultivated summer fallow.—This item includes cropland that was plowed and cultivated but left unseeded for several months to control weeds and conserve moisture. No land from which crops were harvested in 1954 was to be included under this item.

Cropland, total.—This includes cropland harvested, cropland used only for pasture, and cropland not harvested and not pastured.

Land pastured, total.—This includes cropland used only for pasture, woodland pastured, and other pasture (not cropland and not woodland).

Woodland, total.—This includes woodland pastured and woodland not pastured.

Value of land and buildings.—The value to be reported was the approximate amount for which the land and the buildings on it would sell.

Off-farm work and other income.—Many farm operators receive a part of their income from sources other than the sale of farm products from their farms. The 1954 Agriculture Questionnaire included several inquiries relating to work off the farm and non-farm income. These inquiries called for the number of days worked off the farm by the farm operator; whether other members of the operator's family worked off the farm; and whether the farm operator received income from other sources, such as sale of products from land rented out, cash rent, boarders, old age assistance, pensions, veterans' allowances, unemployment compensation, interest, dividends, profits from nonfarm business, and help from other members of the operator's family. Another inquiry asked whether the income of the operator and his family from off-farm work and other sources was greater than the total value of all agricultural products sold from the farm in 1954. Off-farm work was to include work at nonfarm jobs, businesses, or professions, whether performed on the farm premises or elsewhere; also, work on someone else's farm for pay or wages. Exchange work was not to be included.

Specified facilities and equipment.—Inquiries were made in 1954 to determine the presence or absence of selected items on each place such as (1) telephone, (2) piped running water, (3) electricity, (4) television set, (5) home freezer, (6) electric pig brooder, (7) milking machine, and (8) power feed grinder. Such facilities or equipment were to be counted even though temporarily out of order. Piped running water was defined as water piped from a pressure system or by gravity flow from a natural or artificial source. The enumerator's instructions stated that pig brooders were to include those heated by an electric heating element, by an infrared or heat bulb, or by ordinary electric bulbs. They could be homemade.

The number of selected types of other farm equipment was also obtained for a sample of farms. The selected kinds of farm equipment to be reported were (1) grain combines (for harvesting and threshing grains or seeds in one operation); (2) cornpickers; (3) pickup balers (stationary ones not to be reported); (4) field forage harvesters (for field chopping of silage and forage crops); (5) motortrucks; (6) wheel tractors (other than garden); (7) garden tractors; (8) crawler tractors (tracklaying, caterpillar); (9) automobiles; and (10) artificial ponds, reservoirs, and earth tanks.

Wheel tractors were to include homemade tractors but were not to include implements having built-in power units such as self-propelled combines, powered buck rakes, etc. Pickup and truck-trailer combinations were to be reported as motortrucks. School buses were not to be reported, and jeeps and station wagons were to be included as motortrucks or automobiles, depending on whether used for hauling farm products or supplies, or as passenger vehicles.

Farm labor.—The farm-labor inquiries for 1954, called for the number of persons doing farmwork or chores on the place during a specified calendar week. Since starting dates of the 1954 enumeration varied by areas or States, the calendar week to which the farm-labor inquiries related varied also. The calendar week was September 26–October 2 or October 24–30. States with the September 26–October 2 calendar week were: Arizona, California, Colorado, Connecticut, Florida, Idaho, Kansas, Kentucky, Louisiana, Maine, Massachusetts, Michigan, Minnesota, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico,

New York, North Dakota, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Dakota, Tennessee, Texas, Utah, Vermont, Washington, Wisconsin, and Wyoming. States with the October 24-30 calendar week were: Alabama, Arkansas, Delaware, Georgia, Illinois, Indiana, Iowa, Maryland, Mississippi, Missouri, North Carolina, Ohio, South Carolina, Virginia, and West Virginia. Farmwork was to include any work, chores, or planning necessary to the operation of the farm or ranch business. Housework, contract construction work, and labor involved when equipment was hired (custom work) were not to be included.

The farm-labor information was obtained in three parts: (1) Operators working, (2) unpaid members of the operator's family working, and (3) hired persons working. Operators were considered as working if they worked 1 or more hours; unpaid members of the operator's family, if they worked 15 or more hours; and hired persons, if they worked any time during the calendar week specified. Instructions contained no specifications regarding age of the persons working.

Regular and seasonal workers.—Hired persons working on the farm during the specified week were classed as "regular" workers if the period of actual or expected employment was 150 days or more during the year, and as "seasonal" workers if the period of actual or expected employment was less than 150 days. If the period of expected employment was not reported, the period of employment was estimated for the individual farm after taking into account such items as the basis of payment, wage rate, expenditures for labor in 1954, and the type and other characteristics of the farm.

Specified farm expenditures.—The 1954 Census obtained data for selected farm expense items in addition to those for fertilizer and lime. The expenditures were to include the total specified expenditures for the place whether made by landlord, tenant, or both.

Expenditures for machine hire were to include any labor included in the cost of such machine hire. Machine hire refers to custom machine work such as tractor hire, threshing, combining, silo filling, baling, ginning, plowing, and spraying. If part of the farm products was given as pay for machine hire, the value of the products traded for this service was to be included in the amount of expenditures reported. The cost of trucking, freight, and express was not to be included.

Expenditures for hired labor were to include only cash payments. Expenditures for housework, custom work, and contract construction work were not to be included.

Expenditures for feed were to include the expenditures for pasture, salt, condiments, concentrates, and mineral supplements, as well as those for grain, hay, and mill feeds. Expenditures for grinding and mixing feeds were also to be included. Payments made by a tenant to his landlord for feed grown on the land rented by the tenant were not to be included.

Expenditures for gasoline and other petroleum fuel and oil were to include only those used for the farm business. Petroleum products used for the farmer's automobile for pleasure or used exclusively in the farm home for heating, cooking, and lighting were not to be included.

Crops harvested.—The information on crops harvested refers to the acreage and quantity harvested for the 1954 crop year. An exception was made for land in fruit orchards and planted nut trees. In this case, the acreage represents that in both bearing and nonbearing trees and vines as of October and November 1954.

Hay.—The data for hay includes all kinds of hay except soybean, cowpea, sorghum, and peanut hay.

Livestock and poultry.—The data on the number of livestock and poultry represent the number on hand on the day of enumeration

(October-November 1954). The data relating to livestock products and the number of livestock sold relate to the sales made during the calendar year 1954.

LABOR RESOURCES

The data for labor resources available represent estimates based largely on Census data and developed for the purpose of making comparisons among farms of various size of operations. The labor resources available are stated in terms of man-equivalents.

To obtain the man-equivalents the total number of farm operators as reported by the 1954 Census were adjusted for estimated man-years of work off the farm and for the number of farm operators 65 years old and over. The farm operator was taken to represent a full man-equivalent of labor unless he was 65 years or older or unless he worked at an off-farm job in 1954.

The man-equivalent estimated for farm operators reporting specified amounts of off-farm work were as follows:

<i>Days worked off the farm in 1954</i>	<i>Estimated man-equivalent</i>
1-99 days.....	0.85
100-199 days.....	.50
200 days and over.....	.15

The man-equivalent for farm operators 65 years of age and older was estimated at 0.5.

Man-equivalents of members of the farm operator's family were based upon Census data obtained in response to the question "How many members of your family did 15 or more hours of farm work on this place the week of September 26-October 2 (or, in some areas, the week of October 24-30) without receiving cash wages?" Each family worker was considered as 0.5 man-equivalent. This estimate provides allowance for the somewhat higher incidence of women, children, and elderly persons in the unpaid family labor force.

In addition, the number of unpaid family workers who were reported as working 15 or more hours in the week of September 26-October 2 was adjusted to take account of seasonal changes in farm employment. Using published and unpublished findings of the U. S. Department of Agriculture and State Agricultural Colleges, and depending largely upon knowledge and experience with the geographic areas and type of farming, each author determined the adjustment factor needed to correct the number of family workers reported for the week of September 26-October 2 to an annual average basis.

Man-equivalents of hired workers are based entirely upon the expenditure for cash wages and the average wage of permanent hired laborers as reported in the 1954 Census of Agriculture.

Value of or investment in livestock.—Numbers of specified livestock and poultry in each subregion were multiplied by a weighted average value per head. The average values were computed from data compiled for each kind of livestock for the 1954 Census of Agriculture. The total value does not include the value of goats. (For a description of the method of obtaining the value of livestock, see Chapter VI of Volume II of the reports for the 1954 Census of Agriculture.)

Value of investment in machinery and equipment.—The data on value of investment in machinery and equipment were developed for the purpose of making broad comparisons among types and economic classes of farms and by subregions. Numbers of specified machines on farms, as reported by the Census, were multiplied by estimated average value per machine. Then the total values obtained were adjusted upward to provide for the inclusion of items of equipment not included in the Census inventory of farm machinery.

The estimates for average value of specified machines and the proportion of total value of all machinery represented by the value of these machines were based largely on published and unpublished data from the "Farm Costs and Returns" surveys conducted currently by the Agricultural Research Service, U. S. Department of Agriculture.¹ Modifications were made as needed in the individual chapters on the basis of State and local studies. The total estimated value of all machinery for all types and economic classes of farms is approximately equal to the value of all machinery as estimated by the U. S. Department of Agriculture.

Value of farm products sold, or gross sales.—Data on the value of the various farm products sold were obtained for 1954 by two methods. First, the values of livestock and livestock products sold, except wool and mohair; vegetables harvested for sale; nursery and greenhouse products; and forest products were obtained by asking each farm operator the value of sales. Second, the values of all other farm products sold were computed. For the most important crops, the quantity sold or to be sold was obtained for each farm. The entire quantity harvested for cotton and cottonseed, tobacco, sugar beets for sugar, hops, mint for oil, and sugarcane for sugar was considered sold. The quantity of minor crops sold was estimated. The value of sales for each crop was computed by multiplying the quantity sold by State average prices. In the case of wool and mohair, the value of sales was computed by multiplying the quantity shorn or clipped by the State average prices.

Gross sales include the value of all kinds of farm products sold. The total does not include rental and benefit, soil conservation, price adjustment, Sugar Act, and similar payments. The total

does include the value of the landlord's share of a crop removed from a farm operated by a share tenant. In most of the tables, detailed data are presented for only the more important sources of gross sales and the total for the individual farm products or sources will not equal the total as the values for the less important sources or farm products have been omitted. (For a detailed statement regarding the reliability and method of obtaining the value of farm products sold, reference should be made to Chapter IX of Volume II of the reports for the 1954 Census of Agriculture.)

Livestock and livestock products sold.—The value of sales for livestock and livestock products includes the value of live animals sold, dairy products sold, poultry and poultry products sold, and the calculated value of wool and mohair. The value of bees, honey, fur animals, goats, and goat milk is not included.

The value of dairy products includes the value of whole milk and cream sold, but does not include the value of butter and cheese, made on the farm, and sold. The value of poultry and products includes the value of chickens, broilers, chicken eggs, turkeys, turkey eggs, ducks, geese, and other miscellaneous poultry and poultry products sold. The value does not include the value of baby chicks sold.

Crops sold.—Vegetables sold includes the value of all vegetables harvested for sale, but does not include the value of Irish potatoes and sweetpotatoes.

The value of all crops sold includes the value of all crops sold except forest products. The value of field crops sold includes the value of sales of all crops sold except vegetables, small fruits and berries, fruits, and nuts.

¹ Farm Costs and Returns, 1955 (with comparisons), Agriculture Information Bulletin No. 158, Agricultural Research Service, U. S. Department of Agriculture, June 1956.

CHAPTER VII

CASH-GRAIN AND LIVESTOCK PRODUCERS IN THE CORN BELT

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CASH-GRAIN AND LIVESTOCK PRODUCERS IN THE CORN BELT

EDWIN G. STRAND

INTRODUCTION

Corn is the leading farm crop in the United States. It is the most widely grown American crop—being produced to some extent in every State. Its total acreage in the United States in 1954 was 78.1 million acres (fig. 1). This was 23.4 percent of the total cropland harvested. Generally, about 85 to 90 percent of the acreage is harvested for grain; the remainder is used for silage or fodder. The average annual production in 1950–56 was 2.8 billion bushels harvested for grain. This is a larger number of bushels than the total production of wheat or any other grain crop. Most of the corn (about 90 percent of the annual crop) is used for livestock feed. In recent years corn has accounted for about 60 percent of the total pounds of concentrates fed to livestock in this country. Other uses of corn are for starch, sirup, sugar, corn meal, grits, alcohol and distilled spirits, breakfast foods, other processed products, and direct consumption in farm households.

The major region of corn production is in the North Central States, centering on Iowa, Illinois, and Indiana. The five States—Ohio, Indiana, Illinois, Iowa, and Missouri—are generally known as the Corn Belt States. But the boundaries of the principal corn-producing region extend beyond the boundaries of the five-State area, particularly to the north and west. Actually, in recent years Minnesota has outranked Ohio and Missouri in bushels as well as in acreage of corn harvested for grain, and Nebraska has outranked Missouri in five of the last seven years. There has been an expansion of corn production to the north and west during the last two decades.

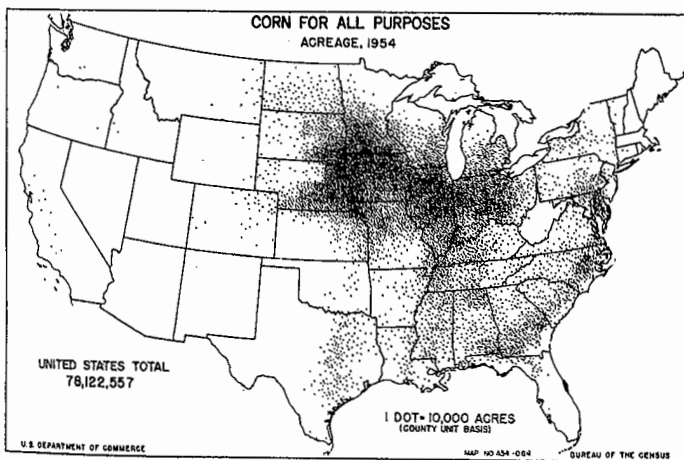


FIGURE 1.

¹ Economic subregions are groups of State economic areas that are generally similar as to economic features reflected in crop and livestock production and types of farming. State economic areas are groups of counties that are relatively homogeneous as to agricultural characteristics. Many of the data obtained in the 1950 Census of Agriculture and in the 1954 Census of Agriculture were grouped and tabulated by State economic areas and by economic subregions.

² Italic numbers in parentheses refer to literature cited on p. 68.

THE CORN BELT

The area of the Corn Belt as the term is used in the present report was determined by grouping together the economic subregions in which corn production was most concentrated and in which there was a preponderance of cash-grain and livestock types of farms, which are the characteristic types of farms in the Corn Belt.¹ The location and boundaries of the Corn Belt are shown in figure 2.

The Corn Belt, as here outlined, is a somewhat larger region than the five Corn Belt States and coincides rather closely with the Corn Belt as outlined on the map of generalized types of farming in the United States (10).² The Corn Belt is bordered on the north by the Lake States dairy region and on the south by the principal region of general farming. It is bordered on the east by dairy and general-farming regions. On the southwest it merges into the winter-wheat region and on the northwest it tapers off into the spring-wheat region.

The Corn Belt includes farming areas in 12 States, but only Iowa is entirely within the area, and only small parts of Wisconsin, Michigan, and Kentucky are included. It stretches across a distance of about 1,000 miles from east to west and approximately 600 miles from south to north.

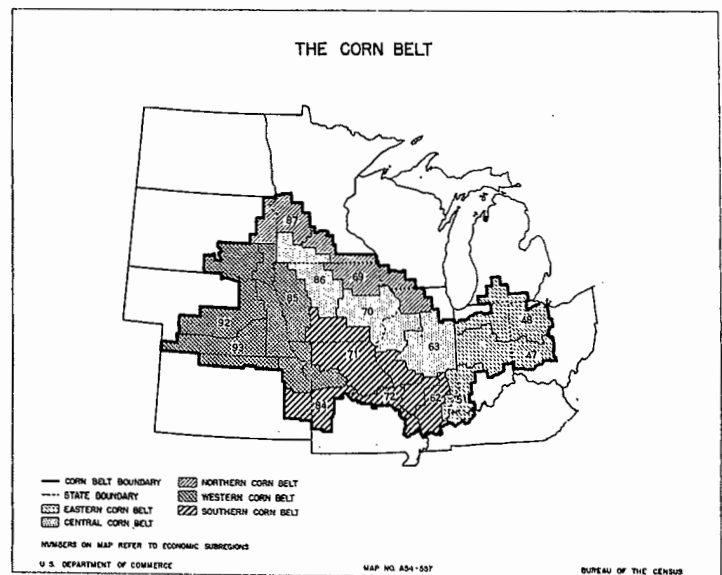


FIGURE 2.

The Corn Belt has fertile soils and a climate that is well suited to corn production. The topography and soils are far from uniform throughout the region. The annual precipitation varies considerably from east to west and to a lesser extent from south to north. There is also a difference from north to south of about 60 days in the length of the frost-free growing season. But the soils in general, and the prevailing moisture, the growing season, and other climatic characteristics are such that the tolerance limits for growth and development of the corn plant are not frequently or seriously exceeded. The natural environment is such that relatively large yields of corn are generally produced and this is generally the crop that brings the highest return to the farmer. Consequently, within the limits imposed by considerations of soil management, disease and insect control, and labor distribution—which are reflected in cropping sequences and crop rotations—corn generally is given the highest priority in choice of cropland by farmers of this region. Among the other principal crops grown in the Corn Belt, soybeans, oats, and forage crops are of major importance.

SIGNIFICANCE OF THE CORN BELT IN AMERICAN AGRICULTURE

A large proportion of the total agricultural production in the United States comes from Corn Belt farms (table 1). In 1954, 28.2 percent of the total value of all farm products sold by commercial farms in the United States was accounted for by the Corn Belt. The value of farm products sold is not as great on a per square mile basis in the Corn Belt as it is in some other areas, but the Corn Belt is the largest area of relatively high value of products sold per unit of land (fig. 3).

TABLE 1.—TOTAL QUANTITIES OF SPECIFIED ITEMS FOR COMMERCIAL FARMS IN THE UNITED STATES AND IN THE CORN BELT, SHOWING PERCENTAGE OF UNITED STATES TOTAL IN THE CORN BELT: 1954

Item	United States	Corn Belt ¹	
		Quantity	Percent of United States
Farms.....number.....	3,327,889	797,259	24.0
Land in farms.....acres.....	1,032,493,362	170,307,389	16.5
Total cropland.....acres.....	431,584,954	121,754,844	28.2
Cropland harvested.....acres.....	321,586,517	104,377,594	32.5
Value of land and buildings millions of dollars.....	85,728	26,741	31.1
Cash-grain farms.....number.....	537,974	264,546	49.2
Livestock farms ².....number.....	694,888	326,662	47.0
Corn harvested for grain.....acres.....	63,394,112	39,358,892	62.1
bushels.....	2,547,823,454	1,833,157,374	71.9
Oats threshed or combined.....acres.....	37,312,820	19,343,798	51.8
bushels.....	1,301,864,795	701,554,728	53.9
Wheat threshed or combined.....acres.....	60,582,348	8,263,849	16.4
bushels.....	900,761,498	209,310,547	23.2
Soybeans harvested for beans.....acres.....	16,189,376	11,773,052	72.7
bushels.....	322,324,503	260,452,066	80.8
All cattle and calves.....number.....	88,843,964	22,907,509	25.8
All hogs and pigs.....number.....	54,963,546	36,653,945	66.7
Chickens 4 months old and over.....number.....	340,361,825	110,369,868	32.4
Chicken eggs sold.....dozens.....	2,663,617,214	836,540,713	31.4
All sheep.....number.....	30,176,438	5,423,998	18.0
Tractors.....number.....	4,127,764	1,329,422	32.2
Motortrucks.....number.....	2,223,443	448,745	20.2
Automobiles.....number.....	3,199,713	912,208	28.5
Grain combines.....number.....	950,341	410,200	43.2
Cornpickers.....number.....	674,182	477,416	70.8
Pick-up hay balers.....number.....	431,044	149,025	34.5
Field forage harvesters.....number.....	197,628	61,289	31.0
Expenditures for hired labor.....dollars.....	2,214,180,127	237,678,756	10.7
Expenditures for gasoline and other petroleum fuel and oil.....dollars.....	1,312,642,381	385,651,642	29.4
Expenditures for commercial fertilizer.....dollars.....	1,023,734,322	259,212,808	25.3
Value of all farm products sold.....dollars.....	24,208,622,950	6,867,668,641	28.2
Value of all crops sold.....dollars.....	11,955,045,301	2,470,582,915	20.7
Value of livestock and livestock products sold.....dollars.....	12,223,361,628	4,374,939,331	35.8

¹ The Corn Belt is comprised of the following 15 economic subregions: 47, 48, 51, 62, 63, 69, 70, 71, 72, 84, 85, 86, 87, 92, and 93.

² Livestock other than dairy and poultry farms.

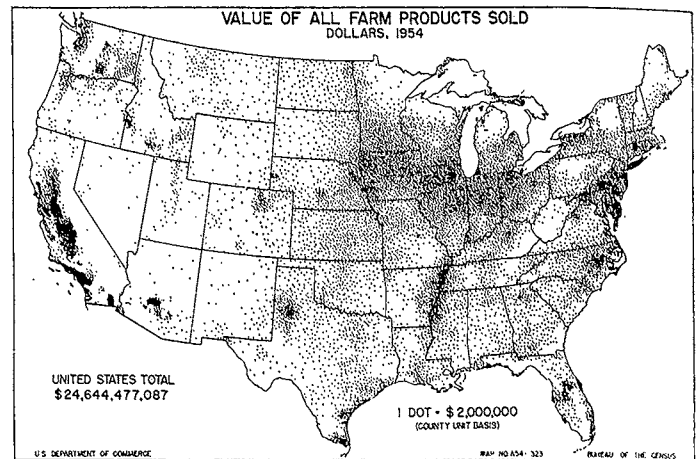


FIGURE 3.

The concentration of value of crops sold in the Corn Belt is not as great as the concentration of value of livestock and livestock products sold (figs. 4 and 5) because most of the cropland is used for growing feed crops and most of the feed produced is fed to livestock in the region. Commercial farms in the Corn Belt had 66.7 percent of all the hogs and pigs and 25.8 percent of all the cattle and calves on commercial farms in the United States in 1954 (table 1).

Approximately two-thirds of the acreage of corn harvested for grain on commercial farms in the United States in 1954 was in the Corn Belt and the production on this acreage was 71.9 percent of all the corn produced on commercial farms in the Nation. Corn Belt farms also had 72.7 percent of the total acreage of soybeans

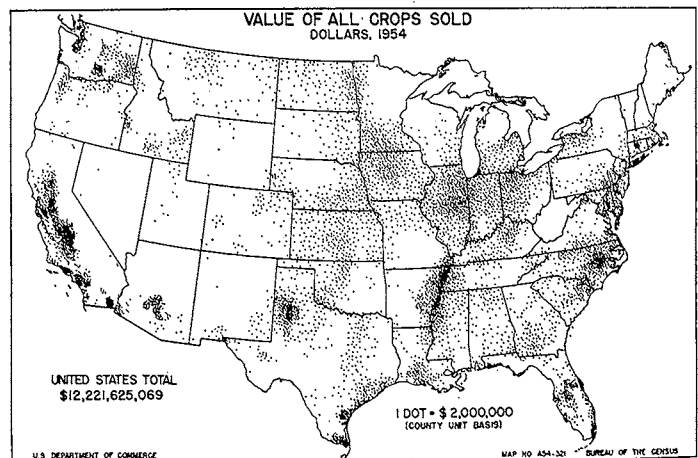


FIGURE 4.

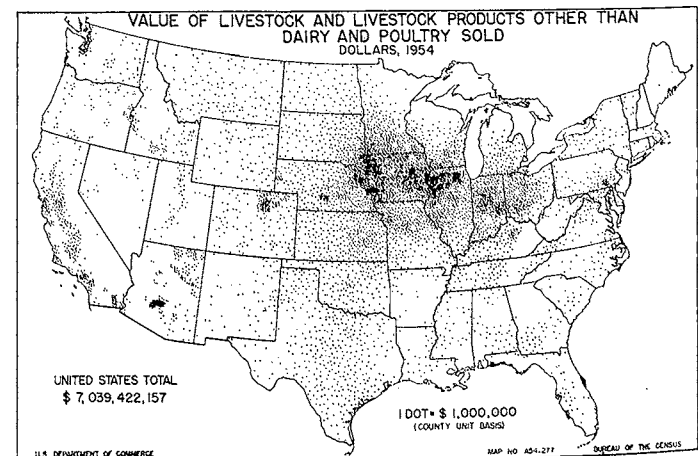


FIGURE 5.

harvested for beans on all commercial farms in the country and produced 80.8 percent of the soybean crop.

Approximately half of the cash-grain farms and livestock farms (other than dairy and poultry farms) in the United States in 1954 were in the Corn Belt. The total number of commercial farms in the Corn Belt was 797,259, or 24 percent of the United States total. Most of the labor on these farms was that of the operator and members of his family. Commercial farms in the Corn Belt accounted for only 10.7 percent of the total expenditure for hired labor on all commercial farms in the United States.

The Corn Belt as defined for this study and report contains a larger area of farmland and more commercial farms than are included in the five States usually referred to as the Corn Belt States (table 2). The Corn Belt as here defined also includes a larger proportion of the United States total production of principal Corn Belt crops and livestock. This results from the fact that the 15 economic subregions comprising the Corn Belt as presently outlined contain a total area somewhat larger than the area of the five Corn Belt States. Furthermore, the portions of Missouri, Indiana, and Ohio included in the economic subregions used here contain a larger proportion of commercial farms and of commercial farm acreage than do the excluded portions of those States. The economic subregions selected for inclusion in the Corn Belt were those in which types of farms and kinds of crops and livestock characteristic of the Corn Belt were relatively most concentrated.

TABLE 2.—COMPARISON OF TOTALS FOR FIVE CORN BELT STATES AND THE CORN BELT AS USED IN THE PRESENT STUDY, WITH RESPECT TO SPECIFIED ITEMS FOR COMMERCIAL FARMS: 1954

Item	Percentage of United States total accounted for by—	
	5 Corn Belt States ¹	The Corn Belt ²
Number of farms.....	21.2	24.0
Acres of all land in farms.....	12.4	16.5
Number of cash-grain farms.....	38.1	49.2
Number of livestock farms ³	39.4	47.0
Bushels of corn harvested for grain.....	57.4	71.9
Bushels of oats threshed or combined.....	38.0	53.9
Bushels of wheat threshed or combined.....	18.0	23.2
Bushels of soybeans harvested for beans.....	72.6	80.8
Number of cattle and calves sold alive.....	21.9	28.2
Number of hogs and pigs sold alive.....	58.7	69.7

¹ Ohio, Indiana, Illinois, Iowa, and Missouri.

² Total of 15 economic subregions. See footnote to table 1.

³ Livestock other than dairy and poultry farms.

REGIONS WITHIN THE CORN BELT

Because of the vast size of the Corn Belt and because of some rather important differences in the natural features and conditions of production from one part to another, the Corn Belt has been divided into five parts, or regions, for the purpose of this analysis and report (fig. 2).

Eastern Corn Belt.—The soils of most of the Eastern Corn Belt were developed under forest conditions. They usually are acid, with a rather thin organic top layer, and they are inherently less productive than the prairie soils to the west. The southwestern part of this region includes some hilly and relatively less productive land in addition to the alluvial soils of the Wabash and Ohio River Valleys. The average annual precipitation ranges from 45 inches in the southwestern to 35 inches in the northern part of the region. Commercial fertilizer and lime are used more extensively than in any other part of the Corn Belt.

More than half the commercial farms in this region have less than 140 acres of land. This region has been settled and farmed longer than most of the rest of the Corn Belt. Corn is the leading crop but occupies a smaller percentage of the cropland than in areas to the west. Wheat is grown on a larger percentage of the farms than in any other region of the Corn Belt. Soybeans for beans are grown to the largest extent in the northeastern and northwestern parts of this region.

Central Corn Belt.—The topography of most of the Central Corn Belt is level to slightly rolling. The most level portions are in east-central Illinois and in central Iowa. These are the areas where cash-grain farming is most concentrated. The central portion of this long diagonal region contains the largest proportion of rolling land, and in this area livestock farms predominate.

The soils over most of this region were developed from prairie vegetation and are deep, fertile, and rich in organic matter. Average annual precipitation ranges from 40 inches in the eastern end to 25 inches in the extreme western part, and it is usually well distributed through the growing season. The principal crops are corn, soybeans, and oats. Yields of crops are relatively high.

Northern Corn Belt.—In the Northern Corn Belt the topography and rainfall vary considerably from east to west. In the eastern part the rainfall is greater and the topography is rougher than in the western part. Soil erosion is a relatively serious problem in the eastern part, and some soils in this area have difficult drainage problems. Forage production, and hence beef and dairy production, are much more important in the eastern than in the western part of the region. Cash-grain farms are relatively most numerous in the western part where the land is more level and rainfall is more limiting for forage production. The principal crops, in addition to forage, are corn, oats, and soybeans.

The primary limiting factor determining the northern boundary of the Corn Belt is the length of the growing season. Development of hybrid corn adapted to a shorter growing season has pushed the northern boundary of the Corn Belt northward during the last 20 years.

Western Corn Belt.—The western boundary of the Corn Belt is determined principally by the supply of moisture, and particularly by the amount of rainfall during the growing season. Westward from the zone of 25 inches of average annual precipitation, corn rapidly loses its dominant position in the cropping system, and is replaced by grain sorghum and wheat. The Corn Belt merges into the regions of wheat production and range livestock. Wheat is able to make better use of fall, winter, and spring moisture, and coming to maturity in the hot and relatively dry part of the summer, it has a relative advantage over corn at the western border of the Corn Belt. In the western part of the Western Corn Belt, because of the uncertainty of rainfall, farmers tend to understock with livestock to avoid the hazard of insufficient feed in dry years. Therefore, more corn is sold from this part of the region than in the eastern half of the Western Corn Belt.

In the loessial or wind-blown soil areas bordering the Missouri River most of the land is characteristically rolling, and a large percentage can be used only for permanent pasture. To protect the cropland from soil erosion and to maintain organic matter in the soil, relatively large acreages of grasses and legumes are grown. Cattle feeding and hog production are important in this part of the region.

Southern Corn Belt.—Land in the Southern Corn Belt is generally more rolling and most of the soils are less productive than in the areas bordering it on the north, east, and west. This region has large areas of silt loam soils that have heavy subsoils or clay-pans, making for difficult soil drainage and interfering with root development and growth of crops. The scarcity of good cropland is reflected in the relatively large acreage of pasture and the

relatively small supply of concentrates. Beef cattle grazing is therefore more important here than in the Central Corn Belt and there is less emphasis on cattle fattening and on hog production.

The average annual precipitation is about equal to that in the Eastern Corn Belt. The growing season in the southern part of the region is longer than in most of the rest of the Corn Belt.

TABLE 3.—PERCENT OF COMMERCIAL FARMS REPORTING SPECIFIED USES OF CROPLAND AND SPECIFIED CROPS HARVESTED, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Item	Corn Belt, total	Eastern Corn Belt	Central Corn Belt	Northern Corn Belt	Western Corn Belt	Southern Corn Belt
	Percent	Percent	Percent	Percent	Percent	Percent
Cropland harvested.....	95.8	93.9	96.9	97.9	96.5	94.8
Cropland used only for pasture.....	61.0	61.9	57.7	53.7	38.6	44.6
Cropland not harvested and not pastured.....	18.0	16.9	9.7	12.8	26.3	22.0
Corn for all purposes.....	91.0	89.6	94.8	95.1	91.3	85.2
Corn harvested for grain.....	87.6	89.0	94.3	94.2	89.2	72.6
Wheat threshed or combined.....	35.6	63.2	13.9	7.5	37.2	45.4
Oats threshed or combined.....	72.4	61.3	85.7	90.8	72.6	57.6
Barley threshed or combined.....	5.6	5.2	1.4	7.6	4.8	10.0
Rye threshed or combined.....	4.3	8.2	1.9	1.4	3.6	5.6
Soybeans for all purposes.....	42.3	51.4	56.2	40.2	16.1	49.9
Soybeans harvested for beans.....	41.2	50.1	55.8	39.8	15.7	46.8
Soybeans cut for hay.....	2.0	2.9	0.9	0.5	0.3	5.4
Red clover seed harvested.....	4.1	7.5	3.6	2.7	1.6	4.7

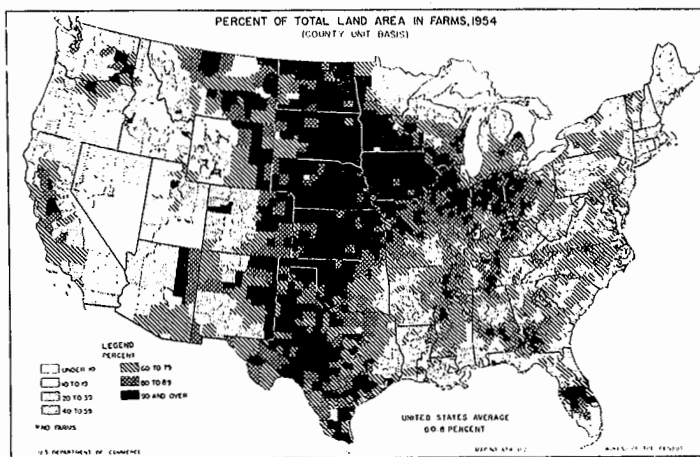


FIGURE 6.

Because of the quality of soil in much of the region, however, average yields of crops are relatively low. The principal grain crops are corn, soybeans, oats, and wheat.

A number of differences among the five regions within the Corn Belt are reflected by the data on percent of farmers reporting specified uses of cropland and specified crops harvested (table 3). There are rather significant differences, for example, in the proportion of farmers reporting cropland used only for pasture, cropland not harvested and not pastured, wheat threshed or combined, and soybeans harvested for beans.

In most of the Western and Northern Corn Belt, 90 percent or more of the total land area is in farms (fig. 6). In the Eastern and Southern Corn Belt there are many counties in which up to one-third of the land is in nonfarm uses.

TYPES OF FARMING

The differences in types of farming that occur from farm to farm as well as between localities in the Corn Belt are explained basically by differences in soils and topographic features. The kind and degree of livestock production is determined in large part by the production of forage on a farm. On farms with rich, black, level soils, relatively little of the cropland is used for growing forage. On such farms, where practically all of the land is plowable, where there is relatively little soil erosion, and where yield response to forages in crop rotations is not great, corn and soybeans make up the largest proportion of the crops grown. Such farms are generally either cash-grain farms, hog farms, or beef-fattening farms. Cattle for fattening on these farms are generally calves or young cattle bought from the western range region. On farms where more of the land is used for pasture or hay, beef breeding herds are kept, but where little or no forage is available on the farm, the cattle-feeding operation is generally based on the purchase of young cattle for fattening.

Farms having rolling land and soils that show benefit from forages in the rotation are likely to have some cattle production, such as pasturing of young feeder cattle for a few months on pasture and then fattening them for market. The beef enterprise is found frequently on farms along with hog production, as the two enterprises are complementary to some extent.

Farms with a considerable acreage of easily erodible land which is kept in pasture or hay meadow, are likely to keep roughage-consuming livestock such as beef breeding herds or dairy cattle. The farms with large and regular production of hay and pasture are generally dairy farms. Some also raise beef cattle or sheep.

FARM ORGANIZATION IN THE CORN BELT

TYPE OF FARM

In the classification of farms by type, farms that have a high degree of uniformity as to kinds and combinations of crops and livestock produced were grouped together. This grouping, or classifying, was done on the basis of value of farm products sold. Type of farm was determined on the basis of the proportion of total sales of farm products accounted for by a particular product or closely related group of products, such as dairy products, livestock other than dairy and poultry products, or grain crops.

In order for a farm to be classified as a particular type, the sales or expected sales of the particular product or group of products had to represent 50 percent or more of the total value of products sold. For example, farms on which the sale of grain (corn, soybeans, small grains, sorghums, field beans, field peas, and cowpeas) accounted for 50 percent or more of the total value of farm products sold were classified as cash-grain farms.

The distribution of commercial farms and of cash-grain farms, livestock farms, and general farms in the United States is shown in figures 7, 8, 9, and 10.

The number of farms in each of the principal types found in the Corn Belt and in the United States as a whole in 1954 are shown in table 4. Of the 3,327,617 commercial farms, a total of 797,259, or 24 percent, were in the Corn Belt. The percentage of commercial farms accounted for by the Corn Belt is higher than the percentage of all farms included in this region because the number of farms other than commercial is relatively greater in parts of the United States outside of the Corn Belt. Of all the cash-grain farms in the United States, 49.2 percent were in the Corn Belt. Outside of this belt the principal regions of cash-grain farms were the

Great Plains and other wheat-producing regions. The Corn Belt had 47 percent of all livestock farms (other than dairy and poultry) in the Nation. The Corn Belt is by far the leading region in frequency of occurrence of livestock farms. Outside of it other regions where livestock farms are a dominant type are the Great Plains and the general region between the Corn Belt and the Cotton Belt. Although dairying is not a principal enterprise except on a relatively few farms in this region, the Corn Belt accounted for 11.8 percent of all the dairy farms in the United States. Dairy farms predominate in the region to the north of the belt. Spreading out from the region of the Lake States, dairying is also of importance in border areas extending into the Eastern Corn Belt and along its northern edge. Farms that could not be classified into a more definite type because no product or group of products accounted for as much as 50 percent of the total value of farm products sold were classified as general farms.

The general farms here are mainly characterized by a combination of cash-grain and livestock production with both of these enterprises of primary importance. A number of general farms may be considered as a transitional type, that is, a group falling between the cash-grain farms and the livestock farms. Many of them might be counted as cash-grain farms in a particular year and as livestock farms in another year, depending on crop conditions or on relative prices of grains and of livestock. Between 1950 and 1954 cash-grain farms increased in number while livestock farms decreased rather generally throughout the region. In 1950, the number of livestock farms exceeded the number of cash-grain farms in Ohio, Indiana, and Minnesota, but in 1954 the cash-grain farms were considerably more numerous than the livestock farms in these States.

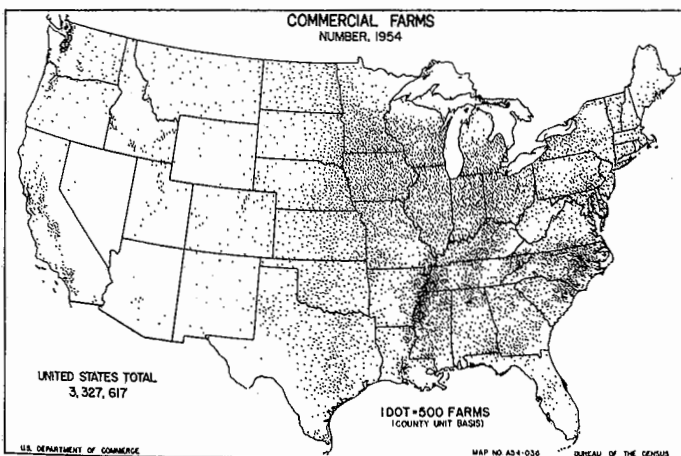


FIGURE 7.

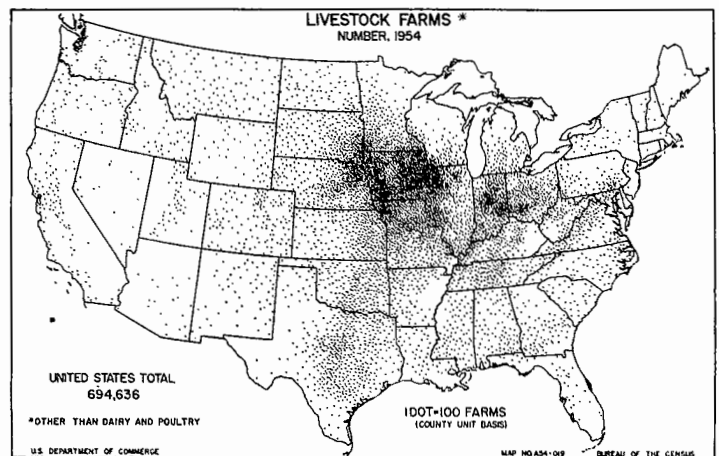


FIGURE 9.

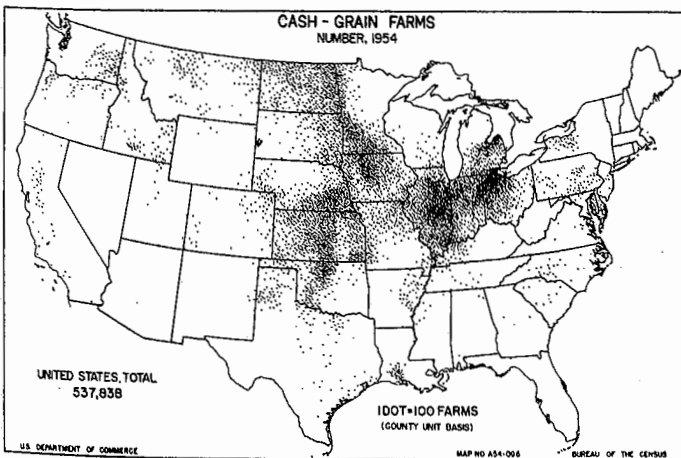


FIGURE 8.

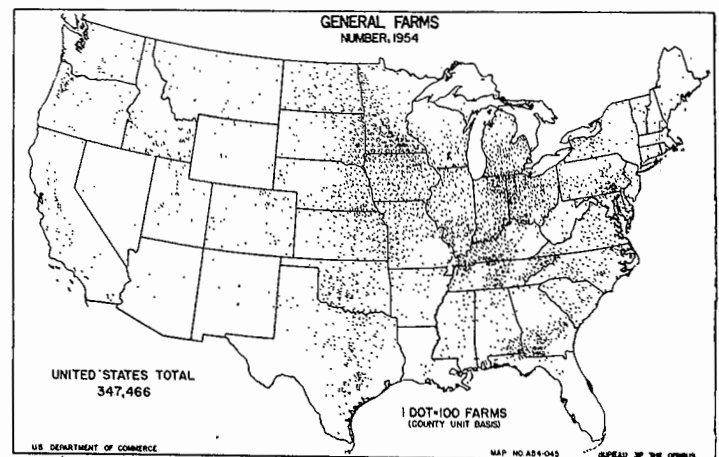


FIGURE 10.

FARMERS AND FARM PRODUCTION

TABLE 4.—NUMBER OF FARMS IN THE UNITED STATES AND IN THE CORN BELT, BY BROAD ECONOMIC CLASS AND TYPE OF FARM: 1954

Broad economic class and type of farm	United States, total	Corn Belt	
		Total	Percent of United States
All farms.....	4,783,021	927,921	19.4
Commercial farms, total ¹	3,327,617	797,259	24.0
Cash-grain farms.....	537,838	264,546	49.2
Livestock farms ²	604,636	326,662	47.0
Dairy farms.....	548,763	64,774	11.8
Poultry farms.....	154,267	19,204	12.4
General farms.....	347,466	113,335	32.6
Other field-crop farms.....	367,771	3,212	0.9
Other commercial farms ³	676,886	5,526	0.8
Other farms, total.....	1,455,404	130,662	9.0
Part-time farms.....	574,575	62,017	10.8
Residential farms.....	878,136	68,205	7.8
Abnormal farms.....	2,693	440	16.3

¹ The numbers of commercial farms in the United States, listed in this table, are estimated from a sample of farms on the State economic area basis. Numbers of commercial farms in the United States by economic class within types are estimated from a sample of farms on the economic subregion basis. These different methods of estimation explain the slight differences in numbers of cash-grain farms and of livestock farms shown for the United States in this table and tables 1, 9, and 10.

² Livestock other than dairy and poultry farms.

³ Cotton farms, vegetable farms, fruit-and-nut farms, and miscellaneous farms.

A main explanation for the shift in numbers of these two types of farms in this period is provided by the index numbers of prices received by farmers. While the index number of prices received for all farm products sold in the United States was practically the same in 1954 as in 1949, the index number of prices received for all crops in 1954 was 108 percent of that in 1949. Prices of feed grains and hay in 1954 were 116 percent of the 1949 level. On the other hand, the index number of prices received for meat animals and for livestock and livestock products was 94 (1949=100).

In the Corn Belt, in 1954, 85.9 percent of all farms were classified as commercial farms compared with 69.6 percent in the United States (table 5). Cash-grain farms numbered 28.5 percent and livestock farms 35.2 percent of all Corn Belt farms. Dairy farms and poultry farms comprised 7 percent and 2.1 percent, respectively, of the total. As with cash-grain farms and livestock farms, the Corn Belt had a relatively greater concentration of general farms than the United States as a whole. In the Corn Belt, as

TABLE 5.—PERCENT OF FARMS IN EACH BROAD ECONOMIC CLASS AND TYPE, FOR THE UNITED STATES AND CORN BELT: 1954

Broad economic class and type of farm	United States	Corn Belt
	Percent	Percent
All farms.....	100.0	100.0
Commercial farms, total.....	69.6	85.9
Cash-grain farms.....	11.2	28.5
Livestock farms ¹	14.6	35.2
Dairy farms.....	11.6	7.0
Poultry farms.....	3.2	2.1
General farms.....	7.3	12.2
Other field-crop farms.....	7.7	0.3
Other commercial farms ²	14.2	0.6
Other farms, total.....	30.4	14.1
Part-time farms.....	12.0	6.7
Residential farms.....	18.4	7.4
Abnormal farms.....	0.1	(Z)

Z 0.05 percent or less.

¹ Livestock other than dairy and poultry farms.

² Cotton farms, vegetable farms, fruit-and-nut farms, and miscellaneous farms.

outlined for the present study, the proportions of cash-grain and livestock farms are higher than in most of the individual five Corn Belt States. The percentage distribution of cash-grain, livestock, and other types of farms in States of the North Central Region of the country is shown in table 6.

Cash-grain farms account for 11.2 percent of all the farms in the United States and 49.2 percent of these are in the Corn Belt. The percentage of farms classified as cash-grain farms in the Corn Belt as a whole was higher than the proportions shown for Iowa and

TABLE 6.—NUMBER OF ALL COMMERCIAL FARMS, AND NUMBER AND PERCENTAGE DISTRIBUTION OF SPECIFIED TYPES OF FARMS, IN THE UNITED STATES AND SPECIFIED STATES: 1954

State	Commercial farms by type				Percentage distribution		
	Total commercial	Cash-grain	Livestock ¹	Other types	Total commercial farms	Cash-grain farms	Livestock farms
United States.....	3,327,617	537,838	604,636	2,095,143	100.0	16.2	20.9
Ohio.....	123,457	35,626	28,714	59,117	100.0	28.9	23.3
Indiana.....	115,182	39,395	36,496	39,291	100.0	34.2	31.7
Illinois.....	147,801	69,296	43,830	34,675	100.0	46.9	29.7
Iowa.....	178,238	40,097	104,799	33,342	100.0	22.5	58.8
Missouri.....	140,307	20,465	59,821	60,021	100.0	14.6	42.6
Minnesota.....	146,527	33,056	28,040	84,531	100.0	23.2	19.1
Wisconsin.....	135,064	3,904	10,327	120,833	100.0	2.9	7.6
Michigan.....	98,161	21,441	10,400	66,320	100.0	21.8	10.6
North Dakota.....	59,546	38,992	7,740	12,814	100.0	65.5	13.0
South Dakota.....	59,796	18,322	28,081	13,393	100.0	30.6	47.0
Nebraska.....	94,153	34,613	42,127	17,413	100.0	36.8	44.7
Kansas.....	102,526	54,174	25,410	22,942	100.0	52.8	24.8
Kentucky.....	122,784	4,932	16,090	101,762	100.0	4.0	13.1

¹ Livestock other than dairy and poultry farms.

TABLE 7.—NUMBER OF FARMS IN EACH REGION OF THE CORN BELT, AND PERCENTAGE DISTRIBUTION AMONG REGIONS, BY BROAD ECONOMIC CLASS AND TYPE OF FARM: 1954

Broad economic class and type of farm	Corn Belt, total	Eastern Corn Belt	Central Corn Belt	North-east Corn Belt	West-east Corn Belt	South-east Corn Belt
Number of farms:						
All farms.....	927,921	221,145	182,559	114,627	205,897	203,693
Commercial farms, total.....	797,259	177,280	167,845	108,569	186,176	157,389
Cash-grain farms.....	264,546	68,300	69,037	27,469	58,874	40,866
Livestock farms ¹	326,662	51,480	72,070	40,008	91,367	71,137
Dairy farms.....	64,774	18,145	5,661	17,128	7,744	16,096
Poultry farms.....	19,204	6,098	2,882	2,329	2,538	4,757
General farms.....	113,335	27,934	17,354	20,442	24,599	23,006
Other field-crop farms.....	3,212	2,423	72	205	337	175
Other commercial farms ²	5,526	2,300	769	388	717	1,352
Other farms, total.....	130,662	43,865	14,714	6,058	19,721	46,304
Part-time farms.....	62,017	22,352	6,970	3,170	9,161	20,354
Residential farms.....	68,205	21,306	7,655	2,805	10,470	25,909
Abnormal farms.....	440	147	89	83	90	31
Percentage distribution of farms:						
All farms.....	100.0	23.8	19.7	12.4	22.2	22.0
Commercial farms, total.....	100.0	22.2	21.1	13.6	23.4	19.7
Cash-grain farms.....	100.0	25.8	26.1	10.4	22.3	15.4
Livestock farms ¹	100.0	15.8	22.1	12.4	28.0	21.8
Dairy farms.....	100.0	28.0	8.7	26.4	12.0	24.8
Poultry farms.....	100.0	34.9	15.0	12.1	21.7	20.3
General farms.....	100.0	24.6	15.3	18.0	10.5	5.4
Other field-crop farms.....	100.0	75.4	2.2	6.4	13.0	24.5
Other commercial farms ²	100.0	41.6	13.9	7.0	13.0	24.5
Other farms, total.....	100.0	33.6	11.3	4.6	15.1	35.4
Part-time farms.....	100.0	36.0	11.2	5.1	14.8	32.8
Residential farms.....	100.0	31.3	11.2	4.1	15.4	38.0
Abnormal farms.....	100.0	33.4	20.2	18.9	20.5	7.0

¹ Livestock other than dairy and poultry farms.

² Cotton farms, vegetable farms, fruit-and-nut farms, and miscellaneous farms.

Missouri but not as high as the proportions in Indiana and Illinois where cash-grain farming is more densely concentrated. Livestock farms constitute the largest single type of commercial farm in this country as a whole. This group made up 14.5 percent of the United States total of all farms. Of this number (694,636), 47 percent were in the Corn Belt (table 4). Livestock farms are the most common type in the belt, accounting for 35.2 percent of all the farms (table 5). This percentage for the total region is larger than that in the individual States of Ohio, Indiana, and Illinois, but is exceeded by the proportions in the States of Iowa and Missouri where livestock farms are relatively more prevalent than cash-grain farms.

The number of farms of each principal type in the different regions of the Corn Belt are shown in table 7. In terms of total number of commercial farms, the Western Corn Belt is the largest of the five regions into which the Corn Belt has been divided for the analysis on which this report is based. The order of rank of the other regions on the basis of numbers of commercial farms is as follows: Eastern, Central, Southern, and Northern Corn Belt. Most of the cash-grain farms are in the central and eastern regions. Livestock farms are the most concentrated in the western, central, and southern regions. Dairy farms are most numerous in the eastern and northern parts of the Corn Belt in the areas which are, in effect, a continuation of the Nation's major dairy regions of the Lake States and the Northeast. Most of the poultry farms in the Corn Belt are found in the eastern and southern parts of the region.

General farms are widely distributed throughout the Corn Belt but are relatively least numerous in the Central Corn Belt where farming tends to be more specialized (table 8). There are rela-

TABLE 8.—PERCENTAGE DISTRIBUTION OF COMMERCIAL FARMS, BY TYPE OF FARM, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Type of farm	Corn Belt, total	Eastern Corn Belt	Central Corn Belt	Northern Corn Belt	Western Corn Belt	Southern Corn Belt
All commercial farms.....	100.0	100.0	100.0	100.0	100.0	100.0
Cash-grain farms.....	33.2	38.5	41.1	25.3	31.6	26.0
Livestock farms ¹	41.0	29.0	42.9	37.4	49.0	45.2
Dairy farms.....	8.1	10.2	3.4	15.8	4.2	10.2
Poultry farms.....	2.4	3.8	1.7	2.1	1.4	3.0
General farms.....	14.2	15.8	10.3	18.8	13.2	14.6
Other field-crop farms.....	0.4	1.4	(Z)	0.2	0.2	0.1
Other commercial farms ²	0.7	1.3	0.5	0.4	0.4	0.9

Z 0.05 percent or less.

¹ Livestock other than dairy and poultry farms.

² Cotton farms, vegetable farms, fruit-and-nut farms, and miscellaneous farms.

tively few farms of other types such as vegetable farms, fruit-and-nut farms, and horticultural-specialty farms. The few cotton farms are found in the southern part of Illinois and in southeastern Missouri. All of these minor types together accounted for less than 1 percent of all farms in the Corn Belt. In general, farming is more diversified in the southern and eastern parts of the belt than in other parts. This results mainly from the greater variation in topography and soil conditions in the eastern and southern portions.

Most of the other farms (noncommercial) are also found in the eastern and southern parts. Residential farms made up 12.7 percent of all farms in the Southern Corn Belt, but only 2.4 percent in the Northern Corn Belt. For the other regions of the Corn Belt the proportion of residential farms was between these two figures. Part-time farms made up 10 percent of all farms in both the Eastern and Southern Corn Belt. Part-time and residential farms are operated principally by families who have other occupations or sources of income or by retired farmers or other retired or semiretired persons.

ECONOMIC CLASS OF FARM

In this report, much of the analysis relates to economic classes of farms. The criteria used in determining economic class of farm are given in various reports of the 1954 Census of Agriculture.

Criteria for the economic classes of farms are as follows:

Class	Criteria	
	Value of farm products sold	Other
COMMERCIAL FARMS		
Class I.....	\$25,000 or more.....	None.
Class II.....	\$10,000 to \$24,999.....	None.
Class III.....	\$5,000 to \$9,999.....	None.
Class IV.....	\$2,500 to \$4,999.....	None.
Class V.....	\$1,200 to \$2,499.....	None.
Class VI.....	\$250 to \$1,199.....	Less than 100 days of off-farm work by operator, and income of operator and members of his family from nonfarm sources less than value of all farm products sold.
OTHER FARMS		
Part-time.....	\$250 to \$1,199.....	100 days or more of off-farm work by operator or income of farm operator and members of his family from nonfarm sources greater than value of all farm products sold.
Residential.....	Less than \$250.....	None.
Abnormal.....	Not a criterion.....	Institutional farms, experimental farms, grazing associations, community-project farms, etc.

The distribution of cash-grain and livestock farms by economic class in the different regions of the Corn Belt are shown in tables 9 and 10. The largest economic class in terms of numbers of farms included in the Corn Belt as a whole is Class III. These are farms with a value of sales of agricultural products, in 1954, amounting to \$5,000 and up to \$9,999. This group makes up 34.1 percent of all cash-grain farms in the Corn Belt and is fairly typical of the family-sized farms in this region. Also numerous are farms in Economic Classes II and IV. These farms are similar to the Class III farms, except that the Class II farms are somewhat larger, having total value of agricultural products sold from \$10,000 to \$25,000, and the Class IV farms are smaller, having sales ranging from \$2,500 up to \$4,999. These three groups account for 81 percent of all the cash-grain farms in the Corn Belt.

TABLE 9.—NUMBER AND PERCENTAGE DISTRIBUTION OF CASH-GRAIN FARMS, BY ECONOMIC CLASS, IN THE UNITED STATES AND CORN BELT: 1954

Item and economic class of farm	United States	Corn Belt					
		Total	East-ern	Cent-ral	North-ern	West-ern	South-ern
Number of farms:							
Cash-grain farms, total	537, 974	264, 546	68, 300	69, 037	27, 469	58, 874	40, 866
Class I.....	21, 995	6, 496	1, 613	3, 221	406	867	389
II.....	110, 597	62, 004	14, 060	26, 210	6, 704	10, 808	4, 222
III.....	160, 337	90, 110	20, 448	24, 920	11, 302	22, 252	11, 188
IV.....	129, 042	62, 045	17, 363	10, 151	6, 011	16, 496	12, 024
V.....	82, 789	33, 944	11, 965	3, 520	2, 391	6, 718	9, 350
VI.....	33, 214	9, 947	2, 851	1, 015	655	1, 733	3, 693
Percentage distribution of farms:							
Cash-grain farms, total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Class I.....	4.1	2.5	2.4	4.7	1.5	1.5	1.0
II.....	20.6	23.4	20.6	38.0	24.4	18.4	10.3
III.....	29.8	34.1	29.9	36.1	41.1	37.8	27.4
IV.....	24.0	23.5	25.4	14.7	21.9	28.0	29.4
V.....	15.4	12.8	17.5	5.1	8.7	11.4	22.9
VI.....	6.2	3.8	4.2	1.5	2.4	2.9	9.0

FARMERS AND FARM PRODUCTION

Class III farms are the largest group in the Eastern, Northern, and Western Corn Belt, but in the Central Corn Belt Class II farms are most numerous and in the Southern Corn Belt the largest group is Class IV. This is true for both cash-grain and livestock types of farms. The smallest farms, those in Economic Classes V and VI, comprise 16.6 percent of all cash-grain farms and 18 percent of all livestock farms in the Corn Belt, compared with 21.6 percent of the cash-grain farms and 34.3 percent of the livestock farms in the United States as a whole. Within the Corn Belt these two low-income classes of farms account for the largest percentages of all commercial farms in the eastern and southern parts of the region.

TABLE 10.—NUMBER AND PERCENTAGE DISTRIBUTION OF LIVESTOCK OTHER THAN DAIRY AND POULTRY FARMS, BY ECONOMIC CLASS, IN THE UNITED STATES AND CORN BELT: 1954

Item and economic class of farm	United States	Corn Belt					
		Total	East-ern	Cent-ral	North-ern	West-ern	South-ern
Number of farms:							
Total livestock other than dairy and poultry.....	694,888	326,662	51,480	72,070	40,608	91,367	71,137
Class I.....	39,835	22,708	3,463	8,091	2,604	6,739	1,811
II.....	121,287	83,555	12,916	26,355	11,925	22,920	9,439
III.....	152,413	94,538	13,414	20,693	14,803	28,060	17,568
IV.....	143,072	66,978	10,469	10,331	7,900	19,725	18,553
V.....	137,490	40,000	7,782	4,785	2,496	9,851	15,086
VI.....	100,791	18,883	3,436	1,815	880	4,072	8,680
Percentage distribution of farms:							
Total livestock other than dairy and poultry.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Class I.....	5.7	7.0	6.7	11.2	6.4	7.4	2.5
II.....	17.5	25.6	25.1	36.6	29.4	25.1	13.3
III.....	21.9	28.9	26.1	28.7	36.5	30.7	24.7
IV.....	20.6	20.5	20.3	14.3	19.5	21.6	26.1
V.....	19.8	12.2	15.1	6.6	6.1	10.8	21.2
VI.....	14.5	5.8	6.7	2.5	2.2	4.5	12.2

TABLE 11.—SPECIFIED ITEMS FOR COMMERCIAL FARMS: PERCENTAGE DISTRIBUTION AMONG PRINCIPAL TYPES OF FARMS, IN THE CORN BELT: 1954

Item	All commercial farms	Cash-grain farms	Livestock farms ¹	Other commercial farms ²
	Percent	Percent	Percent	Percent
Farms.....number.....	100.0	33.2	41.0	25.8
All land in farms.....acres.....	100.0	35.1	44.3	20.6
Total cropland.....acres.....	100.0	38.9	41.0	20.1
Total woodland.....acres.....	100.0	27.0	46.7	26.3
Pasture other than cropland or woodland.....acres.....	100.0	21.3	59.4	19.3
Other land ³.....acres.....	100.0	35.5	41.5	23.0
Total pasture.....acres.....	100.0	22.1	56.5	21.4
Cropland harvested.....acres.....	100.0	40.5	39.7	19.8
Corn harvested for grain.....bushels.....	100.0	41.1	41.7	17.2
Soybeans harvested for beans.....bushels.....	100.0	66.9	20.3	12.8
Horses and mules.....number.....	100.0	21.0	52.1	26.9
All cattle and calves.....number.....	100.0	19.4	59.0	21.6
Cows, including heifers that have calved.....number.....	100.0	21.9	50.5	27.6
Milk cows.....number.....	100.0	20.4	34.5	46.1
All hogs and pigs.....number.....	100.0	13.8	69.2	17.0
Chickens 4 months old and over.....number.....	100.0	25.8	41.0	33.2
All sheep.....number.....	100.0	19.7	64.5	15.8
Ewes.....number.....	100.0	22.5	58.9	18.6
Value of all farm products sold.....dollars.....	100.0	30.3	49.5	20.2
Value of all crops sold.....dollars.....	100.0	68.6	18.1	18.3
Value of all livestock and livestock products sold.....dollars.....	100.0	11.4	67.4	21.2

¹ Livestock other than dairy and poultry farms.

² Dairy farms, poultry farms, general farms, other field-crop farms, cotton farms, vegetable farms, fruit-and-nut farms, and miscellaneous farms.

³ House lots, roads, wasteland, etc.

The percentage distribution of farms, of cropland, and of other land in farms among cash-grain farms, livestock farms, and other commercial farms in the Corn Belt in 1954 is shown in table 11. Also shown in this table are the percentage distributions of production of specified crops, numbers of livestock, and value of products sold among these groups of farms.

SIZE OF FARM

The great bulk of the farms in the Corn Belt have between 70 and 500 acres of land (table 12). Farms in this range of acreage comprised 84 percent of all commercial farms in the belt. About 11 percent of the farms are smaller than 70 acres and less than 5 percent are larger than 500 acres. In the United States as a whole 9 percent of the farms are units of 500 acres or more, but 29 percent have less than 70 acres of land.

The average size of all farms in the United States in 1954 was 242 acres. In most of the counties in the eastern half of the country the average size was less than 200 acres (fig. 11). In the western half of the country there were large areas where the average size was 2,500 acres or over. In the majority of counties in the Corn Belt the average size of farm was between 100 and 200 acres.

The average size of commercial farms in the United States was 310 acres. The average for the United States, of course, includes the large farms and ranches of the western United States as well as small farms in the eastern part of the country. Two out of every 10 commercial farms in the Corn Belt were approximately quarter-section units, or in the range of 140 to 179 acres (table 13). Four farms out of every 10 had from 180 to 499 acres of land. The average size of all commercial farms in the Corn Belt in 1954 was 214 acres.

Small farms are relatively most numerous in the eastern part of the Corn Belt and large farms in the western part. In the Eastern Corn Belt, more than half of the commercial farms are smaller than 140 acres, but in the Western Corn Belt such farms make up only a fifth of the total. On the other hand, farms of 260 acres or larger comprise only a seventh of the total in the Eastern Corn Belt but account for more than a third of the total in the Western

TABLE 12.—NUMBER AND PERCENTAGE OF COMMERCIAL FARMS IN SPECIFIED ACREAGE SIZE GROUPS, FOR THE UNITED STATES AND CORN BELT REGIONS: 1954

Size group	United States	Corn Belt					
		Total	Eastern	Central	North-ern	West-ern	South-ern
Number of farms:							
Total all sizes.....	3,327,889	797,259	177,280	167,845	108,569	186,176	157,389
Under 30 acres.....	496,798	35,301	14,082	6,596	3,070	5,973	5,680
30 to 69 acres.....	483,281	55,000	25,440	7,656	4,126	6,757	11,021
70 to 139 acres.....	760,815	179,264	57,934	34,508	23,755	24,813	38,254
140 to 179 acres.....	403,032	157,208	25,628	41,322	26,860	38,061	25,737
180 to 259 acres.....	422,131	170,717	29,086	41,032	26,431	30,877	34,291
260 to 499 acres.....	451,921	161,925	21,463	32,593	22,011	51,586	34,272
500 to 999 acres.....	182,550	31,654	3,281	3,862	3,016	14,275	7,220
1,000 acres and over.....	127,361	6,190	366	276	300	4,234	1,014
Percentage of farms:							
Total all sizes.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Under 30 acres.....	14.9	4.4	7.9	3.9	2.8	3.2	3.6
30 to 69 acres.....	14.5	6.9	14.4	4.6	3.8	3.6	7.0
70 to 139 acres.....	22.9	22.5	32.7	20.6	21.9	13.3	24.3
140 to 179 acres.....	12.1	19.7	14.5	24.6	23.8	20.8	16.4
180 to 259 acres.....	12.7	21.4	16.4	24.4	24.3	21.4	21.8
260 to 499 acres.....	13.6	20.3	12.1	19.4	20.3	27.7	21.8
500 to 999 acres.....	5.5	4.0	1.9	2.3	2.8	7.7	4.6
1,000 acres and over.....	3.8	0.8	0.2	0.2	0.3	2.3	0.6

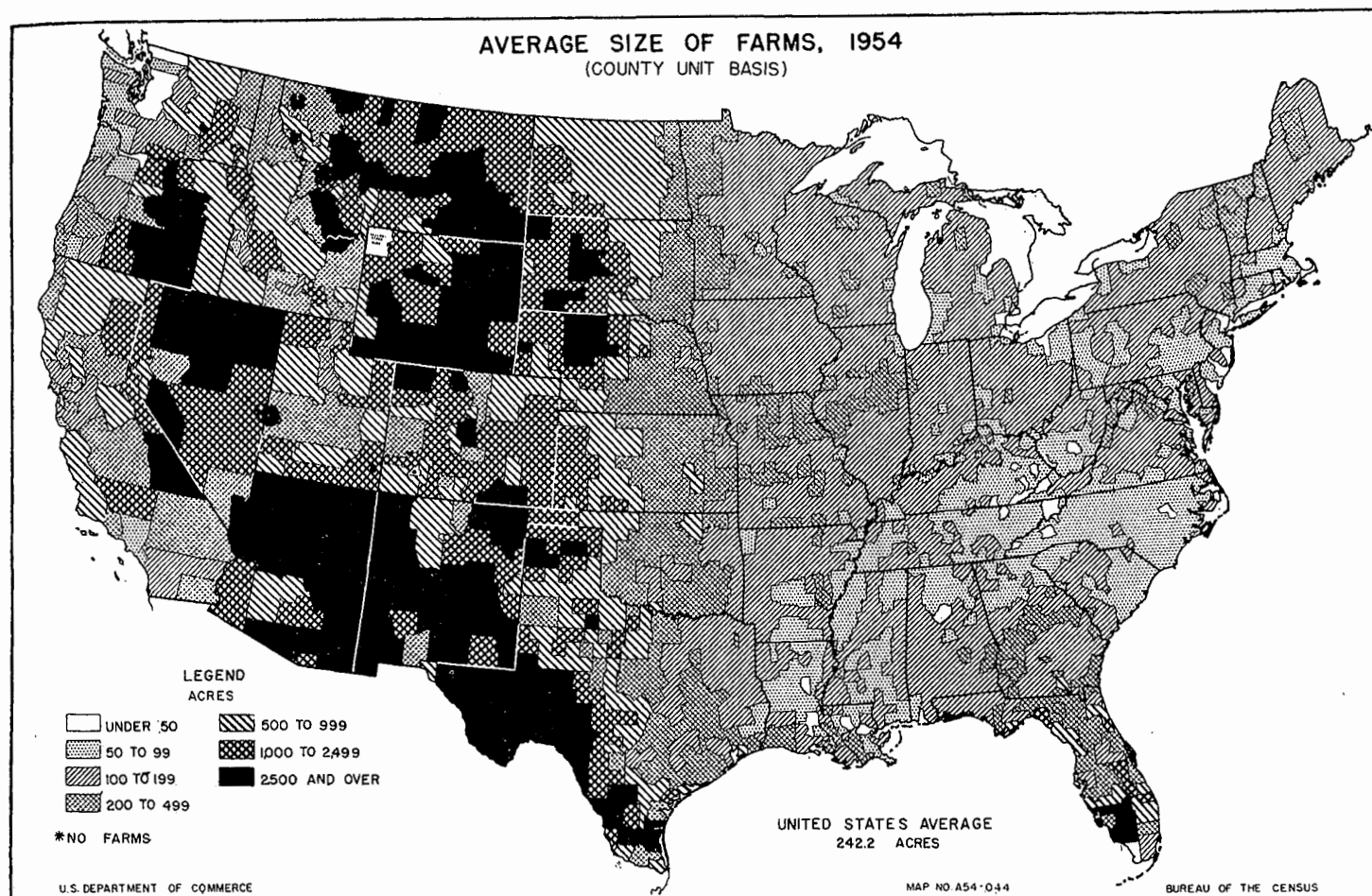


FIGURE 11.

TABLE 13.—PERCENTAGE DISTRIBUTION OF COMMERCIAL FARMS AMONG ACREAGE SIZE GROUPS, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Acreage size group								
	All sizes	Under 30 acres	30 to 69 acres	70 to 139 acres	140 to 179 acres	180 to 269 acres	260 to 499 acres	500 to 999 acres	1,000 acres and over
Total Corn Belt:									
All commercial farms.....	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Oash-grain farms.....	100.0	4.4	6.9	22.5	19.7	21.4	20.3	4.0	0.8
Livestock farms ¹	100.0	1.3	6.4	21.2	19.3	22.6	24.0	4.6	0.7
	100.0	4.0	6.9	21.0	20.3	21.8	20.9	4.8	1.2
Eastern Corn Belt:									
All commercial farms.....	100.0	7.9	14.4	32.7	14.5	16.4	12.1	1.9	0.2
Oash-grain farms.....	100.0	2.5	14.3	33.2	14.9	18.0	14.5	2.4	0.3
Livestock farms ¹	100.0	8.3	13.3	30.6	14.7	17.1	13.5	2.3	0.3
Central Corn Belt:									
All commercial farms.....	100.0	3.9	4.6	20.6	24.6	24.4	19.4	2.3	0.2
Oash-grain farms.....	100.0	1.1	3.6	18.6	23.7	26.5	23.4	2.9	0.2
Livestock farms ¹	100.0	3.7	4.7	21.1	25.3	24.4	18.3	2.3	0.2
Northern Corn Belt:									
All commercial farms.....	100.0	2.8	3.8	21.9	23.8	24.3	20.3	2.8	0.3
Oash-grain farms.....	100.0	1.2	3.7	17.6	22.3	24.0	27.0	3.7	0.4
Livestock farms ¹	100.0	2.4	3.2	22.0	24.5	24.2	20.2	3.1	0.4
Western Corn Belt:									
All commercial farms.....	100.0	3.2	3.6	13.3	20.8	21.4	27.7	7.7	2.3
Oash-grain farms.....	100.0	0.7	2.2	11.7	19.6	21.9	33.1	8.9	1.8
Livestock farms ¹	100.0	3.2	3.8	13.7	20.9	21.3	25.8	8.1	3.1
Southern Corn Belt:									
All commercial farms.....	100.0	3.5	7.0	24.3	16.4	21.8	21.8	4.6	0.6
Oash-grain farms.....	100.0	1.0	5.5	21.8	16.6	23.8	25.8	5.0	0.6
Livestock farms ¹	100.0	3.2	6.2	23.0	16.1	21.9	23.0	5.8	0.9

¹ Livestock other than dairy and poultry farms.

Corn Belt. In the Central and Northern Corn Belt approximately a half of the farms are in the range of 140 to 260 acres, with nearly a fourth of the farms larger than 260 acres and the remaining approximate one-fourth of the farms smaller than 140 acres.

For the Corn Belt, in 1954, the average size of cash-grain farms was 226 acres and the average size of livestock farms was 231 acres. For the United States as a whole the average acreages for these types were 380 acres and 731 acres, respectively. The considerably larger average sizes of these types for the United States results from the inclusion of large wheat farms of the Great Plains and the Northwest in the cash-grain group and the inclusion of the large western ranches in the livestock group. The relatively moderate average sizes of these two types of farms in the Corn Belt are rather striking in comparison with the averages for the United States. Of interest also is the close similarity in average size of cash-grain farms and livestock farms in the Corn Belt.

The similarity in size of these two types of farms in terms of acreage is portrayed by the data in table 13. The similarity in distribution of acreage size groups in the two types is strongly consistent in all the regions of the Corn Belt. The only minor difference apparent is that a slightly larger proportion of the livestock farms than of the cash-grain farms is composed of farms under 30 acres in size, but the actual number of farms of either type in this small size group is relatively few (table 14).

The distribution of farms in each economic class among the specified acreage size groups is shown for cash-grain farms and livestock farms in tables 14 and 15. The acreage size groupings are the same as those of the foregoing tables. The 140 to 179 acre group is centered around and includes all the quarter-section (160 acres) farms, which were the typical homestead size. The gradual trend to larger acreages per farm is reflected in the fact that 46.5 percent of the commercial farms are larger than the quarter-section unit, while only 33.8 percent of the farms are smaller than 140 acres. It also reflects the fact that forces inducing farmers to enlarge their farms have been greater or more prevalent than the forces tending toward dividing the farmland among the heirs of successive generations as has been the case in many of the older countries of the world.

The progress of mechanization which has brought about the possibility of one operator handling an increasing acreage of cropland with less labor is the most influential factor making for farm enlargement, but it is significant also that there has been no great increase in the number of farms of 500 acres and over. This group is still a small percentage of the total. The typical farm in the Corn Belt is the family-size farm, although its acreage is now generally larger than it was in homestead years or even only a generation ago.

TABLE 14.—NUMBER OF COMMERCIAL FARMS IN EACH ACREAGE SIZE GROUP, IN THE CORN BELT: 1954

Type and economic class of farm	Number of farms by acreage size group								
	All sizes	Under 30 acres	30 to 69 acres	70 to 139 acres	140 to 179 acres	180 to 259 acres	260 to 499 acres	500 to 999 acres	1,000 acres and over
All commercial farms.....	797,259	35,301	55,000	179,264	157,208	170,717	161,925	31,654	6,190
Cash-grain farms:									
Total.....	264,546	3,550	16,815	56,164	50,961	50,800	63,550	11,940	1,766
Class I.....	6,496			20	45	125	2,966	2,687	653
II.....	62,004		15	825	6,445	19,475	29,110	5,385	749
III.....	90,110	10	305	14,472	24,466	25,620	22,071	2,886	280
IV.....	62,045	115	4,470	23,877	13,970	11,105	7,611	837	60
V.....	33,944	1,350	9,015	13,785	5,125	2,995	1,527	130	17
VI.....	9,947	2,075	3,010	3,185	910	480	265	15	7
Livestock farms: ¹									
Total.....	326,662	13,068	19,424	68,762	66,260	71,261	68,320	15,670	3,497
Class I.....	22,708	123	78	603	1,793	4,309	10,563	4,078	1,261
II.....	83,555	295	355	7,183	17,051	25,556	25,489	5,373	1,353
III.....	94,538	820	1,756	20,421	24,242	23,594	19,067	3,775	873
IV.....	66,978	2,590	5,320	21,110	14,491	11,824	9,527	1,828	288
V.....	40,000	4,880	7,370	13,670	5,942	4,557	2,961	531	89
VI.....	18,883	4,360	4,545	5,875	1,841	1,421	723	85	33

¹ Livestock other than dairy and poultry farms.

TABLE 15.—PERCENTAGE OF COMMERCIAL FARMS IN EACH ACREAGE SIZE GROUP, IN THE CORN BELT: 1954

Type and economic class of farm	Acreage size group								
	All sizes	Under 30 acres	30 to 69 acres	70 to 139 acres	140 to 179 acres	180 to 259 acres	260 to 499 acres	500 to 999 acres	1,000 acres and over
All commercial farms.....	Percent 100.0	Percent 4.4	Percent 6.9	Percent 22.5	Percent 19.7	Percent 21.4	Percent 20.3	Percent 4.0	Percent 0.8
Cash-grain farms:									
Total.....	100.0	1.3	6.4	21.2	19.3	22.6	24.0	4.5	0.7
Class I.....	100.0			0.3	0.7	1.9	45.7	41.4	10.1
II.....	100.0		(Z)	1.3	10.4	31.4	46.9	8.7	1.2
III.....	100.0	(Z)	0.3	16.1	27.1	28.4	24.5	3.2	0.3
IV.....	100.0	0.2	7.2	38.5	22.5	17.0	12.3	1.3	0.1
V.....	100.0	4.0	26.6	40.6	15.1	8.8	4.5	0.4	0.1
VI.....	100.0	20.9	30.3	32.0	9.1	4.8	2.7	0.2	0.1
Livestock farms: ¹									
Total.....	100.0	4.0	5.9	21.0	20.3	21.8	20.9	4.8	1.2
Class I.....	100.0	0.5	0.3	2.2	7.9	19.0	46.5	18.0	5.6
II.....	100.0	0.4	0.4	8.6	21.5	30.6	30.5	6.4	1.6
III.....	100.0	0.9	1.9	21.6	25.6	25.0	20.2	4.0	0.9
IV.....	100.0	3.9	7.0	31.5	21.6	17.7	14.2	2.7	0.4
V.....	100.0	12.2	18.4	34.2	14.9	11.4	7.4	1.3	0.2
VI.....	100.0	23.1	24.1	31.1	9.7	7.5	3.8	0.5	0.2

Z Less than 0.05 percent.

¹ Livestock other than dairy and poultry farms.

TABLE 16.—PERCENTAGE DISTRIBUTION OF TYPES AND ECONOMIC CLASSES OF FARMS IN EACH ACREAGE SIZE GROUP, IN THE CORN BELT: 1954

Type and economic class of farm	Acreage size group								
	All sizes	Under 30 acres	30 to 69 acres	70 to 139 acres	140 to 179 acres	180 to 259 acres	260 to 499 acres	500 to 999 acres	1,000 acres and over
	Percent 100.0	Percent 100.0	Percent 100.0	Percent 100.0	Percent 100.0	Percent 100.0	Percent 100.0	Percent 100.0	Percent 100.0
All commercial farms.....									
Cash-grain farms:									
Total.....	33.2	10.1	30.6	31.3	32.4	35.0	39.2	37.7	28.5
Class I.....	0.8			(Z)	(Z)	0.1	1.8	8.5	10.5
II.....	7.8		(Z)	0.5	4.1	11.4	18.0	17.0	12.1
III.....	11.3	(Z)	0.6	8.1	15.6	15.0	13.6	9.1	4.5
IV.....	7.8	0.3	8.1	13.3	8.9	6.5	4.7	2.6	1.0
V.....	4.3	3.8	16.4	7.7	3.3	1.8	0.9	0.4	0.3
VI.....	1.2	5.9	5.5	1.8	0.6	0.3	0.2	(Z)	0.1
Livestock farms: ¹									
Total.....	41.0	37.0	35.3	38.4	42.1	41.7	42.2	49.5	63.0
Class I.....	2.8	0.3	0.1	0.3	1.1	2.5	6.5	12.9	20.4
II.....	10.5	0.8	0.6	4.0	11.4	15.0	15.7	17.0	21.9
III.....	11.9	2.3	3.2	11.4	15.4	13.8	11.8	11.9	14.1
IV.....	8.4	7.3	9.7	11.8	9.2	6.9	5.9	5.8	4.7
V.....	5.0	13.8	13.4	7.6	3.8	2.7	1.8	1.7	1.4
VI.....	2.4	12.4	8.3	3.3	1.2	0.8	0.4	0.3	0.5

Z 0.05 percent or less.

¹ Livestock other than dairy and poultry farms.

A larger proportion of the Classes I, II, and III farms of the cash-grain type are in the 260 acres or over acreage groups than is true for Classes I, II, and III livestock farms. Also, a larger proportion of the cash-grain farms in Economic Classes IV, V, and VI are in the acreage sizes under 140 acres than is true for the livestock farms. This indicates that livestock production on the land has the effect of increasing the farm incomes from given acreages. In other words, in spite of the differences that may exist in the quality of land on cash-grain farms as compared with livestock farms, the cash-grain farms generally require larger acreages than livestock farms in this region to produce the same levels of value of products sold.

The distribution of economic classes of farms within acreage size groups is shown for cash-grain and livestock farms in table 16. Economic class is positively correlated with acreage size among both cash-grain and livestock farms. As the acreage of land in the farm is increased, the proportion of higher income economic classes of farms in these acreage sizes is increased. Among farms of less than 140 acres there are significantly fewer Classes I, II, and III cash-grain farms than there are livestock farms. Relatively few of the farms of large acreage are in the low income economic classes (Classes IV, V, and VI). However, there are enough exceptions to the positive correlation of economic class with acreage to indicate that a relatively large acreage is not enough alone to guarantee a large farm income. On the other hand, the occurrence of a significant number of Economic Classes II and III farms among farms of less than 140 acres indicates that a larger than average acreage of land is not always necessary for a moderately high level of farm sales if production can be increased by application of other inputs.

RESIDENCE AND TENURE OF FARM OPERATORS

Residence.—Practically all farmers in the Corn Belt live on the farms they operate. In the 1954 Census about 99 percent of the commercial farm operators gave information as to their residence. Only 4.9 percent of these reported their residence as not on the farm they operated (table 17). About 92 percent of all cash-grain farmers and about 96 percent of all livestock farmers in the Corn Belt had their homes on the farms they operated.

The proportion of operators not residing on their farms was highest among cash-grain farmers, ranging from 6.5 percent in the Eastern Corn Belt to 10.1 percent in the Western Corn Belt. The proportion of livestock farm operators not residing on their farms ranged from 2.9 percent in the Northern Corn Belt to 4.5 percent in the Southern Corn Belt.

Most farmers prefer to live on the farm they operate and find it advantageous from the economic standpoint. This is especially true for farmers who have livestock. As pointed out above, most of the cash-grain farms, as well as the livestock farms, have some livestock. On most of these farms, livestock of one or more kinds are on hand throughout the year. Livestock require attention every day, or practically every day, especially during the winter months and during periods such as at farrowing, calving, and lambing time. During the pasture season, beef cattle and sheep on pasture often need relatively little attention, but usually during this season there is work with other livestock, for example, milk cows, pigs, and chickens, or cattle or hogs being fattened, if such livestock are present, in addition to work on crops.

On farms where all crops are sold and no livestock are kept, there is little or no work on the farm during the winter months. Operators of such farms sometimes find it desirable or advantageous to reside with their families in a nearby village or town. Some operators, usually beginning farmers or single men, live on other farms, generally with relatives, near the farms they operate.

Residence on the farm operated was most common on Economic Class II and Class III farms of both cash-grain and livestock types (table 18). About 94 percent of the Class II cash-grain farm operators and 97 percent of the Class II and Class III livestock farm operators lived on their farms. The proportion of operators not residing on the farm operated was greatest among Class V and Class VI cash-grain farms (11.9 percent and 10.5 percent). Among livestock farms, Class I farms had the largest percentage of operators not residing on the farm operated (6.1 percent).

Tenure.—In 1954 approximately two-thirds of the commercial farms in the Corn Belt were operated by owners and part owners, about one-third were operated by tenants, and less than 1 percent were operated by managers. Full owners own all the land they operate. Part owners operate land that they own and also additional land that they rent from others. Managers operate farms for others and are paid a wage or salary for their services. Tenants rent from others or work on shares for others, all the land they operate.

Tenancy is generally greater among cash-grain farm operators than among livestock farm operators. This was true in every region of the Corn Belt in 1954 (table 17). That year, in the Corn Belt as a whole, 40.6 percent of the cash-grain farm operators and 29.4 percent of the livestock farm operators were tenants,

FARMERS AND FARM PRODUCTION

TABLE 17.—NUMBER AND PERCENTAGE OF COMMERCIAL FARM OPERATORS, BY RESIDENCE AND TENURE STATUS, BY TYPE OF FARM, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	All farm operators	Operators reporting as to residence		Percentage distribution of operators reporting residence			Operators by tenure status		
		Total operators reporting	Percent of all farm operators	Total operators reporting	Residing on farm operated	Not residing on farm operated	Owners, part owners, and managers	Tenants	
								Total	Percent of all operators
Total Corn Belt:									
All commercial farms.....	797,259	787,169	98.7	100.0	95.1	4.9	533,860	263,399	33.0
Cash-grain farms.....	264,546	260,679	98.5	100.0	91.9	8.1	157,130	107,416	40.6
Livestock farms ¹	326,662	322,993	98.9	100.0	96.2	3.8	230,548	96,114	29.4
Eastern Corn Belt:									
All commercial farms.....	177,280	174,580	98.5	100.0	95.5	4.5	132,892	44,388	25.0
Cash-grain farms.....	68,300	67,112	98.3	100.0	93.5	6.5	49,080	19,220	28.1
Livestock farms ¹	51,480	50,835	98.7	100.0	96.2	3.8	38,575	12,905	25.1
Central Corn Belt:									
All commercial farms.....	167,845	165,473	98.6	100.0	95.1	4.9	91,809	76,036	45.3
Cash-grain farms.....	69,037	67,949	98.4	100.0	92.4	7.6	31,528	37,509	54.3
Livestock farms ¹	72,070	71,185	98.8	100.0	96.9	3.1	44,292	27,778	38.5
Northern Corn Belt:									
All commercial farms.....	108,569	107,458	99.0	100.0	95.9	4.1	70,563	38,006	35.0
Cash-grain farms.....	27,469	27,131	98.8	100.0	91.5	8.5	17,146	10,323	37.6
Livestock farms ¹	40,608	40,264	99.2	100.0	97.1	2.9	27,839	13,269	32.7
Western Corn Belt:									
All commercial farms.....	186,176	183,903	98.8	100.0	94.1	5.9	114,396	71,780	38.6
Cash-grain farms.....	58,874	58,103	98.7	100.0	89.9	10.1	30,980	27,894	47.4
Livestock farms ¹	91,367	90,311	98.8	100.0	95.7	4.3	61,143	30,224	33.1
Southern Corn Belt:									
All commercial farms.....	167,389	155,755	99.0	100.0	95.2	4.8	124,200	33,189	21.1
Cash-grain farms.....	40,866	40,384	98.8	100.0	91.9	8.1	28,396	12,470	30.5
Livestock farms ¹	71,137	70,398	99.0	100.0	95.5	4.5	59,199	11,938	16.8

¹ Livestock other than dairy and poultry farms.

TABLE 18.—NUMBER AND PERCENTAGE OF COMMERCIAL FARM OPERATORS, BY RESIDENCE AND TENURE STATUS, BY TYPE AND ECONOMIC CLASS OF FARM, IN THE CORN BELT: 1954

Type and economic class of farm	All farm operators	Operators reporting as to residence		Percentage distribution of operators reporting residence			Operators by tenure status		
		Total operators reporting	Percent of all farm operators	Total operators reporting	Residing on farm operated	Not residing on farm operated	Owners, part owners, and managers	Tenants	
								Total	Percent of all operators
All commercial farms.....	797,259	787,169	98.7	100.0	95.1	4.9	533,860	263,399	33.0
Cash-grain farms:									
Total.....	264,546	260,679	98.5	100.0	91.9	8.1	157,130	107,416	40.6
Class I.....	6,496	6,389	98.4	100.0	91.5	8.5	3,828	2,668	41.1
II.....	62,004	61,162	98.6	100.0	94.3	5.7	29,675	32,329	52.1
III.....	90,110	89,003	98.8	100.0	93.2	6.8	49,180	40,930	45.4
IV.....	62,045	61,175	98.6	100.0	90.1	9.9	40,764	21,281	34.3
V.....	33,944	33,223	97.9	100.0	88.1	11.9	25,601	8,343	24.6
VI.....	9,947	9,727	97.8	100.0	89.5	10.5	8,082	1,865	18.7
Livestock farms: ¹									
Total.....	326,662	322,993	98.9	100.0	96.2	3.8	230,548	96,114	29.4
Class I.....	22,708	22,489	99.0	100.0	93.9	6.1	13,743	8,965	39.5
II.....	83,555	82,758	99.0	100.0	96.6	3.4	48,345	35,210	42.1
III.....	94,538	93,638	99.0	100.0	96.8	3.2	64,038	30,500	32.3
IV.....	66,978	66,211	98.9	100.0	96.1	3.9	52,876	14,102	21.1
V.....	40,000	39,370	98.4	100.0	95.6	4.4	34,564	5,436	13.5
VI.....	18,883	18,527	98.1	100.0	95.5	4.5	16,982	1,901	10.1

¹ Livestock other than dairy and poultry farms.

The proportion of tenancy was greatest among cash-grain farmers in the Central Corn Belt (54.3 percent), and smallest among livestock farmers in the Southern Corn Belt (16.8 percent).

For both cash-grain and livestock farms, the percentage of tenancy in 1954 was significantly greater among the Economic Classes I, II, and III farms than among the Economic Classes IV, V, and VI farms (table 18). However, among cash-grain farms, a larger percentage of the Class II and Class III farms than of the Class I farms were tenant-operated. On livestock farms, also, the percentage of tenancy on Class II farms was somewhat greater than that on Class I farms. The proportion of operators who were tenants was smallest among the Class VI

livestock farms (10.1 percent), and greatest among the Class II cash-grain farms (52.1 percent).

The distribution of farms operated by full owners, part owners, and tenants in the United States in 1954 is shown in figures 12, 13, and 14. Farms operated by tenants are relatively most numerous in the South, in the Corn Belt, and in the Great Plains. Within the Corn Belt, the proportion of all farms operated by tenants is greatest in the central and western regions. In the Corn Belt as a whole, there were approximately a third as many part owners as full owners operating commercial farms in 1954.

Some tenant farmers manage their farms independently, while other tenants are closely supervised by their landlords. Some

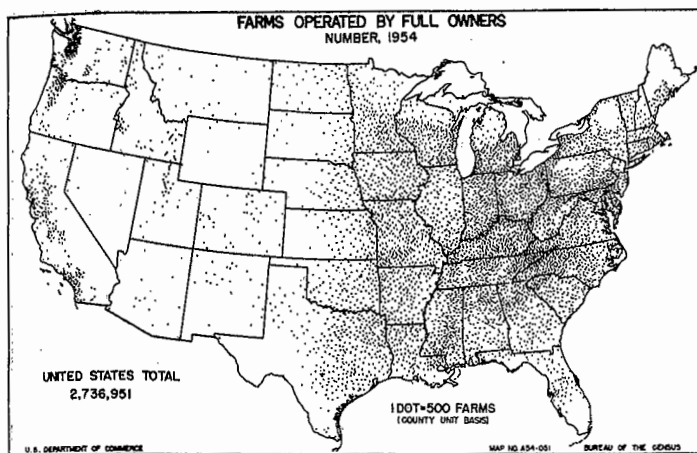


FIGURE 12.

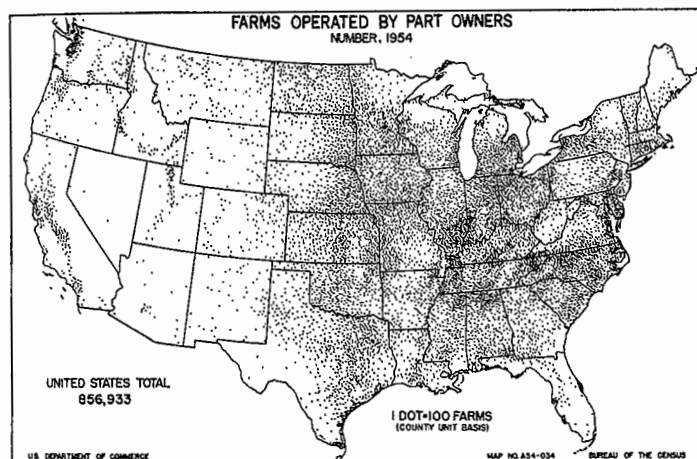


FIGURE 13.

tenants provide all operating inputs or expenses; on other rented farms operating expenses are shared by the tenant and landlord. A large proportion of the tenants in the Corn Belt are related to their landlords. In 1954, from 20 to 50 percent of the tenants throughout most of the Corn Belt were related to their landlords. In most of the counties in the Corn Belt in 1950, tenant operators had been on their farms for an average of 5 to 9 years.

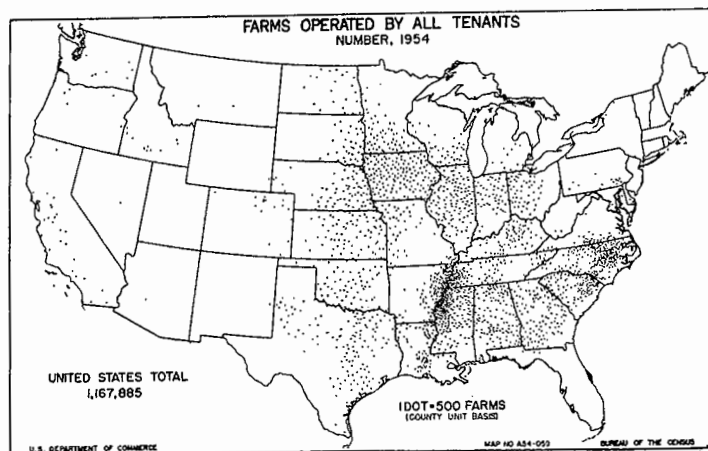


FIGURE 14.

The most common types of leases or methods of renting farmland in the Corn Belt are share-cash, livestock-share, crop-share, and cash. Tenants operating under share-cash rental agreements pay a part of the rent as a share of the crops or livestock products and also pay a part of the rent in cash. Livestock-share tenants pay a specified share of the livestock or livestock products as rent. They may or may not also pay a share of the crops. Livestock-share leases are much used on farms where the tenant wants to raise livestock but is unable to finance a full livestock program. Crop-share tenants pay a specified share of the crops as rent. Under the crop-share rent method, crop risks are shared with the landlord. This method of renting is often attractive to tenants who have relatively little capital. Cash tenants pay a cash rental, such as \$10 an acre or \$1,000 for use of the whole farm. The cash-rent method is best suited to tenants who are well supplied with livestock, equipment, and working capital. The average cash rent per acre paid by cash tenants on commercial farms in Indiana, Illinois, and Iowa in 1954 was \$8.34, \$10.50, and \$9.80, respectively.

The most frequent method of renting farms in the United States in 1954 is shown in figure 15. The share-cash method was most prevalent in the Central and Western Corn Belt, while the share (mainly livestock share) agreement was the principal method in the Eastern Corn Belt. In the Northern and Southern Corn Belt, share-cash and share methods of rental were both quite common. There were relatively few cash tenants on Corn Belt farms, and most of them were in the Central and Northern regions.

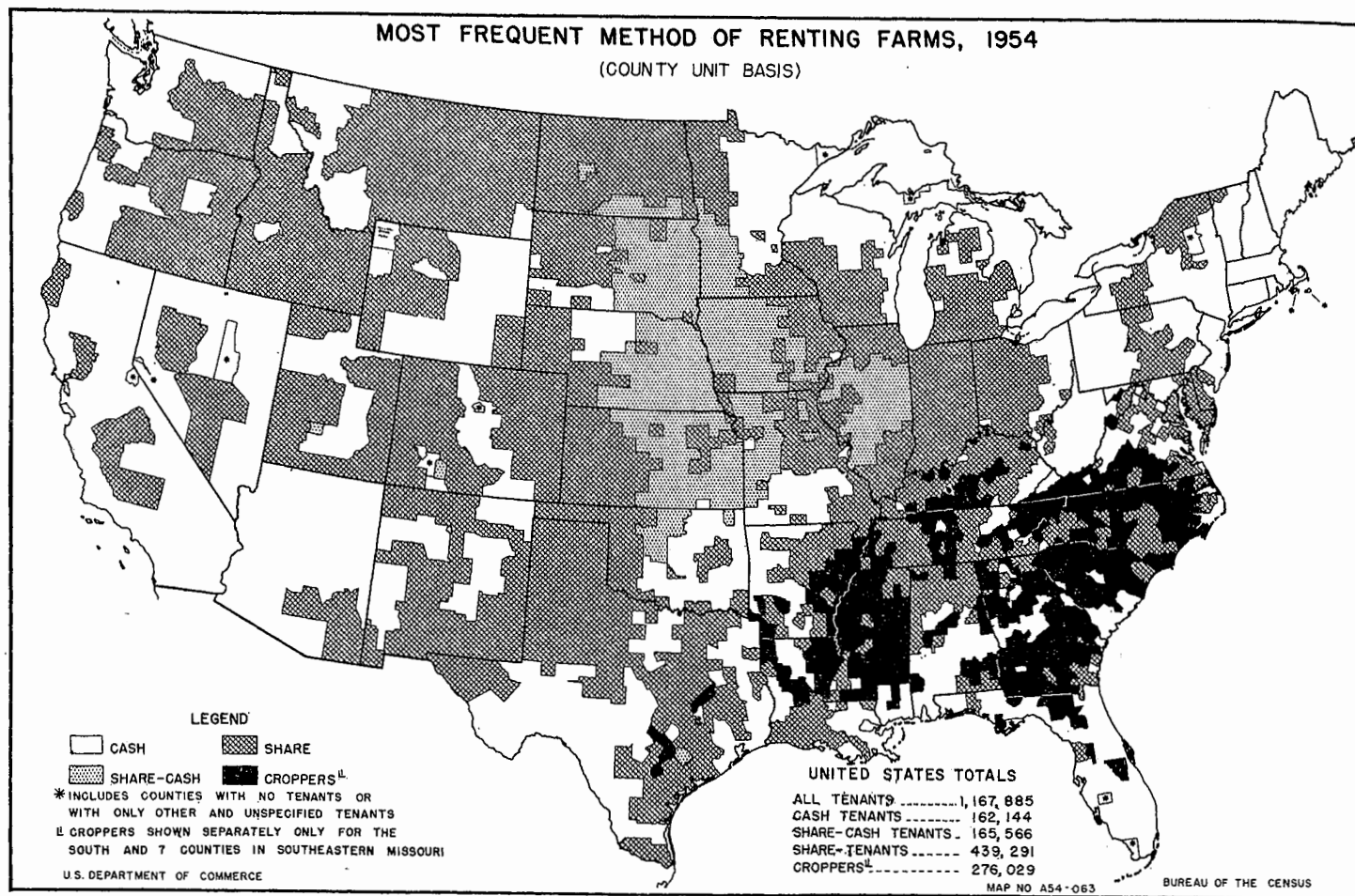


FIGURE 15.

TYPE OF LAND

There were 170,307,389 acres of land in commercial farms in the Corn Belt in 1954. This was 16.5 percent of all the land in commercial farms in the United States. In the Corn Belt as a whole, 71.5 percent of the land in commercial farms was cropland (table 19). The percentage of farmland that was cropland was greatest in the Central Corn Belt (82.4 percent), and smallest in the Southern Corn Belt (60.4 percent). Only 7.3 percent of the land in commercial farms in the Corn Belt was woodland. The

TABLE 19.—ACREAGE OF ALL LAND IN COMMERCIAL FARMS AND DISTRIBUTION OF LAND AMONG BROAD TYPES OR USES, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region	All land in farms	Cropland ¹	Woodland ²	Pasture other than cropland or woodland	All other land ³
Acres:					
Corn Belt, total.....	170,307,389	121,754,844	12,431,256	26,652,363	9,468,926
Eastern Corn Belt.....	27,289,899	21,269,820	2,843,843	1,470,262	1,705,968
Central Corn Belt.....	33,369,798	27,495,167	1,827,655	2,309,351	1,737,635
Northern Corn Belt.....	22,396,741	16,858,271	1,549,604	2,378,999	1,609,867
Western Corn Belt.....	53,216,015	35,561,412	1,315,027	13,760,078	2,579,498
Southern Corn Belt.....	34,034,936	20,570,178	4,895,127	6,733,673	1,835,958
Percent of farmland:					
Corn Belt, total.....	100.0	71.5	7.3	15.6	5.6
Eastern Corn Belt.....	100.0	77.9	10.4	5.4	6.3
Central Corn Belt.....	100.0	82.4	5.5	6.9	5.2
Northern Corn Belt.....	100.0	75.3	6.9	10.6	7.2
Western Corn Belt.....	100.0	66.8	2.5	25.9	4.8
Southern Corn Belt.....	100.0	60.4	14.4	19.8	5.4

¹ Total cropland. Includes cropland harvested, cropland used only for pasture, and cropland neither harvested nor pastured.

² Total woodland. Includes woodland pastured and woodland not pastured.

³ House lots, roads, wasteland, etc.

percentage of woodland was greatest in the Southern Corn Belt (14.4 percent); it was smallest in the Western Corn Belt (2.5 percent). Pastureland other than cropland and woodland pasture made up 15.6 percent of the farmland in the total Corn Belt. Approximately a fourth of the farmland in the Western Corn Belt was pasture other than cropland or woodland, but in the Eastern Corn Belt this type accounted for only 5.4 percent of the total. The proportion of farmland in house lots, roads, wasteland, etc., was 5.6 percent for all commercial farms in the Corn Belt and this proportion did not vary greatly between regions.

Practically all commercial farms in the Corn Belt reported cropland in 1954 (table 20). The percentage of farms reporting

TABLE 20.—PERCENT OF COMMERCIAL FARMS REPORTING BROAD TYPES OR USES OF LAND, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region	Land in farms	Cropland ¹	Woodland ²	Pasture other than cropland or woodland	All other land ³
Percent					
Corn Belt, total.....	100.0	97.0	38.4	50.8	97.2
Eastern Corn Belt.....	100.0	95.9	62.2	32.8	97.0
Central Corn Belt.....	100.0	97.7	22.7	40.1	97.0
Northern Corn Belt.....	100.0	98.4	33.6	53.5	98.3
Western Corn Belt.....	100.0	97.2	19.7	66.4	97.2
Southern Corn Belt.....	100.0	96.3	54.0	62.0	97.2

¹ Total cropland. Includes cropland harvested, cropland used only for pasture, and cropland neither harvested nor pastured.

² Total woodland. Includes woodland pastured and woodland not pastured.

³ House lots, roads, wasteland, etc.

TABLE 21.—LAND IN COMMERCIAL FARMS, BY TYPE AND ECONOMIC CLASS, IN THE CORN BELT: 1954

Type and economic class of farm	All land in farms	Crop-land ¹	Wood-land ²	All other land ³
	<i>Acres</i>	<i>Acres</i>	<i>Acres</i>	<i>Acres</i>
All commercial farms	170,307,389	121,754,844	12,431,266	36,121,289
Cash-grain farms:				
Total	59,793,487	47,384,086	3,356,218	9,053,183
Class I	4,029,649	3,417,299	178,688	433,662
II	20,000,721	16,708,228	823,857	2,468,636
III	20,759,401	16,447,281	1,084,800	3,227,320
IV	10,346,191	7,663,480	738,060	1,944,651
V	3,834,460	2,038,948	413,248	782,264
VI	823,065	508,860	117,565	196,650
Livestock farms: ⁴				
Total	75,415,319	49,863,148	5,803,992	19,748,179
Class I	10,720,958	7,499,063	490,753	2,731,142
II	24,072,221	17,250,884	1,394,081	5,421,256
III	21,553,027	14,349,032	1,625,529	5,578,466
IV	12,127,604	7,283,590	1,214,294	3,629,720
V	5,168,716	2,697,375	709,495	1,761,846
VI	1,772,793	777,204	369,840	625,749

¹ Total cropland. Includes cropland harvested, cropland used only for pasture, and cropland neither harvested nor pastured.

² Total woodland. Includes woodland pastured and woodland not pastured.

³ All farmland other than cropland and woodland.

⁴ Livestock other than dairy and poultry farms.

cropland ranged from 95.9 percent in the Eastern Corn Belt to 98.4 percent in the Northern Corn Belt. In the Corn Belt as a whole, somewhat more than a third of the commercial farms reported woodland and approximately a half reported pasture other than cropland and woodland. The percentage of farms reporting land of these 2 types varied considerably between regions in the Corn Belt.

The total acreages of land and of the various types of land in each economic class of cash-grain and livestock farms in the Corn Belt are shown in table 21. Classes II, III, and IV farms had the bulk of the acreage of all types of farmland in the Corn Belt.

TABLE 22.—CROPLAND, WOODLAND, AND ALL OTHER LAND AS PERCENTAGES OF ALL LAND IN COMMERCIAL FARMS IN THE CORN BELT: 1954

Type and economic class of farm	All land in farms	Crop-land ¹	Wood-land ²	All other land ³
	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
All commercial farms	100.0	71.5	7.3	21.2
Cash-grain farms:				
Total	100.0	79.2	5.6	15.1
Class I	100.0	84.8	4.4	10.8
II	100.0	83.5	4.1	12.3
III	100.0	79.2	5.2	15.5
IV	100.0	74.1	7.1	18.8
V	100.0	68.8	10.8	20.4
VI	100.0	61.8	14.3	23.9
Livestock farms: ⁴				
Total	100.0	66.1	7.7	26.2
Class I	100.0	69.9	4.6	25.5
II	100.0	71.7	5.8	22.5
III	100.0	66.6	7.5	25.9
IV	100.0	60.1	10.0	29.9
V	100.0	52.2	13.7	34.1
VI	100.0	43.8	20.9	35.3

¹ Total cropland. Includes cropland harvested, cropland used only for pasture, and cropland neither harvested nor pastured.

² Total woodland. Includes woodland pastured and woodland not pastured.

³ All farmland other than cropland and woodland.

⁴ Livestock other than dairy and poultry farms.

The proportion of farmland that was cropland was greater on the higher economic classes of farms than on the lower economic classes (table 22). On Class I cash-grain farms, 84.8 percent of the farmland was cropland. On Class VI cash-grain farms, 61.8 percent of the acreage was cropland, and on Class VI livestock farms, only 43.8 percent. The largest proportion of farmland in woodland was found on the lower economic classes of farms. The proportion in woodland was more than 10 percent on the Class V and Class VI farms of both cash-grain and livestock types. All land other than cropland and woodland was also a higher

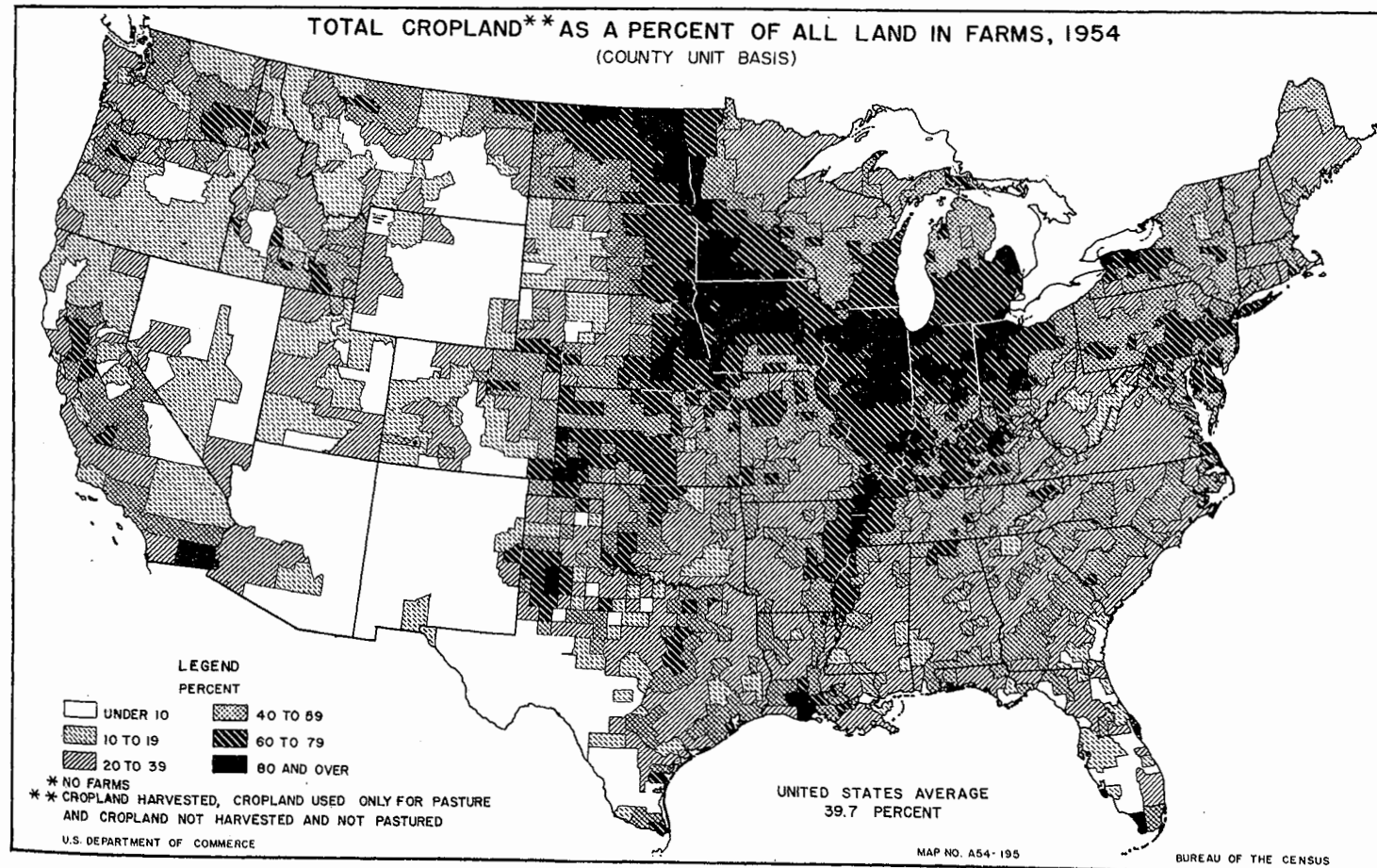
TOTAL CROPLAND** AS A PERCENT OF ALL LAND IN FARMS, 1954
(COUNTY UNIT BASIS)

FIGURE 16.

FARMERS AND FARM PRODUCTION

proportion of total farmland on the lower economic classes of farms.

The percent that total cropland was of all land in farms, on a county unit basis in the United States in 1954, is shown in figure 16. As an average for the United States, 39.7 percent of all the land in farms was cropland. The average for the United States is lowered by the inclusion of large areas in the West, where less than 10 percent of the farmland is cropland. The Corn Belt includes the biggest part of the large area in the North Central

States where 60 percent or more of the farmland is cropland. The Central Corn Belt includes a large proportion of the area where 80 percent or more of the area is cropland.

LAND USE

The total acreage of land in commercial farms and the distribution of land according to use by type of farm in the Corn Belt and component regions in 1954 is shown in table 23. In the Eastern

TABLE 23.—TOTAL LAND IN COMMERCIAL FARMS, AND DISTRIBUTION OF ACREAGE ACCORDING TO USE, BY TYPE OF FARM, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Acreage of farmland according to use (thousand acres)						
	Total land in farms	Cropland			Woodland		Other pasture ¹
		Harvested	Used only for pasture	Not harvested and not pastured	Pastured	Not pastured	
Total Corn Belt:							
All commercial farms.....	170,307	104,378	12,066	4,411	8,871	3,560	26,052
Cash-grain farms.....	59,793	42,224	3,005	2,155	2,007	1,349	5,687
Livestock farms ²	75,415	41,428	7,046	1,389	4,532	1,272	15,820
Eastern Corn Belt:							
All commercial farms.....	27,290	17,834	2,794	642	1,699	1,145	1,470
Cash-grain farms.....	11,618	8,299	756	345	555	528	439
Livestock farms ²	8,395	5,102	1,167	133	635	289	566
Central Corn Belt:							
All commercial farms.....	33,370	24,487	2,656	353	1,501	327	2,309
Cash-grain farms.....	14,942	11,939	853	186	448	151	645
Livestock farms ²	14,233	9,610	1,448	117	826	135	1,328
Northern Corn Belt:							
All commercial farms.....	22,397	15,009	1,659	290	1,244	305	2,379
Cash-grain farms.....	6,329	4,860	266	118	110	51	415
Livestock farms ²	8,518	5,404	725	79	569	126	1,055
Western Corn Belt:							
All commercial farms.....	53,216	30,624	2,782	2,155	928	387	13,760
Cash-grain farms.....	17,394	11,309	572	1,167	243	158	3,047
Livestock farms ²	27,761	14,492	1,802	696	503	167	8,849
Southern Corn Belt:							
All commercial farms.....	34,035	16,424	3,176	970	3,499	1,396	6,734
Cash-grain farms.....	9,512	5,816	559	339	650	461	1,140
Livestock farms ²	16,508	6,811	1,904	364	1,998	556	4,022

¹ Not cropland and not woodland.

² House lots, roads, wasteland, etc.

³ Livestock other than dairy and poultry farms.

TABLE 24.—PERCENT OF COMMERCIAL FARMS REPORTING LAND IN SPECIFIED USES IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Cropland			Woodland		Other pasture ¹	All other land ²	Any pasture ³
	Harvested	Used only for pasture	Not harvested and not pastured	Pastured	Not pastured			
Total Corn Belt:	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
All commercial farms.....	95.8	51.0	18.0	27.6	16.8	50.8	97.2	90.4
Cash-grain farms.....	100.0	44.1	23.0	21.2	18.2	43.5	98.1	82.9
Livestock farms ⁴	94.4	56.0	14.1	30.0	14.1	55.8	98.0	95.8
Eastern Corn Belt:								
All commercial farms.....	93.9	61.9	16.9	41.2	30.2	32.8	97.0	85.4
Cash-grain farms.....	100.0	51.2	20.8	34.6	33.8	28.7	96.3	77.6
Livestock farms ⁴	90.3	71.8	12.7	48.6	25.5	37.0	97.5	93.8
Central Corn Belt:								
All commercial farms.....	96.9	57.7	9.7	18.4	6.8	40.1	97.0	89.0
Cash-grain farms.....	100.0	52.4	11.6	13.9	6.6	34.3	95.8	83.1
Livestock farms ⁴	95.8	64.1	7.9	23.4	7.1	46.2	98.1	94.7
Northern Corn Belt:								
All commercial farms.....	97.9	53.7	12.8	25.5	14.1	53.5	98.3	91.4
Cash-grain farms.....	100.0	40.2	17.9	12.8	10.7	45.8	97.7	80.4
Livestock farms ⁴	97.6	62.1	10.0	28.7	14.5	54.1	98.8	95.5
Western Corn Belt:								
All commercial farms.....	96.5	38.6	26.3	12.6	9.6	66.4	97.2	92.7
Cash-grain farms.....	100.0	31.7	39.3	10.7	10.8	64.2	95.9	87.0
Livestock farms ⁴	95.2	44.0	18.4	13.1	8.9	67.3	98.0	95.6
Southern Corn Belt:								
All commercial farms.....	94.8	44.6	22.0	41.2	23.0	62.0	97.2	93.9
Cash-grain farms.....	100.0	38.5	26.0	32.2	27.7	52.5	95.7	86.7
Livestock farms ⁴	93.3	48.3	18.0	46.5	19.4	66.2	97.7	97.6

¹ Not cropland and not woodland.

² House lots, roads, wasteland, etc.

³ Cropland pastured, woodland pastured, or any other land pastured.

⁴ Livestock other than dairy and poultry farms.

and Central Corn Belt, larger total acreages of land and of cropland harvested are in cash-grain farms than in livestock farms. In the Northern, Western, and Southern Corn Belt, livestock farms include a larger total area and have more of the cropland than do cash-grain farms. There is more land used only for pasture in the Southern Corn Belt than in any of the other regions. The Western Corn Belt has the largest acreage of cropland not harvested and not pastured as well as the largest acreage of pasture that is neither cropland nor woodland.

The percentage of farms reporting land in specified uses in 1954 in the Corn Belt and component regions is shown in table 24. All cash-grain farms reported cropland harvested. The percent of livestock farms reporting cropland harvested was greatest in the Northern Corn Belt. Woodland pastured was reported by a larger percentage of the commercial farms in the Eastern Corn Belt than in any other region. From 77.6 to 97.6 percent of the farms in the various groups had pasture of some kind.

TABLE 25.—AVERAGE ACREAGE PER FARM REPORTING: ALL LAND IN FARMS AND FARMLAND IN SPECIFIED USES, ON COMMERCIAL FARMS IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	All land in farms	Cropland			Woodland		Other pasture ¹	All other land ²
		Harvested	Used only for pasture	Not harvested and not pastured	Pastured	Not pastured		
Total Corn Belt:	<i>Acres</i>	<i>Acres</i>	<i>Acres</i>	<i>Acres</i>	<i>Acres</i>	<i>Acres</i>	<i>Acres</i>	<i>Acres</i>
All commercial farms.....	214	137	32	31	40	27	66	12
Cash-grain farms.....	226	160	26	35	36	28	49	13
Livestock farms ³	231	134	39	30	46	28	87	12
Eastern Corn Belt:								
All commercial farms.....	154	107	25	21	23	21	25	10
Cash-grain farms.....	170	122	22	24	24	23	22	11
Livestock farms ³	163	110	32	20	25	22	30	10
Central Corn Belt:								
All commercial farms.....	199	151	27	22	49	29	34	11
Cash-grain farms.....	216	173	24	23	47	33	27	11
Livestock farms ³	197	139	31	21	47	26	41	11
Northern Corn Belt:								
All commercial farms.....	206	141	27	21	45	20	41	15
Cash-grain farms.....	230	177	24	24	31	17	33	19
Livestock farms ³	210	136	29	19	49	21	48	14
Western Corn Belt:								
All commercial farms.....	286	171	39	44	40	22	111	14
Cash-grain farms.....	295	192	31	50	39	25	81	16
Livestock farms ³	304	167	45	41	42	21	144	14
Southern Corn Belt:								
All commercial farms.....	216	110	45	28	54	39	69	12
Cash-grain farms.....	233	142	36	32	50	41	53	14
Livestock farms ³	232	103	55	28	60	40	85	12

¹ Not cropland and not woodland.
² House lots, roads, wasteland, etc.

³ Livestock other than dairy and poultry farms.

TABLE 26.—PERCENTAGE DISTRIBUTION OF FARMLAND ACREAGE ACCORDING TO USE ON COMMERCIAL FARMS IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Percentage distribution of land in farms						
	Total land in farms	Cropland			Woodland		Other pasture ¹
		Harvested	Used only for pasture	Not harvested and not pastured	Pastured	Not pastured	
Total Corn Belt:							
All commercial farms.....	100.0	61.3	7.6	2.6	5.2	2.1	15.6
Cash-grain farms.....	100.0	70.6	5.0	3.6	3.4	2.3	9.5
Livestock farms ³	100.0	54.9	9.3	1.8	6.0	1.7	21.0
Eastern Corn Belt:							
All commercial farms.....	100.0	65.3	10.2	2.4	6.2	4.2	5.4
Cash-grain farms.....	100.0	71.4	6.5	3.0	4.8	4.5	3.8
Livestock farms ³	100.0	60.8	13.9	1.6	7.6	3.4	6.7
Central Corn Belt:							
All commercial farms.....	100.0	73.4	8.0	1.1	4.5	1.0	6.9
Cash-grain farms.....	100.0	79.9	5.7	1.2	3.0	1.0	4.3
Livestock farms ³	100.0	67.6	10.2	0.8	5.8	0.9	9.3
Northern Corn Belt:							
All commercial farms.....	100.0	67.0	7.0	1.3	5.6	1.4	10.6
Cash-grain farms.....	100.0	76.8	4.2	1.9	1.7	0.8	6.6
Livestock farms ³	100.0	63.4	8.5	0.9	6.7	1.5	12.4
Western Corn Belt:							
All commercial farms.....	100.0	57.5	5.2	4.0	1.7	0.7	25.9
Cash-grain farms.....	100.0	65.0	3.3	6.7	1.4	0.9	17.5
Livestock farms ³	100.0	52.2	6.5	2.5	1.8	0.6	31.9
Southern Corn Belt:							
All commercial farms.....	100.0	48.3	9.3	2.9	10.3	4.1	19.8
Cash-grain farms.....	100.0	61.2	5.9	3.6	6.8	4.8	12.0
Livestock farms ³	100.0	41.3	11.5	2.2	12.1	3.4	24.4

¹ Not cropland and not woodland.
² House lots, roads, wasteland, etc.

³ Livestock other than dairy and poultry farms.

Data on the average acreage of land in various uses per farm reporting are of interest because they provide a better picture of the scale of operations than do averages based on all farms. For example, the acreage of cropland harvested per farm reporting among livestock farms ranged from 103 acres in the Southern Corn Belt up to 167 acres in the Western Corn Belt (table 25). Also, for example, the average acreage of pasture other than cropland and woodland was 144 acres for the 67.3 percent of the livestock farmers in the Western Corn Belt who reported this use of land compared with 30 acres per farm reporting for the 37 percent of the livestock farmers in the Eastern Corn Belt.

Distribution of all the farmland in each type group of farms in the Corn Belt and component regions is shown in terms of percentages in table 26. For the Corn Belt as a whole, 61.3 percent

of all land in commercial farms was cropland harvested, but this percentage ranged from 41.3 percent on livestock farms in the Southern Corn Belt to 79.9 percent on cash-grain farms in the Central Corn Belt. The percent of cropland used only for pasture also varied considerably between cash-grain and livestock farms as well as between regions. The same is true for other pasture.

When the distribution of land in farms is viewed for economic classes of farms, it is seen that the percent of cropland harvested is a substantially larger percentage of all the farmland on the upper than on the lower economic classes of farms (table 27). On the other hand, woodland pasture and other pasture are larger percentages of the farmland on the lower income economic classes of farms.

TABLE 27.—PERCENTAGE DISTRIBUTION OF FARMLAND ACREAGE ACCORDING TO USE ON COMMERCIAL FARMS IN THE CORN BELT: 1954

Type and economic class of farm	Percentage distribution of land in farms							
	Total land in farms	Cropland			Woodland		Other pasture ¹	All other land ²
		Harvested	Used only for pasture	Not harvested and not pastured	Pastured	Not pastured		
All commercial farms.....	100.0	61.3	7.6	2.6	5.2	2.1	15.6	5.6
Cash-grain farms:								
Total.....	100.0	70.6	5.0	3.6	3.4	2.3	9.5	5.6
Class I.....	100.0	77.3	4.7	2.9	2.7	1.7	6.3	4.4
II.....	100.0	75.5	5.0	3.0	2.5	1.6	7.4	5.0
III.....	100.0	70.8	4.9	3.5	3.2	2.0	9.9	5.6
IV.....	100.0	64.8	5.0	4.2	4.3	2.9	12.3	6.5
V.....	100.0	57.4	5.7	5.7	6.0	4.7	12.9	7.5
VI.....	100.0	47.5	7.1	7.2	7.8	6.5	15.8	8.1
Livestock farms: ³								
Total.....	100.0	54.9	9.3	1.8	6.0	1.7	21.0	5.2
Class I.....	100.0	59.3	9.3	1.3	3.4	1.2	21.4	4.1
II.....	100.0	61.2	9.1	1.4	4.6	1.2	17.8	4.7
III.....	100.0	55.9	8.9	1.8	5.9	1.6	20.5	5.4
IV.....	100.0	48.0	9.6	2.5	7.8	2.2	24.1	5.9
V.....	100.0	38.2	11.0	3.0	10.6	3.2	27.4	6.7
VI.....	100.0	27.7	12.1	4.1	15.7	5.2	27.7	7.6

¹ Not cropland and not woodland.
² House lots, roads, wasteland, etc.

³ Livestock other than dairy and poultry farms.

The distribution of farms, of all land in farms, and of land in specified uses among economic classes of cash-grain and livestock farms is shown in table 28. Again, in this comparison the large proportion of land resources that is in Class III farms and in Class II farms and Class IV farms stands out. These economic classes are the most typical among both cash-grain and livestock farms in the Corn Belt. Class I farms use a larger proportion of the land resources among livestock farms than among cash-grain farms. The percentage of land in Class VI farms is relatively small. But the Class VI farms have a larger percentage of the relatively less productive land than they have of cropland harvested.

The distribution of acreage of cropland harvested in the United States in 1954 is shown in figure 17. The largest area of dense concentration of cropland harvested includes the Corn Belt and areas adjacent to it on the north, west, and northwest.

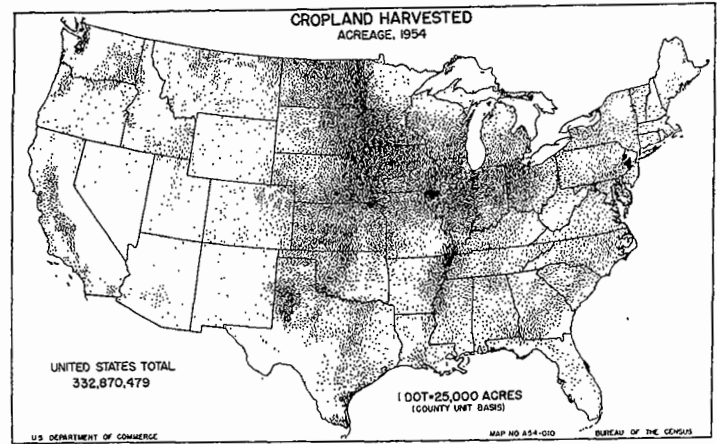


FIGURE 17.

TABLE 28.—PERCENTAGE DISTRIBUTION OF FARMS AND LAND IN FARMS AMONG ECONOMIC CLASSES OF CASH-GRAIN AND LIVESTOCK FARMS IN THE CORN BELT: 1954

Type and economic class of farm	Percentage distribution of land in specified uses								
	Number of farms	All land in farms	Cropland			Woodland		Other pasture ¹	All other land ¹
			Harvested	Used only for pasture	Not harvested and not pastured	Pastured	Not pastured		
Cash-grain farms:									
Total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Class I.....	2.5	6.7	7.4	6.2	5.4	5.4	5.2	4.5	5.3
II.....	23.4	33.4	35.8	33.4	27.8	24.8	24.1	26.0	29.5
III.....	34.1	34.7	34.8	33.9	33.6	33.1	31.2	36.1	34.8
IV.....	23.5	17.3	15.9	17.3	20.2	22.0	22.0	22.4	19.9
V.....	12.8	6.4	5.2	7.3	10.2	11.5	13.5	8.7	8.6
VI.....	3.8	1.4	0.9	1.9	2.7	3.2	4.0	2.3	2.0
Livestock farms: ²									
Total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Class I.....	7.0	14.2	15.4	14.2	9.9	8.1	9.8	14.5	11.1
II.....	25.6	31.9	35.6	31.0	24.5	24.6	21.8	27.0	29.1
III.....	28.9	28.6	29.1	27.2	27.4	28.3	27.0	27.9	20.5
IV.....	20.5	16.1	14.1	16.5	21.6	20.8	21.4	18.4	18.1
V.....	12.2	6.9	4.8	8.1	11.3	12.1	12.8	8.9	8.8
VI.....	6.8	2.4	1.2	3.0	5.2	6.1	7.2	3.1	3.4

¹ Not cropland and not woodland.² House lots, roads, wasteland, etc.³ Livestock other than dairy and poultry farms.

FARMERS AND FARM PRODUCTION

CAPITAL INVESTMENT ON FARMS

TOTAL INVESTMENT

Farming in the Corn Belt requires a large investment of capital in land, buildings, machinery, equipment, and livestock. In a study of farm organization and production it is, therefore, desirable to make at least a brief analysis of the nature and structure of the farm capital investment.

For the purpose of this study, total capital investment was considered under three broad categories—land and buildings, machinery and equipment, and livestock. The total value of land and buildings was computed for the Corn Belt and regions, as well as per farm, by applying the average value per acre obtained in the Census for each economic subregion to the total acreage in farms for each respective subregion. The value of livestock used in this study is an inventory value computed by applying average values per head of horses and mules, cattle, calves, hogs and pigs, and chickens, to the respective numbers of these livestock reported on farms at the time of the 1954 Census enumeration. The average values per head were based on estimates for counties or groups of counties made by the Agricultural Estimates Division of the Agricultural Marketing Service.

Data on value of machinery were considerably less complete than those for land and livestock. The number of farms reporting was obtained in the 1954 Census for the following items of machinery, equipment, and facilities: Tractors, motortrucks, cornpickers, grain combines, pickup hay balers, field forage harvesters, power feed grinders, milking machines, electric pig brooders, automobiles, electricity, telephones, television sets, piped running water, and home freezers. Data on numbers were also obtained for the following: Tractors, motortrucks, automobiles, cornpickers, grain combines, pickup hay balers, and field forage harvesters.

The first step in estimating the value of machinery and equipment on farms in the Corn Belt was to obtain an average value for each of 9 specified machines—for tractors, motortrucks, automobiles, cornpickers, grain combines, pickup hay balers, field forage harvesters, power feed grinders, and milking machines. These average values per machine were estimated on the basis of information from various sources. On the basis of studies by the U. S. Department of Agriculture and agricultural colleges it was estimated that the total value represented by these 9 machinery items on farms would generally account for about two-thirds of the total value of machinery and equipment on the farm. Hence, to obtain the estimated total value of machinery and equipment on commercial farms, a factor of 150 (150 percent) was applied to the estimated total value of the 9 machines on all commercial farms. But in order to obtain these total-value figures for each economic class of cash-grain and livestock farms, a different factor was applied for each economic class. This was done in order to allow for differences in size and in age of machines on the different economic classes of farms. The adjustment factors used for each economic class were as follows: Class I, 185; Class II, 165; Class III, 150; Class IV, 142; Class V, 135; and Class VI, 130. The value of machinery and equipment was thus obtained for each economic class of farm, for the cash-grain farms and livestock farms, in regions of the Corn Belt.

The total capital investment on all commercial farms in the Corn Belt was estimated to be 35.2 billion dollars (table 29). About three-fourths of this figure, or 26.7 billion dollars, represented the investment in land and buildings. Machinery and equipment accounted for 4.8 billion dollars and livestock for 3.6 billion dollars. The distribution of total investment between cash-grain and livestock farms is affected, of course, by the relative numbers of these types in various regions.

TABLE 29.—TOTAL CAPITAL INVESTMENT, AND COMPOSITION OF INVESTMENT, ON COMMERCIAL FARMS IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Total capital investment	Composition of investment		
		Land and buildings	Machinery and equipment	Livestock
Total Corn Belt:	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars
All commercial farms.....	35,154,008	28,740,570	4,772,390	3,041,048
Cash-grain farms.....	12,808,526	10,568,160	1,603,157	637,210
Livestock farms ¹	15,349,876	11,025,004	2,082,172	2,262,700
Eastern Corn Belt:				
All commercial farms.....	7,224,803	5,623,622	1,048,209	552,972
Cash-grain farms.....	2,908,474	2,369,632	422,074	116,768
Livestock farms ¹	2,300,279	1,787,058	328,959	274,262
Central Corn Belt:				
All commercial farms.....	10,597,490	8,545,164	1,124,087	928,248
Cash-grain farms.....	4,082,457	4,286,974	496,130	199,353
Livestock farms ¹	4,419,840	3,288,324	626,704	604,752
Northern Corn Belt:				
All commercial farms.....	4,424,609	3,132,956	695,590	596,063
Cash-grain farms.....	1,125,425	867,697	182,244	75,484
Livestock farms ¹	1,844,460	1,243,406	279,561	321,493
Western Corn Belt:				
All commercial farms.....	8,362,851	6,208,210	1,127,503	1,027,138
Cash-grain farms.....	2,576,945	2,044,287	367,950	164,707
Livestock farms ¹	4,519,322	3,212,270	584,702	722,350
Southern Corn Belt:				
All commercial farms.....	4,544,246	3,230,617	777,001	536,627
Cash-grain farms.....	1,305,225	999,568	224,759	80,898
Livestock farms ¹	2,175,975	1,493,946	342,186	339,843

¹ Livestock other than dairy and poultry farms.

There is some indication that the value of land and buildings on cash-grain farms generally runs higher than that on livestock farms. For example, in the Central Corn Belt, cash-grain farms are 41 percent of all commercial farms and have a total value of 4.3 billion dollars of land and buildings, whereas livestock farms, being 43 percent of all commercial farms, have a value of 3.3 billion dollars in land and buildings.

The investment in machinery and equipment is greater than the investment in livestock on all the cash-grain farms as a group in every region. The value of machinery and equipment was larger than the investment in livestock on livestock farms in the Eastern and Southern Corn Belt. However, on livestock farms in the Central, Northern, and Western Corn Belt, the investment in livestock exceeds the investment in machinery and equipment.

A clearer picture of the size and composition of capital investment on farms can be obtained by looking at the averages per farm (table 30). The average investment per farm for all commercial farms in the Corn Belt in 1954 was estimated at \$44,094. Of this amount, 76 percent was the estimated value of land and buildings, 13.6 percent was machinery and equipment, and 10.4 percent was livestock. The investment per farm on both cash-grain and livestock farms was greater than the average for all commercial farms. It was pointed out above that the all-commercial farm category includes a number of dairy farms, poultry farms, general farms, and other miscellaneous types, in addition to the cash-grain and livestock farms. Land and buildings consistently accounted for a larger percentage of the total capital investment on cash-grain farms than on livestock farms, reflecting the larger actual investment in land and the smaller actual investment in livestock on cash-grain farms. In general, livestock farms would have a greater actual value of investment in buildings than farms of the cash-grain type. The highest percentage of investment in land and buildings is found on cash-grain farms in the Central Corn Belt where this category accounts for 86 percent of the total average capital investment per farm. The lowest percentage accounted for by land and

TABLE 30.—VALUE OF CAPITAL INVESTMENT PER FARM, AND PERCENTAGE COMPOSITION, ON PRINCIPAL TYPES OF FARMS IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Capital investment per farm (dollars)	Percentage composition of investment		
		Land and buildings	Machinery and equipment	Livestock
Total Corn Belt:				
All commercial farms.....	44,094	76.1	13.6	10.4
Cash-grain farms.....	48,758	81.9	13.1	4.9
Livestock farms ¹	46,991	71.8	13.4	14.7
Eastern Corn Belt:				
All commercial farms.....	40,754	77.8	14.5	7.7
Cash-grain farms.....	42,584	81.6	14.6	4.0
Livestock farms ¹	46,432	74.8	13.8	11.5
Central Corn Belt:				
All commercial farms.....	63,138	80.6	10.6	8.8
Cash-grain farms.....	72,171	86.0	10.0	4.0
Livestock farms ¹	61,327	74.4	11.9	13.7
Northern Corn Belt:				
All commercial farms.....	40,754	70.8	15.7	13.5
Cash-grain farms.....	40,971	77.1	16.2	6.7
Livestock farms ¹	45,421	67.4	15.2	17.4
Western Corn Belt:				
All commercial farms.....	44,919	74.2	13.5	12.3
Cash-grain farms.....	43,771	79.3	14.3	6.4
Livestock farms ¹	49,463	71.1	12.9	16.0
Southern Corn Belt:				
All commercial farms.....	28,873	71.1	17.1	11.8
Cash-grain farms.....	31,940	76.6	17.2	6.2
Livestock farms ¹	30,588	68.7	15.7	15.6

¹ Livestock other than dairy and poultry farms.

buildings is on livestock farms in the Northern and Southern Corn Belt. Livestock farms consistently had a larger percentage of their capital value in livestock than did cash-grain farms. The percentage invested in machinery did not differ greatly between cash-grain and livestock farms.

There are wide differences in the size of the total capital investment among economic classes of farms (table 31). The average investment on Economic Class I farms of the cash-grain type was \$171,558. The comparable figure for Economic Class VI farms was \$11,761. On livestock farms Economic Class I farms had an average investment of \$121,131 and Class VI farms, at the other extreme, had an average value of \$11,523. From these examples it is easy to realize the great differences in capital invested on the different economic classes of farms. The data in table 31 reveal the insufficiency of an average figure for all commercial farms which, in this case, was \$44,094. The investment per farm on cash-grain farms was almost invariably higher than the invest-

TABLE 31.—AVERAGE VALUE OF CAPITAL INVESTMENT PER COMMERCIAL FARM IN THE CORN BELT AND COMPONENT REGIONS: 1954

Type and economic class of farm	Corn Belt, total	Eastern Corn Belt	Central Corn Belt	Northern Corn Belt	Western Corn Belt	Southern Corn Belt
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
All commercial farms.....	44,094	40,754	63,138	40,754	44,919	28,873
Cash-grain farms:						
Total.....	48,758	42,584	72,171	40,971	43,771	31,940
Class I.....	171,558	152,774	196,133	136,318	144,055	144,050
II.....	81,362	74,852	95,015	63,487	72,418	69,565
III.....	46,604	43,596	56,446	39,166	45,475	39,951
IV.....	28,896	27,184	35,234	25,746	30,425	25,495
V.....	18,298	17,582	21,363	17,035	19,816	17,293
VI.....	11,761	11,477	14,333	11,288	12,695	10,918
Livestock farms: ¹						
Total.....	46,991	46,432	61,327	45,421	49,463	30,588
Class I.....	121,131	134,284	125,440	106,274	116,645	114,794
II.....	67,581	69,275	73,035	59,634	68,004	59,054
III.....	42,937	42,327	48,347	39,060	45,687	35,903
IV.....	28,632	26,753	33,397	28,084	31,529	24,192
V.....	18,456	18,103	21,657	17,477	21,256	15,958
VI.....	11,523	11,190	13,715	12,650	13,857	9,995

¹ Livestock other than dairy and poultry farms.

ment per farm on livestock farms for farms in Economic Classes I, II, and III. There was not much difference in the average investment per farm on cash-grain farms and livestock farms of Economic Classes IV, V, and VI. In value of capital investment per farm as shown in this table, the Central Corn Belt stands out. In this region the average value of investment per farm is higher than that in any other region for every economic class. The Southern and Northern Corn Belt regions generally have the lowest investment per farm, class by class.

LAND AND BUILDINGS

The average investment in land and buildings, machinery and equipment, and livestock, as well as the total per farm, is shown for each of the economic classes of farms of the cash-grain and livestock types in table 32. On cash-grain farms, the investment in land and buildings and in machinery and equipment per farm is higher than it is for all commercial farms. On livestock farms the investment in each of these 3 categories is larger than the average for all commercial farms.

The percentage distribution of total capital investment shows that the investment in land and buildings is a greater proportion of the total on the larger farms. In other words, the percentage of the investment represented by land and buildings decreases from 87.4 percent for Class I cash-grain farms to 75.1

TABLE 32.—AVERAGE VALUE AND COMPOSITION OF CAPITAL INVESTMENT PER COMMERCIAL FARM IN THE CORN BELT: 1954

Type and economic class of farm	Total capital investment per farm (dollars)	Composition of investment			Percentage of total capital investment		
		Land and buildings (dollars)	Machinery and equipment (dollars)	Livestock (dollars)	Land and buildings	Machinery and equipment	Livestock
All commercial farms.....	44,094	33,541	5,986	4,567	76.1	13.6	10.4
Cash-grain farms:							
Total.....	48,758	39,949	6,400	2,409	81.9	13.1	4.9
Class I.....	171,558	149,908	15,025	6,625	87.4	8.8	3.9
II.....	81,362	68,608	9,019	3,735	84.3	11.1	4.6
III.....	46,604	37,572	6,482	2,550	80.6	13.9	5.5
IV.....	28,896	22,415	4,901	1,580	77.6	17.0	5.5
V.....	18,298	13,768	3,659	871	75.2	20.0	4.8
VI.....	11,761	8,838	2,404	519	75.1	20.4	4.4
Livestock farms: ¹							
Total.....	46,991	33,751	6,313	6,929	71.8	13.4	14.7
Class I.....	121,131	88,430	12,774	19,927	73.0	10.5	16.5
II.....	67,581	49,639	8,482	9,460	73.5	12.6	14.0
III.....	42,937	30,447	6,198	6,292	70.9	14.4	14.7
IV.....	28,632	19,695	4,606	4,331	68.8	16.1	15.1
V.....	18,456	12,562	3,256	2,638	68.1	17.6	14.4
VI.....	11,523	7,922	2,050	1,551	68.7	17.8	13.6

¹ Livestock other than dairy and poultry farms.

percent for Class VI cash-grain farms, and from 73 percent on Class I livestock farms to 68.7 percent on Class VI livestock farms. The percentage of the total investment accounted for by machinery and equipment increases as size of farm decreases.

The principal explanation of this is that the machinery and equipment investment per acre tends to be greater on the smaller farms. Farms need a certain minimum quantity of machinery and equipment, below which it is difficult to go, even though the acreage in the farm is relatively small. The percentage of investment represented by livestock tends to be stable from one economic class of farm to another. This comes about chiefly because it is easier to adjust numbers of livestock or livestock production to a proper balance with acreage available than it is to adjust the investment in machinery and equipment.

The average value of investment per farm in land and buildings is shown for the Corn Belt and component regions, by economic class, in table 33. The contrast in value of land and buildings per farm, between economic classes, is evident in all regions. For the total Corn Belt, the range is from approximately \$150,000 per farm on Economic Class I cash-grain farms down to less than \$9,000 per farm on Economic Class VI farms of this type. The contrast is similar, although not as extreme, on livestock farms. The investment in land and buildings is greatest for Class I cash-grain farms in the Central Corn Belt and the least for Class VI livestock farms in the Southern Corn Belt. Between these two extremes in land-and-buildings investment per farm, practically every level is represented by farms in various economic classes in the different regions. The investment in land and buildings is higher on cash-grain farms than on livestock farms in the Central, Northern, and Southern Corn Belt. In the Eastern and Western Corn Belt the value of land and buildings per farm is only slightly higher on livestock farms than on cash-grain farms.

TABLE 33.—AVERAGE VALUE OF LAND AND BUILDINGS PER FARM, FOR COMMERCIAL FARMS, BY TYPE AND ECONOMIC CLASS, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Type and economic class of farm	Corn Belt, total	Eastern Corn Belt	Central Corn Belt	Northern Corn Belt	Western Corn Belt	Southern Corn Belt
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
All commercial farms.....	33,541	31,722	60,911	28,857	33,346	20,526
Cash-grain farms:						
Total.....	30,949	34,604	62,097	31,588	34,723	24,460
Class I.....	149,908	130,676	175,339	114,803	121,809	118,344
II.....	68,608	62,580	82,520	50,074	59,097	56,081
III.....	37,572	35,221	47,651	20,791	35,884	30,641
IV.....	22,415	21,334	28,947	10,075	23,318	18,892
V.....	13,768	13,357	17,089	12,484	14,808	12,582
VI.....	8,838	8,809	11,401	8,016	9,526	7,910
Livestock farms: ¹						
Total.....	33,751	34,714	45,627	30,620	35,158	21,001
Class I.....	88,430	102,204	94,305	73,350	81,736	82,270
II.....	49,639	52,646	54,006	40,915	49,543	41,820
III.....	30,447	31,340	35,398	25,923	32,490	24,483
IV.....	19,606	19,215	23,791	18,226	21,701	16,177
V.....	12,562	12,879	15,388	10,997	14,460	10,529
VI.....	7,922	8,072	9,850	8,476	9,568	6,630

¹ Livestock other than dairy and poultry farms.

The average value of land and buildings per acre in 1954 is shown graphically in figure 18. A large area of land, averaging \$200 per acre or more in value, runs through the Corn Belt. The area of this high-value-per-acre land is especially solid in the Central Corn Belt. Other regions with such high values are found mainly in the irrigated areas of the West, and in areas near large cities, and in densely populated areas of the northeastern United States.

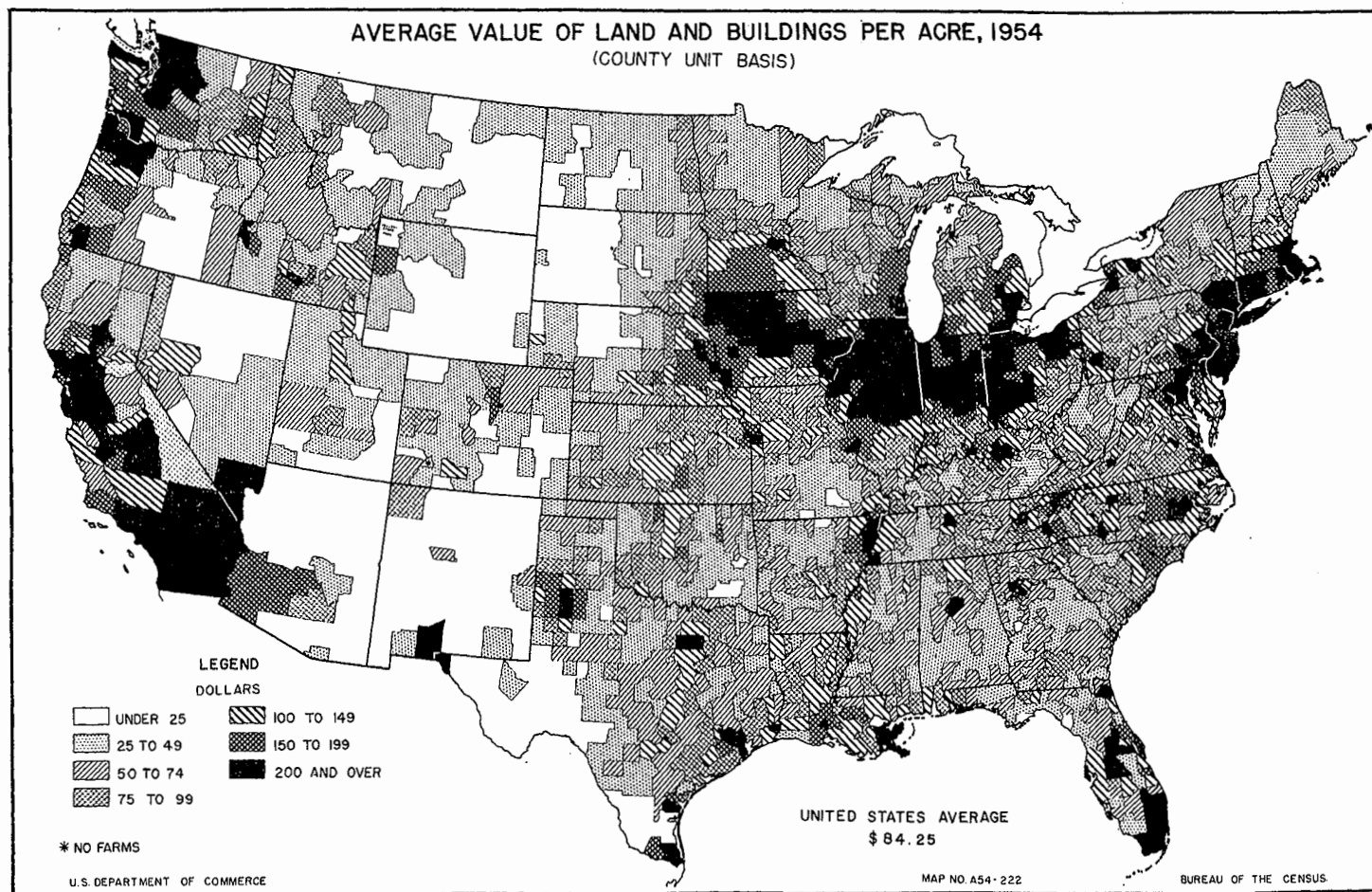


FIGURE 18.

The average value per acre of land on all commercial farms in the Corn Belt in 1954 was \$157. In the Central Corn Belt the average was \$256 per acre and in the Southern Corn Belt it was \$95 (table 34). The average values per acre shown in the table again point out the generally higher values of land on cash-grain farms than on livestock farms in the Central, Western, and Southern Corn Belt. The land values per acre are generally higher on cash-grain farms than the average for all commercial farms. In contrast with the values on Economic Classes I, II, and III farms, are the relatively low values per acre on Class V and Class VI farms, especially in the Southern, Western, and Northern Corn Belt.

TABLE 34.—AVERAGE VALUE OF LAND AND BUILDINGS PER ACRE, BY TYPE AND ECONOMIC CLASS OF FARM, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Type and economic class of farm	Corn Belt, total	Eastern Corn Belt	Central Corn Belt	North-ern Corn Belt	Western Corn Belt	Southern Corn Belt
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
All commercial farms.....	167	206	256	140	117	95
Cash-grain farms:						
Total.....	177	204	287	137	118	105
Class I.....	242	215	336	191	133	140
II.....	213	219	304	158	130	131
III.....	163	199	263	129	117	107
IV.....	134	191	230	111	105	93
V.....	122	179	203	108	98	87
VI.....	107	164	201	109	92	76
Livestock farms: ¹						
Total.....	146	213	231	146	116	90
Class I.....	187	234	266	208	132	119
II.....	172	228	242	166	132	110
III.....	134	202	206	129	110	92
IV.....	109	186	183	110	93	79
V.....	97	181	191	97	83	71
VI.....	84	152	192	98	87	59

¹ Livestock other than dairy and poultry farms.

LIVESTOCK

The importance of livestock in Corn Belt farming is reflected by the 3.6 billion dollars inventory value of livestock, shown in table 29 above. Almost a third of this livestock value is in the Western Corn Belt and about a fourth is in the Central Corn Belt. The average value of livestock investment per farm, on commercial farms in the Corn Belt, is about \$4,600, but the average for livestock farms is nearly \$7,000. The range among economic classes of livestock farms is from about \$1,500 on Class VI farms to almost \$20,000 on Class I farms. Livestock production is discussed more fully in a following section.

MACHINERY AND EQUIPMENT

The percentage of farms reporting each of the items of machinery and equipment is shown by type of farm and by regions in the Corn Belt in table 35. Approximately 90 percent of the farms in all parts of the Corn Belt reported having tractors. On cash-grain farms, the proportion was over 90 percent in all regions, and it was over 90 percent on livestock farms also except in the Southern and Eastern Corn Belt. The distribution of tractors in the United States is shown in figure 19. The Corn Belt is the largest region of heavy concentration of tractors on farms.

The cornpicker was the next most frequently reported item of machinery. Cornpickers were reported by a somewhat greater percentage of the cash-grain farms than of the livestock farms. However, the difference is not large and is to be expected because of the great importance of the corn crop on livestock as well as on cash-grain farms. The location of farms reporting cornpickers in the United States is shown in figure 20. The pattern of heaviest concentration practically coincides with the Corn Belt as the term is used in this study.

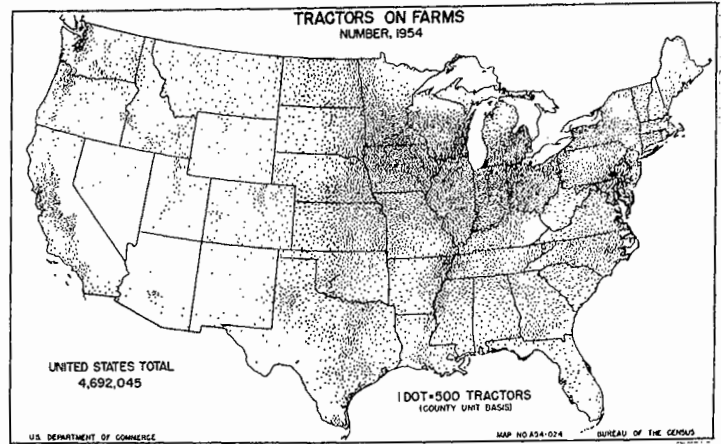


FIGURE 19.

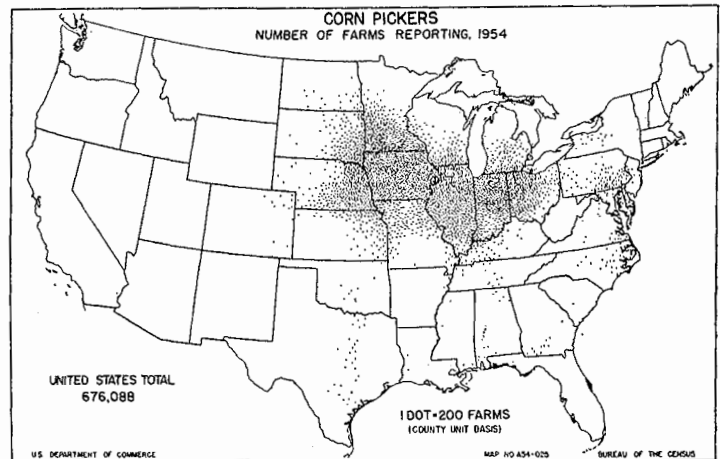


FIGURE 20.

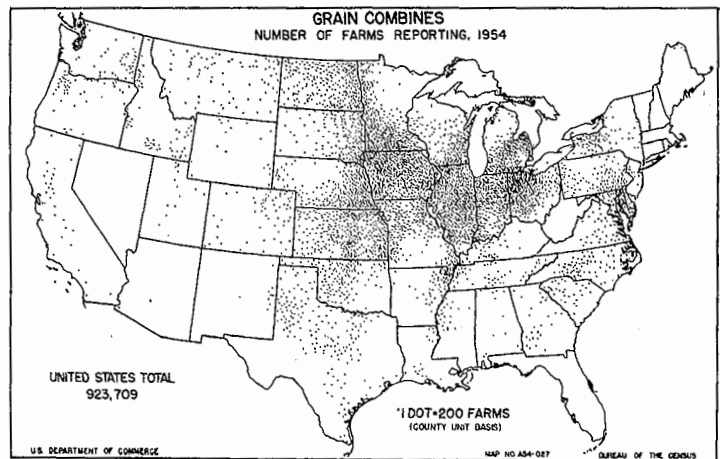


FIGURE 21.

One out of every two commercial farms reported having grain combines. The figure was 60.4 percent for cash-grain farms and 47.2 percent for livestock farms in the Corn Belt as a whole. The greatest concentration of farms reporting grain combines as well as cornpickers was in the Central Corn Belt. Grain combines were found least frequently in the Southern Corn Belt, but even there they were reported on 43.8 percent of the commercial farms. The distribution of grain combines on farms in the United States is shown in figure 21. The Corn Belt and the wheat-producing region of the Great Plains have the heaviest concentration. Farms having combines are especially numerous in a broad belt extending from northwestern Ohio through Indiana, Illinois, and Iowa.

TABLE 35.—PERCENT OF COMMERCIAL FARMS IN EACH TYPE REPORTING SPECIFIED FARM MACHINES IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Tractors	Motor-trucks	Corn-pickers	Grain combines	Pickup hay balers	Field forage harvesters	Power feed grinders	Milking machines	Electric pig brooders
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Total Corn Belt:									
All commercial farms.....	89.8	51.1	58.8	50.3	18.0	7.6	38.0	24.4	8.0
Cash-grain farms.....	93.1	52.5	65.1	60.4	14.3	4.3	29.3	16.3	4.7
Livestock farms ¹	89.9	52.5	60.3	47.2	22.1	9.8	45.9	19.0	11.2
Eastern Corn Belt:									
All commercial farms.....	88.2	49.2	54.8	48.8	18.2	5.3	22.0	28.0	6.9
Cash-grain farms.....	91.9	49.1	60.5	56.6	14.6	3.2	16.4	19.8	3.7
Livestock farms ¹	87.6	55.0	57.8	47.2	21.2	6.5	28.8	20.3	11.5
Central Corn Belt:									
All commercial farms.....	92.7	53.3	71.1	58.0	20.4	7.6	42.8	23.7	10.1
Cash-grain farms.....	94.2	53.7	74.7	65.2	14.6	3.8	32.7	17.6	6.6
Livestock farms ¹	93.0	55.0	71.2	55.8	26.8	11.2	52.3	21.0	13.7
Northern Corn Belt:									
All commercial farms.....	91.8	53.0	63.6	50.0	23.4	11.5	41.8	48.2	10.4
Cash-grain farms.....	94.2	51.4	66.6	60.4	15.4	6.9	30.8	27.4	4.8
Livestock farms ¹	94.2	53.9	68.6	49.1	28.3	14.2	50.1	44.3	13.1
Western Corn Belt:									
All commercial farms.....	91.7	53.4	64.0	50.4	15.8	8.4	47.3	16.1	7.8
Cash-grain farms.....	93.8	55.8	67.2	59.4	12.6	4.9	38.0	11.3	4.3
Livestock farms ¹	91.6	53.6	65.4	47.1	18.3	10.7	53.2	13.7	10.6
Southern Corn Belt:									
All commercial farms.....	85.1	47.1	40.8	43.8	17.0	6.5	37.1	13.4	5.7
Cash-grain farms.....	91.6	51.9	52.5	60.1	15.1	4.6	31.6	7.9	3.6
Livestock farms ¹	83.8	45.8	39.7	37.7	19.3	7.1	40.0	7.5	7.9

¹ Livestock other than dairy and poultry farms.

Motortrucks were reported by about half the farmers, and were fairly evenly distributed among types of farms throughout the Corn Belt.

Pickup hay balers were reported on almost a fifth of all the farms. These machines save a great deal of labor in the harvesting and handling of hay.

Field forage harvesters were reported on nearly 8 percent of all commercial farms. This type of machine, which picks up and chops hay or other forage, is relatively new. It fits into the mechanization scheme and has been introduced on many farms, especially on livestock farms in the Northern, Central, and Western Corn Belt.

Power feed grinders were reported on a relatively large percentage of the farms, especially among the livestock farms. This reflects the heavy use of homegrown feeds in the Corn Belt. It is pointed out in a later section of this report that use of purchased mixed feeds on these farms is also great. The distribution of power feed grinders on farms in the United States is shown in figure 22. The Corn Belt has the heaviest concentration of these machines. They are most densely concentrated in northwestern Illinois, eastern and western Iowa, and eastern Nebraska.

Electric pig brooders are of many sizes and types. It is difficult therefore to obtain an average value per unit for this equipment. They were reported on 8 percent of the commercial farms in the Corn Belt. They were reported by almost 14 percent of the livestock farmers in the Central Corn Belt.

Milking machines were reported on 24.4 percent of all the commercial farms, but on only 16.3 percent of the cash-grain farms and 19 percent of the livestock farms. Milking machines were most frequently reported in the Northern Corn Belt, which borders on the dairy country of Minnesota and Wisconsin. In the Northern Corn Belt, milking machines were reported on 44.3 percent of the livestock farms and on 27.4 percent of the cash-grain farms.

For the Corn Belt as a whole, tractors, cornpickers, and grain combines were reported on larger percentages of the cash-grain farms than of the livestock farms. On the other hand, larger percentages of the livestock farms reported having pickup hay balers, field forage harvesters, power feed grinders, milking machines, and electric pig brooders. Motortrucks were reported by an equal proportion of the farmers on cash-grain and livestock farms.

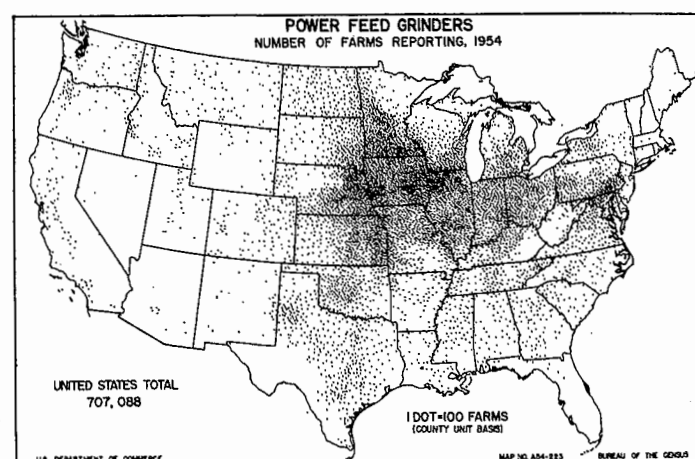


FIGURE 22.

Tractors were reported on 96 to 98 percent of all Economic Classes I, II, and III farms in the Corn Belt. Among the Classes IV, V, and VI farms the percentage of farmers having tractors was smaller (table 36). Only two-thirds of the Economic Class VI cash-grain farms and only half of the Economic Class VI livestock farms reported tractors.

For every one of the specified farm machines, the percentage of farms reporting these machines declines consistently from a relatively high figure on Economic Class I farms to a relatively low figure on Economic Class VI farms. For example, among the cash-grain farms, about 93 percent of the Class I farms had grain combines, but only 30 percent of the Class V farms and 15 percent of the Class VI farms had these machines. Similarly, for example, among livestock farms, pickup hay balers were reported on 44 percent of the Class I farms, on 23 percent of the Class III farms, and on only 3 percent of the Class VI farms.

The only exception to the rule that the percentage of farms reporting specified machines declines as we look from Class I to Class VI farms, is in the instance of milking machines. In this case, the percentage of farms reporting is smaller for Class I farms of both the cash-grain and livestock types than it is for the Class II and Class III farms. Apparently, the explanation is the relatively small percentage of Class I cash-grain and livestock farms that have dairy herds.

TABLE 36.—PERCENT OF COMMERCIAL FARMS IN EACH TYPE, BY ECONOMIC CLASS, REPORTING SPECIFIED FARM MACHINES, IN THE CORN BELT: 1954

Type and economic class of farm	Tractors	Motor-trucks	Corn-pickers	Grain combines	Pickup hay balers	Field forage harvesters	Power feed grinders	Milking machines	Electric pig brooders
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
All commercial farms.....	89.8	51.1	58.8	50.3	18.6	7.6	38.0	24.4	8.0
Cash-grain farms:									
Total.....	93.1	52.5	65.1	60.4	14.3	4.3	29.3	16.3	4.7
Class I.....	98.1	89.7	94.6	92.6	35.7	16.1	47.9	17.3	14.2
II.....	97.4	70.7	86.3	82.6	22.8	7.8	40.2	25.7	8.8
III.....	96.0	53.8	73.2	67.3	15.3	4.2	32.5	19.9	4.6
IV.....	92.7	42.6	54.4	48.8	9.2	2.2	23.2	10.1	2.2
V.....	85.6	35.2	33.4	20.9	4.8	.9	14.7	4.7	1.3
VI.....	66.2	23.5	15.0	15.4	3.3	.9	8.1	1.9	1.0
Livestock farms: ¹									
Total.....	89.9	52.5	60.3	47.2	22.1	9.8	45.9	19.0	11.2
Class I.....	97.6	80.9	86.9	76.2	44.2	36.8	70.1	17.4	22.7
II.....	97.0	65.8	80.7	68.6	33.3	15.8	59.8	25.9	17.9
III.....	95.7	52.0	68.9	52.3	22.6	7.7	50.9	25.3	10.9
IV.....	89.8	43.7	48.2	33.2	14.2	3.6	37.1	14.5	6.3
V.....	75.8	36.8	25.6	16.4	6.9	1.6	22.7	6.0	4.0
VI.....	50.0	26.3	11.0	7.1	3.3	.9	10.9	2.1	1.1

¹ Livestock other than dairy and poultry farms.

Farmers who do not have their own machines for handling grain and hay depend on hiring such machines on a custom-work basis, or they depend on exchange work, or they use less mechanized methods that require more labor.

The intensity of mechanization on Corn Belt farms is indicated by the percentage of farms that report various types and combinations of types of work power (table 37). Tractors were reported on approximately 90 percent of all commercial farms in the Corn Belt. Sixty-seven percent of the farms had tractors but no horses or mules. Only 3.1 percent of the commercial farms reported horses and/or mules and no tractor. Horses or mules were found on a substantial number of farms, however, as 22.2 percent of all commercial farms reported having one or more tractors and horses or mules. On 7.4 percent of the farms, no tractor, horses, or mules were reported. The region with the largest percentage of farms reporting no tractor or animal power was the Eastern Corn Belt, where 10.6 percent of the farms thus reported. Farmers who do not have their own tractors or horses or mules generally have

their fieldwork done by custom operators, or neighbors, or they rent power units. On relatively very few farms the land is all in hay or pasture, and no land is plowed or cultivated. Farms of this type require little or no mechanical power.

The high degree of mechanization, as indicated by the use of tractors, is general throughout the Corn Belt on cash-grain and livestock farms and on other commercial types. It is most intensive in the Central, Northern, and Western Corn Belt. The Southern Corn Belt has the largest percentage of farms using horses or mules and no tractor. In that region, 7 percent of the commercial farms reported horse or mule power only, and 30 percent reported horses and/or mules in addition to tractors. For the Corn Belt as a whole, about as many farms reported 2 tractors as reported 1 tractor. Only 13.5 percent of the farms had 3 tractors or more. In the Central and Northern Corn Belt, more than 50 percent of the farmers reported 2 tractors, while from 28 to 34 percent (approximately) reported only 1 tractor. In the Southern and Eastern Corn Belt more farms reported

TABLE 37.—PERCENT OF COMMERCIAL FARMS REPORTING, BY TYPE OF WORK POWER AND NUMBER OF TRACTORS,¹ BY TYPE OF FARM, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Percentage distribution of farms reporting—				Farms reporting tractors, as a percent of all commercial farms	Percentage distribution of farms reporting—			
	No tractor, horses, or mules	Horses and/or mules and no tractor	Tractor and horses or mules	Tractor and no horses or mules		Any tractors	1 tractor	2 tractors	3 or more tractors
Total Corn Belt:									
All commercial farms.....	7.4	3.1	22.2	67.3	89.5	100.0	43.4	43.1	13.5
Cash-grain farms.....	5.9	1.3	16.0	76.8	92.8	100.0	40.9	43.9	15.2
Livestock farms ²	6.7	3.9	27.4	62.0	89.4	100.0	41.9	43.9	14.2
Eastern Corn Belt:									
All commercial farms.....	10.6	2.6	12.3	74.5	86.8	100.0	48.1	39.7	12.2
Cash-grain farms.....	7.7	1.1	9.6	81.6	91.2	100.0	46.6	40.6	12.8
Livestock farms ²	11.2	2.8	15.1	70.9	86.1	100.0	45.9	40.6	13.5
Central Corn Belt:									
All commercial farms.....	6.3	1.5	17.1	75.1	92.2	100.0	29.3	51.5	19.2
Cash-grain farms.....	5.2	0.9	13.2	80.7	93.9	100.0	28.4	50.9	20.7
Livestock farms ²	5.5	1.8	21.2	71.5	92.7	100.0	27.8	52.8	19.4
Northern Corn Belt:									
All commercial farms.....	5.0	1.7	23.0	70.3	93.3	100.0	33.5	50.8	15.7
Cash-grain farms.....	5.2	0.7	15.4	78.7	94.1	100.0	31.2	50.1	18.7
Livestock farms ²	4.0	2.0	25.9	68.1	93.9	100.0	32.1	51.2	16.7
Western Corn Belt:									
All commercial farms.....	5.8	2.8	28.9	62.5	91.4	100.0	42.9	44.2	12.9
Cash-grain farms.....	4.9	1.5	22.2	71.4	93.7	100.0	44.2	42.6	13.2
Livestock farms ²	5.4	3.3	34.0	57.3	91.4	100.0	39.5	46.2	14.3
Southern Corn Belt:									
All commercial farms.....	8.3	7.1	30.1	54.5	84.6	100.0	62.4	30.0	7.6
Cash-grain farms.....	5.9	2.7	22.5	68.9	91.5	100.0	55.0	34.8	10.2
Livestock farms ²	8.2	8.7	34.9	48.2	83.1	100.0	64.3	28.4	7.3

¹ Farms reporting tractors, other than garden tractors.² Livestock other than dairy and poultry farms.

TABLE 38.—PERCENT OF COMMERCIAL FARMS REPORTING, BY TYPE OF WORK POWER AND NUMBER OF TRACTORS,¹ BY TYPE AND ECONOMIC CLASS OF FARM, IN THE CORN BELT: 1954

Type and economic class of farm	Percentage distribution of farms reporting—				Farms reporting tractors, as a percent of all commercial farms	Percentage distribution of farms reporting—			
	No tractor, horses, or mules	Horses and/or mules and no tractor	Tractor and horses or mules	Tractor and no horses or mules		Any tractors	1 tractor	2 tractors	3 or more tractors
All commercial farms.....	7.4	3.1	22.2	67.3	89.5	100.0	43.4	43.1	13.5
Cash-grain farms:									
Total.....	5.9	1.3	16.0	76.8	92.8	100.0	40.9	43.9	15.2
Class I.....	1.9	0.3	22.2	75.6	97.8	100.0	2.3	19.3	78.4
II.....	2.4	0.4	10.2	81.0	97.3	100.0	12.6	66.4	31.0
III.....	3.7	0.5	15.5	80.3	95.8	100.0	35.1	53.3	11.6
IV.....	6.4	1.2	16.2	76.2	92.4	100.0	59.8	35.1	5.1
V.....	12.4	2.8	15.8	69.0	84.8	100.0	78.0	19.4	2.6
VI.....	24.5	11.4	13.2	60.9	64.2	100.0	87.4	11.2	1.4
Livestock farms: ²									
Total.....	6.7	3.9	27.4	62.0	89.4	100.0	41.9	43.9	14.2
Class I.....	1.7	0.9	35.1	62.3	97.4	100.0	6.2	39.2	54.6
II.....	2.3	0.7	26.7	70.3	96.9	100.0	18.6	69.3	22.1
III.....	3.0	1.5	27.4	68.1	95.5	100.0	40.4	60.6	9.0
IV.....	6.7	4.1	30.0	59.2	89.2	100.0	63.0	32.5	4.5
V.....	16.1	9.7	25.0	49.2	74.2	100.0	79.8	18.4	1.8
VI.....	31.7	19.9	17.5	30.9	48.4	100.0	88.3	10.9	0.8

¹ Farms reporting tractors, other than garden tractors.² Livestock other than dairy and poultry farms.

1 tractor than reported 2 tractors. Farms having 3 or more tractors were relatively most numerous in the Central and Northern Corn Belt.

Use of tractors is more universal among the larger than among the smaller farms (table 38). About 97 to 98 percent of the Economic Class I and Class II farms, of the cash-grain and livestock types, reported tractors; among the Class V and Class VI farms the proportions ranged from about 48 to 85 percent. The largest proportion of farmers having tractors but no horses or mules were on Class II and Class III farms, on both cash-grain and livestock types. The larger farms also usually had both tractors and horses or mules more frequently than did the smaller farms. Among the livestock farms in each economic class, there were larger percentages of farms having both tractors and horses or mules than there were among cash-grain farms in the respective economic classes. Farms having horses or mules and no tractors were relatively uncommon among all economic classes, but the proportion was about 11 percent of the Class VI cash-grain farms and about 20 percent of the Class VI livestock farms. The proportion of farms reporting 1 tractor, 2 tractors, or 3 or more tractors was strongly correlated with size of farm. The small farms were generally in the 1-tractor group and the larger farms were in the 2-tractor or 3-or-more-tractor groups.

The average value of total investment in machinery and equipment per farm was more than \$15,000 on Economic Class I cash-grain farms (table 39), but it was consistently less on the smaller sized economic classes, ranging down to \$2,404 on cash-grain farms of Economic Class VI. The investment in machinery and equipment per farm averaged highest on commercial farms in the Central Corn Belt, but on the basis of economic class groups it was highest on the Class I cash-grain farms in the Southern Corn Belt and lowest on Class VI livestock farms in that region.

The total investment in machinery and equipment (not including household equipment) on all commercial farms in the Corn Belt was estimated at 4.8 billion dollars (table 40). The Western, Central, and Eastern Corn Belt regions each accounted for over a billion dollars of this total. The bulk of the capital investment usually is found on Class II and Class III farms, although these are not always the groups with the most numerous farms (tables 9 and 10). The total value of capital investment on Class V and Class VI farms in the Corn Belt is relatively small, but in the case of cash-grain farms it is more than the total investment on the large Class I farms in all regions except the Central Corn Belt, and in the case of livestock farms it is greater than the capital value on Class I farms in the Southern Corn Belt.

TABLE 39.—ESTIMATED AVERAGE VALUE OF TOTAL INVESTMENT IN MACHINERY AND EQUIPMENT, PER COMMERCIAL FARM, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Type and economic class of farm	Corn Belt, total	East-ern Corn Belt	Central Corn Belt	North-ern Corn Belt	West-ern Corn Belt	South-ern Corn Belt
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
All commercial farms.....	5,986	5,913	6,697	6,407	6,056	4,987
Cash-grain farms:						
Total.....	6,400	6,180	7,186	6,635	6,250	5,500
Class I.....	15,025	15,674	14,432	15,147	14,898	17,408
II.....	9,019	9,233	8,800	9,216	8,899	9,654
III.....	6,482	6,550	6,262	6,546	6,529	6,694
IV.....	4,901	4,802	4,741	4,924	5,075	4,931
V.....	3,659	3,630	3,483	3,741	3,786	3,649
VI.....	2,404	2,185	2,518	2,730	2,553	2,413
Livestock farms: ¹						
Total.....	6,313	6,390	7,309	6,884	6,399	4,810
Class I.....	12,774	14,655	12,516	12,608	12,016	13,392
II.....	8,482	8,909	8,464	8,719	8,195	8,352
III.....	6,198	6,270	6,339	6,349	6,260	5,748
IV.....	4,606	4,470	4,890	4,868	4,857	4,146
V.....	3,256	3,278	3,491	3,335	3,533	2,976
VI.....	2,050	1,958	2,228	2,268	2,370	1,877

¹ Livestock other than dairy and poultry farms.

TABLE 40.—ESTIMATED VALUE OF TOTAL INVESTMENT IN MACHINERY AND EQUIPMENT ON COMMERCIAL FARMS IN THE CORN BELT AND COMPONENT REGIONS: 1954

Type and economic class of farm	Corn Belt, total	East-ern Corn Belt	Central Corn Belt	North-ern Corn Belt	West-ern Corn Belt	South-ern Corn Belt
	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars	1,000 dollars
All commercial farms.....	4,772,390	1,045,209	1,124,087	695,590	1,127,593	777,001
Cash-grain farms:						
Total.....	1,693,157	422,074	496,130	182,244	367,050	224,750
Class I.....	97,604	25,281	46,485	6,150	12,017	6,772
II.....	559,197	129,816	230,658	61,785	96,179	40,750
III.....	584,138	133,936	156,051	73,978	145,275	74,898
IV.....	304,113	83,377	48,121	29,600	83,721	59,294
V.....	124,194	43,435	12,259	8,944	25,434	34,123
VI.....	23,910	6,230	2,555	1,788	4,424	8,913
Livestock farms: ¹						
Total.....	2,062,172	328,959	526,764	279,561	584,702	342,186
Class I.....	290,079	50,752	101,270	32,831	80,974	24,253
II.....	708,749	115,069	223,060	103,968	187,819	78,833
III.....	585,904	84,101	131,173	93,980	175,662	100,882
IV.....	308,496	46,801	50,515	38,456	95,797	76,927
V.....	130,235	25,509	16,703	8,324	34,790	44,901
VI.....	38,709	6,728	4,044	1,996	9,652	16,290

¹ Livestock other than dairy and poultry farms.

HORSES AND MULES

Data on the number and distribution of horses and mules on Corn Belt farms are given in tables 68 to 72 along with data on other livestock. Horses and mules are important as work power, and so should be mentioned briefly at this point.

The number of horses and mules on farms in the North Central States has shown a decline in every Census year since 1920. The total number on farms in the North Central States in 1954 was only about 9 percent of the number in 1920.

In 1954 there were 451,000 horses and mules on commercial farms in the Corn Belt. Only 1 farm out of 4 reported horses or mules that year. Horses and mules were found most frequently on farms in the Southern Corn Belt, where they were reported on 37.2 percent of all the commercial farms and on 43.6 percent of the livestock farms. They were found relatively least frequently (on only 10.7 percent of the farms) among cash-grain farms in the Eastern Corn Belt. The average number of horses and mules on the farms reporting was 2 in every region, on cash-grain and livestock farms as well as on all commercial farms. The average number per farm reporting was also 2 for each of the economic classes of farms except Class I farms where the average number was 3.

AUTOMOBILES AND HOME FACILITIES

Upwards of 90 percent of the commercial farms in the Corn Belt as a whole had automobiles (table 41). The proportion of farmers reporting automobiles varied somewhat between the regions, being as high as 94 percent in the Central and Northern Corn Belt and as low as 83 percent in the Southern Corn Belt. There was practically no difference between cash-grain and livestock farms in the same region as to possession of automobiles.

Practically all commercial farms in the Corn Belt have the use of electric current. Electricity was reported by about 97 percent of the farms in 1954 (table 41). The great increase in use of electricity on these farms is an event of the last 10 years. In 1945, only 56.8 percent of the farms in the 5 Corn Belt States had the use of electricity (2). In 1945, 59 percent of the farms in Iowa had electricity; in 1955 the proportion was 97.6 percent.

Telephones were reported on about 78 percent of the commercial farms. The proportion having telephones ranged from 87 percent in the Central Corn Belt to 69 percent in the Southern Corn Belt.

Television sets were reported on 1 out of every 2 cash-grain and livestock farms and on only slightly fewer of the other commercial farms. The proportion was highest in the Eastern Corn Belt and lowest in the Northern and Southern Corn Belt. Having or not having a TV set depends upon being within range of a TV broadcasting station as well as upon having the income available for buying the receiving set.

About two-thirds of the farms in the Corn Belt had piped running water in 1954. The proportion was highest on livestock farms in the Eastern Corn Belt (82.5 percent) and was lowest on cash-grain farms in the Southern Corn Belt (47.7 percent). Piped running water was more common on livestock farms than on cash-grain farms. Running water is an especial convenience and labor-saver in connection with livestock production.

Home freezers were reported on about 45 percent of the farms in the Corn Belt as a whole. Generally, they were found somewhat more frequently on livestock farms in the Eastern Corn Belt and were least common on commercial farms other than cash-grain or livestock in the Southern Corn Belt.

In the case of automobiles and facilities such as electricity, telephone, TV set, and piped running water, as in the case of farm machinery and equipment, there was a positive correlation between the percentage of farms reporting and size (economic class) of farm (table 42). For example, electricity was reported on 99.1 percent of the Class I cash-grain farms and on 84.3 percent of the Class VI cash-grain farms. Piped running water was reported on 94.8 percent of the Class I livestock farms but on only 36.9 percent of the Class VI farms of this type.

TABLE 41.—PERCENT OF COMMERCIAL FARMS IN EACH TYPE REPORTING SPECIFIED FACILITIES AND EQUIPMENT, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Auto- mobile	Elec- tricity	Tele- phone	Televi- sion set	Piped running water	Home freezer
	Percent	Percent	Percent	Percent	Percent	Percent
Total Corn Belt:						
All commercial farms.....	90.5	96.7	78.2	48.7	66.7	44.9
Cash-grain farms.....	91.4	95.6	73.8	50.5	63.4	43.8
Livestock farms ¹	91.0	97.4	82.4	50.6	70.6	46.5
Eastern Corn Belt:						
All commercial farms.....	90.0	97.7	76.9	62.7	78.8	54.3
Cash-grain farms.....	91.2	97.6	73.4	64.1	76.0	51.5
Livestock farms ¹	90.2	98.2	81.6	65.8	82.5	58.8
Central Corn Belt:						
All commercial farms.....	94.0	97.6	87.3	56.5	72.8	52.1
Cash-grain farms.....	94.2	96.8	84.1	56.3	68.8	51.7
Livestock farms ¹	94.8	98.5	90.8	60.0	78.3	53.5
Northern Corn Belt:						
All commercial farms.....	94.1	96.5	79.1	37.7	64.6	46.1
Cash-grain farms.....	94.2	94.1	69.9	35.8	55.0	41.6
Livestock farms ¹	94.4	97.5	84.8	41.5	71.3	49.2
Western Corn Belt:						
All commercial farms.....	92.2	95.8	78.2	44.0	65.2	37.7
Cash-grain farms.....	92.2	93.3	72.3	41.4	57.3	32.2
Livestock farms ¹	92.8	97.1	82.0	47.9	71.9	42.2
Southern Corn Belt:						
All commercial farms.....	82.6	95.6	69.3	37.9	49.5	34.1
Cash-grain farms.....	83.9	94.5	62.0	40.9	47.7	36.0
Livestock farms ¹	83.4	96.0	73.8	38.9	52.1	34.3

¹ Livestock other than dairy and poultry farms.

TABLE 42.—PERCENT OF COMMERCIAL FARMS IN EACH TYPE, BY ECONOMIC CLASS, REPORTING SPECIFIED FACILITIES AND EQUIPMENT, IN THE CORN BELT: 1954

Type and economic class of farm	Auto- mobile	Elec- tricity	Tele- phone	Televi- sion set	Piped running water	Home freezer
	Percent	Percent	Percent	Percent	Percent	Percent
All commercial farms.....	90.5	96.7	78.2	48.7	66.7	44.9
Cash-grain farms:						
Total.....	91.4	95.6	73.8	50.5	63.4	43.8
Class I.....	98.1	99.1	90.3	74.8	90.5	74.1
II.....	97.2	98.7	85.8	63.4	79.9	60.7
III.....	94.0	97.2	77.3	50.8	64.9	45.0
IV.....	89.4	94.4	66.6	43.3	54.0	34.5
V.....	82.5	90.5	59.7	40.9	48.8	28.5
VI.....	69.9	84.3	50.2	27.6	37.0	19.3
Livestock farms: ¹						
Total.....	91.0	97.4	82.4	50.6	70.6	46.5
Class I.....	98.3	99.5	95.7	72.7	94.8	70.2
II.....	96.8	99.2	91.3	62.6	85.8	59.6
III.....	93.9	98.4	84.7	50.8	73.1	47.3
IV.....	88.7	97.0	77.3	42.0	60.3	37.1
V.....	82.2	95.0	69.9	39.0	52.1	31.8
VI.....	68.7	88.0	60.5	25.0	36.9	19.7

¹ Livestock other than dairy and poultry farms.

FARM LABOR

CHARACTERISTICS OF OPERATORS

The average age of farm operators in the North Central States in 1954 was 49 years. This is only slightly older (about two-tenths of a year) than it was in 1945. In the United States as a whole, however, the average age of farm operators in 1954 was about a year older than in 1945. In the South the average age was almost 2 years older than in 1945.

Information on average age and age composition of operators gives some indication of the age of retirement and of the rate of replacement of older operators by younger men. From 1945 to 1954 in the North Central States, the decrease in number of operators under 25 years old was relatively greater than the decrease in number of farms. The proportion of operators 25 to 34 years of age in 1954 was practically the same as in 1945, while the proportion 35 to 44 years of age increased. The proportion of operators in the 45- to 64-year group declined, but the proportion in the 65-years-old and over group increased. This indicates that relatively few young men (under 25 years) had been entering farming during the decade, but that, on the other hand, farmers of 25 to 44 years of age had stayed in farming to a relatively greater extent than the older age groups. Apparently, the farms or farm lands freed by the operators of age 45 and over who retired or departed from farming were taken up by the younger group. However, farmers reaching age 65 who continued to operate farms, were a somewhat larger proportion of the total number of farmers than in 1945.

Among the factors that in recent years have deterred young men from becoming farm operators are, on the one hand, the relatively attractive opportunities and incomes in nonfarm work and, on the other hand, the relatively large amount of capital that is required to equip and operate a farm. The large capital required also tends to restrain a young man from going into farming until he has accumulated more capital or obtained a stronger financial backing than was necessary a generation ago.

Reports on age were obtained in the 1954 Census from practically all farm operators. Nearly half of all the commercial farm operators in the Corn Belt were 35 to 54 years old in 1954. The largest 10-year-span age group was the 35- to 44-year group, but operators in the 45- to 54-year group were almost as numerous. Relatively few operators were under 25 years of age and the total number under 35 years was less than the number who were 35 to 44 or 45 to 54 years old. About a fifth of the operators were 55 to 64 years old and about a seventh were 65 years old or over (table 43). Older operators were relatively most numerous in the Southern and Eastern Corn Belt, while the Northern Corn Belt had the largest proportion of younger operators. In general, there was a relatively larger proportion of younger operators on cash-grain farms than on livestock farms. It is usually easier to get started in cash-grain farming than in livestock farming. Less capital is needed for the total investment in machinery and livestock and, although the land requirement is large, the land often may be rented.

Class II farms had the largest percentage of operators under the age of 35 (table 44). On Classes I, II, and III farms, from about 19 percent to 24 percent of the operators were under 35 years, while on Classes IV, V, and VI farms, this age group accounted for only 4 percent to 19 percent of all the operators. For both cash-grain and livestock farms, as we go from the large to the smaller sizes of farms, we find a larger proportion of the operators in the older age groups. Nearly 39 percent of the Class VI cash-grain farms and almost 47 percent of the Class VI livestock farms were operated by farmers 65 years old or over.

TABLE 43.—NUMBER AND PERCENTAGE OF COMMERCIAL FARM OPERATORS, BY AGE, BY TYPE OF FARM, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Operators reporting age		Percentage distribution of operators reporting age				
	Total	Percent of all operators	Total operators reporting	Age under 35 years	Age 35 to 54 years	Age 55 to 64 years	Age 65 years and over
Total Corn Belt:							
All commercial farms.....	787,218	98.7	100.0	18.5	47.7	20.1	13.7
Cash-grain farms.....	260,982	98.7	100.0	20.8	47.8	19.2	12.2
Livestock farms ¹	322,886	98.8	100.0	17.5	48.1	20.6	13.8
Eastern Corn Belt:							
All commercial farms.....	174,535	98.5	100.0	16.2	44.8	21.5	17.5
Cash-grain farms.....	67,159	98.3	100.0	18.6	45.9	20.3	15.2
Livestock farms ¹	50,684	98.5	100.0	14.9	44.8	22.2	18.1
Central Corn Belt:							
All commercial farms.....	165,707	98.7	100.0	20.6	49.5	18.5	11.4
Cash-grain farms.....	68,126	98.7	100.0	21.1	48.6	19.1	11.2
Livestock farms ¹	71,263	98.9	100.0	20.3	50.9	17.9	10.9
Northern Corn Belt:							
All commercial farms.....	107,557	99.1	100.0	21.6	50.9	17.8	9.7
Cash-grain farms.....	27,206	99.0	100.0	21.5	48.8	19.0	10.7
Livestock farms ¹	40,290	99.2	100.0	21.3	50.7	18.4	9.6
Western Corn Belt:							
All commercial farms.....	184,218	98.9	100.0	20.7	48.7	19.4	11.2
Cash-grain farms.....	58,306	99.0	100.0	23.4	48.6	18.0	10.0
Livestock farms ¹	90,392	98.9	100.0	19.3	49.3	20.1	11.3
Southern Corn Belt:							
All commercial farms.....	155,201	98.6	100.0	14.2	45.2	22.8	17.8
Cash-grain farms.....	40,185	98.3	100.0	19.7	47.6	19.5	13.2
Livestock farms ¹	70,257	98.8	100.0	12.1	44.3	24.1	19.5

¹ Livestock other than dairy and poultry farms.

TABLE 44.—NUMBER AND PERCENTAGE OF COMMERCIAL FARM OPERATORS, BY AGE, BY TYPE AND ECONOMIC CLASS OF FARM, IN THE CORN BELT: 1954

Type and economic class of farm	Operators reporting age		Percentage distribution of operators reporting age				
	Total	Percent of all operators	Total operators reporting	Age under 35 years	Age 35 to 54 years	Age 55 to 64 years	Age 65 years and over
All commercial farms.....	787,218	98.7	100.0	18.5	47.7	20.1	13.7
Cash-grain farms:							
Total.....	260,982	98.7	100.0	20.8	47.8	19.2	12.2
Class I.....	6,414	98.7	100.0	19.6	50.9	14.7	5.8
II.....	61,308	98.9	100.0	24.3	55.2	14.7	5.8
III.....	89,259	99.1	100.0	22.5	50.3	18.2	9.0
IV.....	61,178	98.6	100.0	18.9	42.7	23.0	15.4
V.....	33,187	97.8	100.0	16.7	40.5	22.7	20.1
VI.....	9,636	96.9	100.0	10.0	26.4	24.8	38.8
Livestock farms:¹							
Total.....	322,886	98.8	100.0	17.5	48.1	20.6	13.8
Class I.....	22,413	98.7	100.0	22.9	55.9	15.2	6.0
II.....	82,644	98.9	100.0	24.1	54.8	15.4	5.7
III.....	93,789	99.2	100.0	18.9	51.9	20.0	9.2
IV.....	66,189	98.8	100.0	13.6	44.8	24.8	16.8
V.....	39,349	98.4	100.0	10.1	37.8	26.0	26.1
VI.....	18,502	98.0	100.0	4.1	22.0	27.2	46.7

¹ Livestock other than dairy and poultry farms.

Less than 8 percent of the commercial farm families in the Corn Belt had incomes from other sources exceeding the value of all farm products sold (table 45). This emphasizes the importance of the farm business and farm incomes to the vast majority of farm families in the Corn Belt. The proportion of farm families with other incomes larger than the value of farm products sold was smallest in the Central and Northern Corn Belt. It was largest in the Eastern Corn Belt; there about 14 percent of the operators

reported nonfarm incomes to themselves and members of their families greater than the value of farm products sold. Opportunities for nonfarm earnings are generally greatest in the Eastern Corn Belt because there are more cities and industrial establishments there than in other parts of the Corn Belt. A larger percentage of cash-grain farmers than of livestock farmers had a relatively large income from nonfarm sources, reflecting the greater amount of time available for nonfarm activities by cash-grain farmers at some seasons of the year.

Somewhat more than two-thirds of the farm operators in the Corn Belt who gave information as to off-farm work reported none at all. Off-farm work includes work on farms other than the oper-

ator's own farm as well as jobs in industrial plants and in nonfarm occupations. The proportion of operators not doing any off-farm work was largest in the Western Corn Belt and smallest in the Eastern Corn Belt. Most of the operators who did some off-the-farm work worked less than 100 days at such activities. The group of operators who spent the most time at off-farm work was among the cash-grain farmers in the Eastern Corn Belt. About 18 percent of these worked 200 or more days off their farms in 1954.

The economic classes of farms with the largest percentages of farms reporting other income exceeding the value of farm products sold were Classes IV and V (table 46). The relatively low farm incomes on these farms make outside sources of income more urgent

TABLE 45.—NUMBER AND PERCENTAGE OF COMMERCIAL FARM OPERATORS REPORTING AS TO OTHER INCOME AND OFF-FARM WORK, BY TYPE OF FARM, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Operators with other income exceeding value of farm products sold ¹		Operators reporting as to off-farm work		Percentage distribution of operators reporting as to off-farm work				
	Operators reporting	Percent of all operators	Total operators reporting	Percent of all operators	Total operators reporting	Not working off farm	Working off farm—		
							1 to 99 days	100 to 199 days	200 days or more
Total Corn Belt:									
All commercial farms.....	60,409	7.6	769,593	96.5	100.0	67.9	21.5	3.4	7.2
Cash-grain farms.....	23,056	8.7	254,731	96.3	100.0	63.5	23.3	4.4	8.8
Livestock farms ²	21,584	6.6	315,900	96.7	100.0	71.5	20.0	2.5	6.0
Eastern Corn Belt:									
All commercial farms.....	25,456	14.4	169,263	95.5	100.0	60.0	19.3	5.4	15.3
Cash-grain farms.....	11,411	16.7	65,239	95.5	100.0	55.1	20.3	6.2	18.4
Livestock farms ²	6,881	13.4	49,096	95.4	100.0	63.6	18.2	4.5	13.7
Central Corn Belt:									
All commercial farms.....	7,392	4.4	161,359	96.1	100.0	71.0	22.1	2.4	4.5
Cash-grain farms.....	2,991	4.3	65,978	95.6	100.0	68.4	23.6	3.0	5.0
Livestock farms ²	2,909	4.1	69,590	96.6	100.0	73.5	20.8	1.8	3.9
Northern Corn Belt:									
All commercial farms.....	3,898	3.6	105,224	96.9	100.0	71.8	22.6	2.0	3.6
Cash-grain farms.....	1,282	4.7	26,653	97.0	100.0	67.5	24.3	3.2	5.0
Livestock farms ²	1,260	3.1	39,335	96.9	100.0	73.6	22.1	1.3	3.0
Western Corn Belt:									
All commercial farms.....	8,742	4.7	181,090	97.3	100.0	72.0	21.5	2.4	4.1
Cash-grain farms.....	2,798	4.8	57,308	97.3	100.0	67.8	24.7	3.3	4.2
Livestock farms ²	4,064	4.4	88,808	97.2	100.0	75.4	18.9	1.8	3.9
Southern Corn Belt:									
All commercial farms.....	14,921	9.5	152,657	97.0	100.0	66.0	22.4	4.3	7.3
Cash-grain farms.....	4,574	11.2	39,553	96.8	100.0	60.2	25.2	5.9	8.7
Livestock farms ²	6,410	9.0	69,071	97.1	100.0	68.9	20.5	3.6	7.0

¹ Farm operators with other income of family exceeding value of farm products sold.

² Livestock other than dairy and poultry farms.

TABLE 46.—NUMBER AND PERCENTAGE OF COMMERCIAL FARM OPERATORS REPORTING AS TO OTHER INCOME AND OFF-FARM WORK, BY TYPE AND ECONOMIC CLASS OF FARM, IN THE CORN BELT: 1954

Type and economic class of farm	Operators with other income exceeding value of farm products sold ¹		Operators reporting as to off-farm work		Percentage distribution of operators reporting as to off-farm work				
	Operators reporting	Percent of all operators	Total operators reporting	Percent of all operators	Total operators reporting	Not working off farm	Working off farm—		
							1 to 99 days	100 to 199 days	200 days or more
All commercial farms.....	60,409	7.6	769,593	96.5	100.0	67.9	21.5	3.4	7.2
Cash-grain farms:									
Total.....	23,056	8.7	254,731	96.3	100.0	63.5	23.3	4.4	8.8
Class I.....	107	1.6	6,233	96.0	100.0	72.7	22.6	1.6	3.1
II.....	911	1.5	59,668	96.2	100.0	70.5	25.3	1.9	2.3
III.....	3,498	3.9	87,030	96.6	100.0	66.5	25.0	3.7	4.8
IV.....	8,044	13.0	59,849	96.5	100.0	59.1	21.7	6.3	12.9
V.....	10,496	30.9	32,754	96.5	100.0	46.0	17.3	8.9	27.8
VI.....			9,207	92.6	100.0	74.0	26.0		
Livestock farms: ²									
Total.....	21,584	6.6	315,900	96.7	100.0	71.5	20.0	2.5	6.0
Class I.....	442	1.9	22,044	97.1	100.0	77.3	19.2	1.2	2.3
II.....	1,215	1.5	80,886	96.8	100.0	74.4	22.4	1.2	2.0
III.....	2,669	2.8	91,469	96.8	100.0	74.1	20.6	2.1	3.2
IV.....	6,714	10.0	64,764	96.7	100.0	68.1	18.9	3.9	9.1
V.....	10,544	26.4	38,754	96.9	100.0	56.9	16.3	6.1	20.7
VI.....			17,983	95.2	100.0	81.7	18.3		

¹ Farm operators with other income of family exceeding value of farm products sold.

² Livestock other than dairy and poultry farms.

than on the larger farms. Class VI farms have the lowest farm incomes (value of products sold) of all the economic classes of farms. But, by definition, these farms do not include any farms on which other sources of income exceeded the value of farm products sold nor any farms on which the operator worked 100 or more days at off-farm work. The proportion of operators not doing any off-farm work declines consistently as we go from Class I to Class V farms of both the cash-grain and livestock types. The percentage of farm operators working 100 or more days off the farm also increases as the size of farm decreases, exclusive of the Class VI farms. Approximately 28 percent of the Class V cash-grain farm operators and 21 percent of the Class V livestock farm operators worked 200 days or more off their farms in 1954.

It is rather significant that even among the larger economic classes of livestock farms, which ordinarily require some labor throughout the year, about 23 to 26 percent of the operators found time for some off-farm work. This may indicate that many operators of small farms could spend more time in such work than they now do, if the employment were available. From the standpoint of work on his own farm, the role of mechanization in freeing the farmer from long hours of manual labor is a decided factor in making more off-farm work possible.

SIZE AND COMPOSITION OF LABOR FORCE

Family-operated farms are the prevailing and predominant kind in the Corn Belt. Upwards of 95 percent of the commercial farms in most of the belt reported some family or hired workers during the specified week of the 1954 Census (table 47). Farms reporting hired labor were only half as numerous as were farms reporting operator and family labor only. From 39 percent to 51 percent

TABLE 47.—NUMBER AND PERCENTAGE OF COMMERCIAL FARMS, BY KIND OF FARM WORKERS, BY TYPE OF FARM, IN THE CORN BELT AND COMPONENT REGIONS, IN SPECIFIED WEEK: 1954¹

Region and type of farm	Farms reporting family and/or hired workers		Percentage distribution of farms reporting—				
	Farms reporting	Per cent of all farms	Family and/or hired workers	Operator only	Unpaid family workers only	Operator and family workers only	Hired workers ²
Total Corn Belt:							
All commercial farms.....	761,668	95.5	100.0	46.8	1.2	34.1	17.9
Cash-grain farms.....	247,924	93.7	100.0	50.8	1.2	30.0	18.0
Livestock farms ³	315,891	96.7	100.0	46.1	1.1	33.0	19.8
Eastern Corn Belt:							
All commercial farms.....	165,476	93.3	100.0	49.3	1.5	30.4	18.8
Cash-grain farms.....	62,727	91.8	100.0	53.5	1.4	27.5	17.6
Livestock farms ³	48,540	94.3	100.0	48.9	1.3	27.1	22.7
Central Corn Belt:							
All commercial farms.....	161,171	96.0	100.0	45.8	1.1	29.8	23.3
Cash-grain farms.....	65,109	94.3	100.0	48.7	1.1	25.8	24.4
Livestock farms ³	70,230	97.4	100.0	43.7	1.1	31.0	24.2
Northern Corn Belt:							
All commercial farms.....	105,042	96.8	100.0	39.3	1.2	40.0	19.5
Cash-grain farms.....	25,879	94.2	100.0	45.8	1.2	34.3	18.6
Livestock farms ³	39,778	98.0	100.0	39.0	0.9	38.2	21.9
Western Corn Belt:							
All commercial farms.....	178,902	96.1	100.0	46.1	1.1	37.0	15.8
Cash-grain farms.....	55,618	94.5	100.0	50.0	1.0	35.2	13.8
Livestock farms ³	88,736	97.1	100.0	45.0	1.0	35.5	18.5
Southern Corn Belt:							
All commercial farms.....	151,077	96.0	100.0	51.0	1.2	35.4	12.5
Cash-grain farms.....	38,591	94.4	100.0	54.6	1.3	30.9	13.2
Livestock farms ³	68,607	96.4	100.0	52.1	1.1	32.8	13.9

¹ The specified week for which information on farm labor was obtained in the 1954 Census was as follows for the States included or partly included in the Corn Belt: September 26-October 2 for Minnesota, Wisconsin, Michigan, South Dakota, Nebraska, Kansas, and Kentucky; October 24-30 for Iowa, Illinois, Indiana, Ohio, and Missouri.

² Total of farms reporting hired workers and family workers and farms reporting hired workers only.

³ Livestock other than dairy and poultry farms.

of the farms in the different regions of the Corn Belt reported operators only, with no family or hired workers. This percentage was highest in the Southern Corn Belt and lowest in the Northern Corn Belt. It was higher on cash-grain farms than on livestock farms. Operator and family workers only, with no hired workers, were reported on 34 percent of the farms. Only 18 percent of all the commercial farms reported hired workers, but this percentage ranged from about 24 percent on cash-grain farms in the Central Corn Belt down to 13 percent on cash-grain farms in the Southern Corn Belt.

The number of farms reporting expenditures for hired labor is greater than the number of farms reporting hired workers in the specified week of September or October. This is so because expenditures were reported for labor even if the labor were used for a very short time. The average number of hired workers during the specified week was approximately the same as the average number for the year in the Corn Belt States.

The proportion of farms reporting different kinds and combinations of farmworkers is related to economic class or size of farm (table 48). For example, only 13.2 percent of the Class I cash-grain farms reported operator labor only, but 70.5 percent of these farms reported hired workers. At the other extreme, 77.1 percent of Class VI cash-grain farms reported operator labor only, while only 2.8 percent reported hired workers. The largest percentages of farms reporting operator and family workers only were found in Classes II, III, and IV among both cash-grain and livestock farms. These are, in general, the most typical sizes and types of farms in the Corn Belt.

In order to make an estimate of the total quantity of labor on the various types and sizes of farms it is necessary to use a common denominator for the different kinds of labor. All labor reported was therefore converted to man-equivalents. A man-equivalent is taken to be an average full-time mature worker, or the equivalent of a man working full time for a year.

The total number of farm operators is the same as the number of farms. In converting the number of operators to man-equivalents, adjustments were made for the estimated man-years of work

TABLE 48.—NUMBER AND PERCENTAGE OF COMMERCIAL FARMS, BY KIND OF FARM WORKERS, BY TYPE AND ECONOMIC CLASS OF FARM, IN THE CORN BELT, IN SPECIFIED WEEK: 1954¹

Type and economic class of farm	Farms reporting family and/or hired workers		Percentage distribution of farms reporting—				
	Farms reporting	Per cent of all farms	Family and/or hired workers	Operator only	Unpaid family workers only	Operator and family workers only	Hired workers ²
All commercial farms.....	761,668	95.5	100.0	46.8	1.2	34.1	17.9
Cash-grain farms:							
Total.....	247,924	93.7	100.0	50.8	1.2	30.0	18.0
Class I.....	6,381	98.2	100.0	13.2	0.5	15.8	70.5
II.....	60,101	96.9	100.0	37.0	1.0	29.7	32.4
III.....	85,871	95.3	100.0	49.9	1.1	33.9	15.1
IV.....	57,170	92.1	100.0	58.7	1.4	30.4	9.6
V.....	29,997	88.4	100.0	66.9	1.6	25.3	6.2
VI.....	8,404	84.5	100.0	77.1	1.2	18.9	2.8
Livestock farms:³							
Total.....	315,891	96.7	100.0	46.1	1.1	33.0	19.8
Class I.....	22,481	99.0	100.0	18.7	0.6	17.5	63.3
II.....	82,089	98.2	100.0	36.8	0.7	32.8	29.7
III.....	92,167	97.5	100.0	45.6	1.1	37.7	15.6
IV.....	64,321	96.0	100.0	51.4	1.2	36.8	10.6
V.....	37,621	94.1	100.0	62.2	1.7	29.8	6.3
VI.....	17,212	91.2	100.0	73.7	1.4	21.7	3.2

¹ The specified week for which information on farm labor was obtained in the 1954 Census was as follows for the States included or partly included in the Corn Belt: September 26-October 2 for Minnesota, Wisconsin, Michigan, South Dakota, Nebraska, Kansas, and Kentucky; October 24-30 for Iowa, Illinois, Indiana, Ohio, and Missouri.

² Total of farms reporting hired workers and family workers and farms reporting hired workers only.

³ Livestock other than dairy and poultry farms.

off the farm and for work done by operators 65 years old and over. A farm operator was counted as a full man-equivalent unless he was 65 years old or over or unless he did some off-farm work in 1954. Farm operators 65 years of age and over were counted as 0.5 man-equivalent. Operators reporting specified amounts of off-farm work were converted to man-equivalents as follows:

<i>Days work off the farm</i>	<i>Man-equivalent</i>
1 to 99 days.....	0.85
100 to 199 days.....	.50
200 days or more.....	.15

Unpaid family workers, according to the Census, were members of the operator's family who did 15 or more hours of work on the farm during the week of September 26 to October 2 or during the week of October 24 to October 30, without receiving cash wages (see table 47, footnote 1). Each unpaid family worker reported by the Census was counted as 0.5 man-equivalent in the present study. This adjustment to man-equivalents takes into account the usually large proportion of women, children, and elderly persons in the unpaid family labor force.

The number of man-equivalents of hired workers was computed from the expenditure for hired wages reported in the Census. A composite average annual wage rate was determined for each economic subregion. In the Corn Belt the wage rates ranged from about \$1,600 to \$2,200. The total expenditure for hired labor in each subregion was divided by the estimated average annual wage rate in the subregion to obtain the man-equivalent number of hired workers.

The average quantity of all labor per commercial farm in the Corn Belt in 1954 was 1.3 man-equivalents. This amounts to the same as one man working full time at farmwork for a year and a second man working for about a third of the year. Most of the labor used was that of the farm operator (table 49). The labor of operators amounted to an average of 0.8 of a man-equivalent per farm, while the labor of unpaid family workers and of hired workers averaged 0.3 and 0.2 man-equivalents, respectively.

On the average, farm operators accounted for about two-thirds of all the labor resources on commercial farms in the Corn Belt in 1954. Unpaid members of the operator's family accounted for about a fourth, and hired workers for about a sixth of the work. The average quantity of total labor used per farm did not differ greatly between regions and types of farms in the Corn Belt. But it was highest on livestock farms in the Northern Corn Belt and lowest on cash-grain farms in the Eastern Corn Belt. Hired labor did not average more than 0.2 man-equivalent per farm in any region of the Corn Belt.

Large farms had more labor of all kinds than did small farms. The average quantity of total labor per commercial farm ranged from 2.4 man-equivalents on Class I cash-grain farms down to 0.8 man-equivalent on Class V and Class VI cash-grain farms and livestock farms (table 50). Classes IV, V, and VI farms had less operator labor as well as less unpaid family and hired labor per farm than that on Classes I, II, and III farms. Only on the large Class I farms did hired labor account for as much as half the labor used. On Class I cash-grain farms, hired labor averaged 1.2 man-equivalents per farm. On Classes IV, V, and VI farms, the quantity of hired labor was very small.

The factor 0.5 as a man-equivalent for unpaid family labor may be somewhat low. This may be especially true on farms where work is relatively light or highly mechanized. For jobs that are done by machine, a boy or girl or an elderly person can often accomplish practically as much as a man in the prime of life. The younger person generally requires more supervision than a mature person who is experienced. But many of the jobs on the farm are routine or mechanized, for example, feeding livestock, other livestock chores, milking cows, driving a tractor for plowing or cultivating, or hauling produce to market by automobile or

truck. It is believed, therefore, that the computed man-equivalent of unpaid family labor used in this study is rather conservative and that family labor is relatively even more important compared with hired labor than indicated by the data in tables 49 and 50. However, even if factors as much as a third larger had been used for unpaid family labor and for operators of age 65 and over, the estimated total labor per farm would have been increased by less than 0.2 of a man-equivalent. From the standpoint of labor used, it is clear that the typical farm in the Corn Belt is the family-sized farm.

TABLE 49.—LABOR FORCE OF FARM WORKERS EXPRESSED IN TERMS OF AVERAGE NUMBER OF MAN-EQUIVALENTS PER FARM, BY TYPE OF FARM, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Average number of man-equivalents per farm			
	Total labor	Operator labor	Unpaid family labor	Hired labor
Total Corn Belt:				
All commercial farms.....	1.3	0.8	0.3	0.2
Cash-grain farms.....	1.2	0.8	0.3	0.1
Livestock farms ¹	1.3	0.8	0.3	0.2
Eastern Corn Belt:				
All commercial farms.....	1.2	0.7	0.3	0.2
Cash-grain farms.....	1.0	0.7	0.2	0.1
Livestock farms ¹	1.1	0.7	0.2	0.2
Central Corn Belt:				
All commercial farms.....	1.3	0.8	0.3	0.2
Cash-grain farms.....	1.2	0.8	0.2	0.2
Livestock farms ¹	1.3	0.8	0.3	0.2
Northern Corn Belt:				
All commercial farms.....	1.4	0.8	0.4	0.2
Cash-grain farms.....	1.2	0.8	0.3	0.1
Livestock farms ¹	1.5	0.9	0.4	0.2
Western Corn Belt:				
All commercial farms.....	1.3	0.8	0.3	0.2
Cash-grain farms.....	1.2	0.8	0.3	0.1
Livestock farms ¹	1.3	0.8	0.3	0.2
Southern Corn Belt:				
All commercial farms.....	1.2	0.8	0.3	0.1
Cash-grain farms.....	1.1	0.8	0.2	0.1
Livestock farms ¹	1.2	0.8	0.3	0.1

¹ Livestock other than dairy and poultry farms.

TABLE 50.—LABOR FORCE OF FARM WORKERS, EXPRESSED IN TERMS OF AVERAGE NUMBER OF MAN-EQUIVALENTS PER FARM, BY TYPE AND ECONOMIC CLASS OF FARM, IN THE CORN BELT: 1954

Type and economic class of farm	Average number of man-equivalents per farm			
	Total labor	Operator labor	Unpaid family labor	Hired labor
All commercial farms.....	1.3	0.8	0.3	0.2
Cash-grain farms:				
Total.....	1.2	0.8	0.3	0.1
Class I.....	2.4	0.9	0.3	1.2
II.....	1.4	0.9	0.3	0.2
III.....	1.2	0.8	0.3	0.1
IV.....	1.0	0.7	0.2	(Z)
V.....	0.8	0.6	0.2	(Z)
VI.....	0.8	0.7	0.1	(Z)
Livestock farms: ¹				
Total.....	1.3	0.8	0.3	0.2
Class I.....	2.3	0.9	0.3	1.1
II.....	1.5	0.9	0.3	0.3
III.....	1.3	0.9	0.3	0.1
IV.....	1.2	0.8	0.3	0.1
V.....	0.8	0.6	0.2	(Z)
VI.....	0.8	0.7	0.1	(Z)

Z 0.05 percent or less.

¹ Livestock other than dairy and poultry farms.

CROP PRODUCTION

CROPS GROWN

Soils and climate of the Corn Belt are favorable for the production of a wide variety of crops. With the exception of cotton, tobacco, citrus fruits, and other crops which require a milder climate and a longer growing season, almost any temperate-zone crop can be grown successfully here. The principal crops that have been adopted by the farmers are corn, soybeans, oats, wheat, barley, rye, and a wide variety of hay and pasture crops. These crops have generally shown the relatively greatest advantage in terms of contribution of farm income.

On almost every farm at least 2 or 3 kinds of crops are produced every year. The combination of crops, or the principal crops, grown on a farm vary somewhat from one part of the Corn Belt to another. On some farms, there are fields where corn is grown for several years in succession without alternating with other crops; but most farmers try to follow some system of crop sequence or crop rotation in which a number of crops will be grown successively on the land over a series of years. Some of the typical cropping systems or crop rotations are the following: Corn, oats, meadow; corn, corn, oats, meadow; corn, corn, oats (with sweetclover); corn, soybeans, oats, meadow; corn, soybeans, wheat, meadow; corn, soybeans, wheat or oats. The meadow crop is used for pasture or hay. In frequent cases the meadow crop (which may be clover, alfalfa, or combinations of clovers and grasses) will occupy the land for 2 or 3 years. Sweetclover seeded with oats or with other small grain is grown primarily for plowing under for soil improvement.

Farms reporting specified crops.—Corn is the most widely grown crop in the Corn Belt. It was reported on 91 percent of all the commercial farms in 1954. About 92 percent of the corn acreage for all purposes was harvested for grain. The remainder was harvested for silage or fodder, or was hogged down or grazed. The acreages harvested for silage or fodder were generally largest relative to the total corn acreage near the fringes of the Corn Belt. For example, along the northern fringe, where dairy farms are relatively numerous, the percentage of the crop harvested for silage is relatively high.

Corn harvested for grain was reported on 87.6 percent of all the commercial farms in the Corn Belt in 1954 (table 51). The crop was produced for grain on 95.2 percent of the cash-grain farms and on 85.8 percent of the livestock farms. The proportion of farmers producing corn for grain was highest on cash-grain farms in the Central Corn Belt (98.9 percent), and lowest on livestock farms in the Southern Corn Belt (71.5 percent).

Soybeans have become a major crop in the Corn Belt during the last 20 years. The expansion of this crop has been tremendous (4, 8). Soybeans for beans now rank second only to corn in total value of production among crops in the Corn Belt. Soybeans harvested for beans were reported on 41.2 percent of all the commercial farms and on 65.5 percent of the cash-grain farms in 1954. In the Central Corn Belt, the area of heaviest concentration, 82.2 percent of the cash-grain farmers grew soybeans. They were grown by a considerably larger proportion of the cash-grain farmers than of the livestock farmers in all regions of the Corn Belt. This reflects the fact that soybeans are rather strictly a cash crop; practically the entire quantity is sold by the farmers. The Western Corn Belt had the smallest percentage of farmers reporting soybeans for beans. This part of the Corn Belt includes the western fringe of the area to which soybeans are adapted. The crop was reported on only 22.7 percent of the cash-grain farms and 12.4 percent of the livestock farms in this region. Only 2 percent of all the commercial farms reported soybeans cut for hay. The proportion was highest in the Southern Corn Belt and lowest in the Western Corn Belt.

Oats were harvested for grain on about 3 out of every 4 commercial farms in the Corn Belt in 1954. Oats are the most popular small grain used as a companion crop (sometimes referred to as nurse crop) for new seedings of clover, alfalfa, or of other legumes and grasses grown for forage or soil improvement. The oat crop is harvested in late June or early July, leaving the young legume and grass plants to grow and develop for later use as forage or for plowing under. In the Northern Corn Belt, oats for grain (threshed or combined) were reported by almost as many farmers as reported corn for grain. In other regions of the Corn Belt also oats were a leading crop, being found on 2 to 3 out of every 4 farms.

TABLE 51.—PERCENT OF FARMS REPORTING SPECIFIED CROPS, BY TYPE OF FARM, IN THE CORN BELT AND COMPONENT REGIONS:1954

Region and type of farm	Corn harvested for grain	Soybeans harvested for beans	Wheat threshed or combined	Oats threshed or combined	Barley threshed or combined	Rye threshed or combined	Soybeans cut for hay	Red clover seed harvested	Irish potatoes harvested	Vegetables harvested for sale	Land in fruit orchards, etc. ¹
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Total Corn Belt:											
All commercial farms.....	87.6	41.2	35.6	72.4	5.6	4.3	2.0	4.1	20.0	2.1	5.2
Cash-grain farms.....	95.2	65.5	50.1	72.2	5.4	5.1	1.8	4.8	15.0	2.1	3.6
Livestock farms ²	85.8	20.8	24.9	74.8	5.2	3.8	1.4	3.5	21.4	1.0	5.6
Eastern Corn Belt:											
All commercial farms.....	89.0	50.1	63.2	61.3	5.2	8.2	2.0	7.5	13.1	3.8	4.3
Cash-grain farms.....	97.3	74.7	73.1	62.1	3.9	9.3	2.3	9.0	10.6	3.1	3.1
Livestock farms ²	86.2	35.7	57.9	61.3	7.2	8.4	2.6	5.5	12.6	1.8	3.5
Central Corn Belt:											
All commercial farms.....	94.3	55.8	13.9	85.7	1.4	1.9	0.9	3.6	12.6	2.5	5.2
Cash-grain farms.....	98.9	82.2	23.9	85.6	1.5	2.4	1.1	3.6	9.1	2.6	4.0
Livestock farms ²	93.0	34.2	6.5	88.5	1.5	1.4	0.5	3.8	14.7	1.3	5.7
Northern Corn Belt:											
All commercial farms.....	94.2	39.8	7.5	90.8	7.6	1.4	0.5	2.7	18.0	3.2	2.9
Cash-grain farms.....	96.5	72.1	13.5	90.6	13.2	2.8	0.3	2.6	14.2	3.6	2.1
Livestock farms ²	94.4	25.2	4.6	92.0	5.4	0.9	0.4	3.0	17.1	1.7	3.1
Western Corn Belt:											
All commercial farms.....	89.2	15.7	37.2	72.6	4.8	3.6	0.3	1.6	23.2	0.6	4.8
Cash-grain farms.....	95.0	22.7	59.5	71.0	5.1	3.4	0.2	1.5	19.4	0.5	3.5
Livestock farms ²	87.7	12.4	23.1	75.3	4.5	3.6	0.3	1.9	24.4	0.3	5.1
Southern Corn Belt:											
All commercial farms.....	72.6	46.8	45.4	57.6	10.0	5.6	5.4	4.7	33.0	1.0	8.4
Cash-grain farms.....	84.5	79.1	66.8	56.0	9.6	7.0	5.4	6.4	28.5	0.8	4.8
Livestock farms ²	71.5	32.1	33.5	60.0	8.4	4.9	3.6	3.9	33.1	0.4	8.8

¹ Land in bearing and nonbearing fruit orchards, groves, vineyards, and planted nut trees.² Livestock other than dairy and poultry farms.

Wheat was produced on slightly more than a third of all the commercial farms in the Corn Belt. Most of this is winter wheat. Soft red winter wheat is the kind most generally grown in the Eastern and Southern Corn Belt and hard red winter wheat is grown mainly in the Central and Western Corn Belt. The range in percentage of farms reporting wheat was from 4.6 percent of the livestock farms in the Northern Corn Belt to 73.1 percent of the cash-grain farms in the Eastern Corn Belt. Wheat was a relatively unimportant small grain in comparison with oats in the Northern Corn Belt, but in the Eastern Corn Belt wheat was produced on more farms than was oats. The Northern Corn Belt is not well adapted to production of winter wheat, because of frequent losses from winter killing. On the other hand, this area is not as well adapted to spring wheat as the area to the northwest of the Corn Belt.

Barley was grown on relatively few farms, especially in the Central Corn Belt. In the Northern Corn Belt, which is the part best adapted to production of malting barley, 13.2 percent of the cash-grain farmers reported growing barley in 1954.

Rye was grown for grain on only 4.3 percent of the commercial farms and mainly in the eastern, southern, and western portions of the Corn Belt. On some additional farms rye was grown as a winter cover crop or for fall and spring pasture.

Flax was an important cash crop in the extreme northwestern part of the Corn Belt, particularly in Economic Subregion 87, in Minnesota and South Dakota. In this part of the Northern Corn Belt, flaxseed threshed or combined was reported in 1954 on more than half the farms in about a dozen counties.

Only 4.1 percent of the commercial farmers in the Corn Belt reported red clover seed harvested in 1954. The number of Corn Belt farmers producing red clover seed has declined as competition with seed producers in other parts of the country has increased. However, 9 percent of the cash-grain farms in the Eastern Corn Belt and 6.4 percent of the cash-grain farms in the Southern Corn Belt reported red clover seed harvested.

Irish potatoes were reported on a fifth of the commercial farms in the Corn Belt in 1954. Most of the potatoes grown in the Corn Belt are for household use on the farms where grown. Twenty years ago, more than half the farmers produced some potatoes for home use or for sale. During the last 20 years, potato production has become increasingly concentrated on farms of specialized growers in a relatively few areas in about a dozen States—all outside of the Corn Belt—while potato production as a small enterprise has been discontinued on a large proportion of farms throughout the country. Only in the Southern Corn Belt

did more than 25 percent of the farmers report potatoes harvested for home use or for sale, in 1954.

Vegetable production for sale was reported on only 2.1 percent of all the commercial farms in the Corn Belt. Sweet corn, tomatoes, watermelons, and green peas are some of the leading vegetable crops in terms of acreage and value of production. Farms reporting vegetables harvested for sale were relatively most numerous in the Eastern and Northern Corn Belt.

Land in fruit orchards, vineyards, and nut trees was reported on 5.2 percent of the commercial farms, not including those that had less than 20 trees or grapevines. Farmers reporting this item were found in small numbers throughout the Corn Belt, but were relatively fewest on cash-grain farms in all regions. The principal fruits grown were apples, grapes, peaches, pears, cherries, and plums. The principal nut trees were black walnuts and pecans.

On both the cash-grain and livestock farms larger percentages of the Classes I, II, and III farms than of the Classes IV, V, and VI farms produced corn for grain, soybeans for beans, and wheat, oats, barley, and rye for grain (table 52). In general, the percentage of farms reporting these crops declines from class to class as we go from Class I farms to Class VI farms. On cash-grain farms, corn harvested for grain was reported on 98.9 percent of the Class I farms, but on only 81.2 percent of the Class VI farms. On livestock farms, corn for grain was reported on 94.5 percent of the Class I farms and on only 48.8 percent of the Class VI farms. Only 34.5 percent of the Class VI cash-grain farms grew soybeans for beans and only 22.7 percent of the Class VI livestock farms grew oats for grain.

The relatively small proportions of Class V and Class VI farms reporting corn and other principal crops can be explained largely by the land-use pattern on these smaller income classes of farms. As shown above (table 27), these farms had a significantly smaller proportion of their total farm acreage in cropland harvested and a larger proportion in cropland used only for pasture, cropland neither harvested nor pastured, woodland pastured, and pasture other than cropland or woodland than was the case for the larger income classes of farms.

Soybeans cut for hay were reported on larger percentages of the Classes IV, V, and VI farms than of the Classes I, II, and III farms. This may have been related to the presence more frequently on the smaller farms of small tracts of cropland that are relatively inconvenient for combining or other grain harvesting operations. In other cases it may reflect a more frequent occurrence on small farms of insufficient quantities of perennial or biennial legume hays, such as alfalfa and clover.

TABLE 52.—PERCENT OF FARMS REPORTING SPECIFIED CROPS, BY ECONOMIC CLASS OF FARM, IN THE CORN BELT: 1954

Type and economic class of farm	Corn harvested for grain	Soybeans harvested for beans	Wheat threshed or combined	Oats threshed or combined	Barley threshed or combined	Rye threshed or combined	Soybeans cut for hay	Red clover seed harvested	Irish potatoes harvested	Vegetables harvested for sale	Land in fruit orchards, etc. ¹
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
All commercial farms.....	87.6	41.2	35.6	72.4	5.6	4.3	2.0	4.1	20.0	2.1	5.2
Cash-grain farms:											
Total.....	95.2	65.5	50.1	72.2	5.4	5.1	1.8	4.8	15.0	2.1	3.6
Class I.....	98.9	86.5	64.7	80.7	5.6	9.4	0.8	5.7	7.5	5.0	4.8
II.....	98.6	80.6	50.1	83.6	5.7	5.4	1.0	6.3	10.5	3.1	3.5
III.....	97.2	68.5	50.7	79.6	6.0	5.4	1.5	5.4	15.0	1.9	3.3
IV.....	94.4	57.5	52.7	67.7	5.4	4.8	2.1	4.4	16.9	1.4	3.8
V.....	88.2	49.3	47.1	49.8	4.0	4.6	3.1	2.6	18.9	1.6	3.8
VI.....	81.2	34.5	29.1	34.0	1.8	2.9	3.5	0.7	22.6	1.6	3.5
Livestock farms: ²											
Total.....	85.8	26.8	24.9	74.8	5.2	3.8	1.4	3.5	21.4	1.0	5.5
Class I.....	94.5	35.2	29.4	86.3	6.7	5.3	0.4	3.7	11.0	2.3	5.5
II.....	95.7	38.2	28.8	89.6	6.2	4.2	0.7	4.6	16.2	1.2	5.3
III.....	92.8	29.2	28.0	85.0	5.9	4.2	1.1	4.2	21.7	0.8	5.3
IV.....	82.8	20.6	24.5	70.2	4.9	3.6	1.9	3.0	24.9	0.6	5.8
V.....	65.9	11.9	16.0	45.2	3.0	2.9	2.8	1.5	20.7	0.8	6.2
VI.....	48.8	6.2	6.7	22.7	1.3	1.4	3.1	0.5	31.6	0.7	5.5

¹ Land in bearing and nonbearing fruit orchards, groves, vineyards, and planted nut trees.

² Livestock other than dairy and poultry farms.

The proportion of farms reporting potatoes increases consistently as we go from Class I to Class VI farms. For example, only 11 percent of the Class I livestock farms reported potatoes harvested, but 31.6 percent of the Class VI livestock farms reported this crop. This reflects the tendency of the smaller farms to be more self-sufficient from the standpoint of production for direct consumption by the farm household; it may also reflect the relatively more ample supply of family labor on many of these farms.

Cropland used for specified crops.—The pattern of distribution of corn acreage harvested for grain in the United States is shown in figure 23. There are large acreages in the Southern and South-eastern States, but the largest concentration is in the Corn Belt of the North Central States. There were 39,358,892 acres of

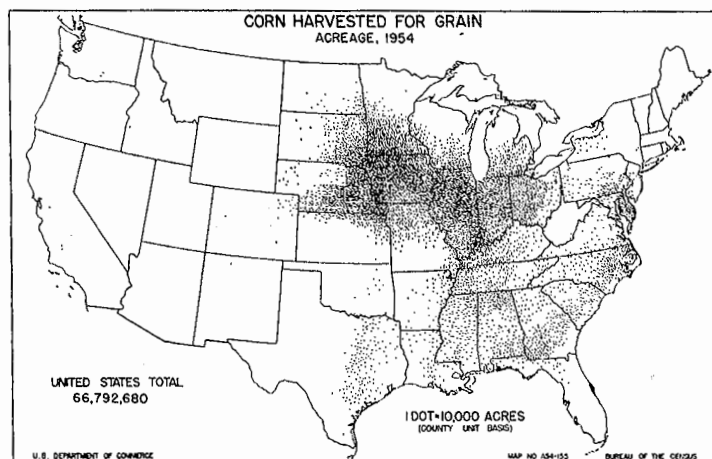


FIGURE 23.

corn harvested for grain on commercial farms in the Corn Belt in 1954. This was 62.1 percent of the 63,394,112 acres of corn harvested for grain on all commercial farms in the United States that year.

Almost a third of the total acreage of cropland in the Corn Belt was in corn harvested for grain, in 1954 (table 53). The proportion of all cropland used for this crop on livestock farms (32.4 percent) was only slightly smaller than the proportion (34.5 percent) so used on cash-grain farms. The percentage of cropland in corn for grain was greatest on cash-grain farms in the Central Corn Belt (39.7 percent) and smallest on livestock farms in the Southern Corn Belt (21.6 percent). In all regions except in the Northern Corn Belt the cash-grain farms had a slightly larger percentage of their cropland in corn for grain than did livestock farms. In the Northern Corn Belt the livestock farms had a slightly larger percentage of their cropland in corn for grain than did cash-grain farms, but the cash-grain farms had larger percentages in soybeans, wheat, and barley.

The distribution of soybean acreage harvested for beans in the United States is shown in figure 24. The large areas of acreage concentration of this crop are in the Corn Belt. Smaller areas, also important in soybean acreage and production, are the Mississippi Delta reaching from southeastern Missouri southward into Mississippi and Louisiana, and the Atlantic Coast area in North and South Carolina, Virginia, and Maryland. The Corn Belt had 11,773,052 acres of soybeans harvested for beans on commercial farms in 1954. This was 72.7 percent of the 16,189,376 acres of soybeans for beans on all commercial farms in the United States. As shown on the map, the areas of heaviest concentration within the Corn Belt are in east central Illinois, central Indiana, and northwestern Iowa and southwestern Minnesota.

TABLE 53.—PERCENT OF TOTAL CROPLAND IN SPECIFIED CROPS, BY TYPE OF FARM, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Corn harvested for grain	Soybeans harvested for beans	Wheat threshed or combined	Oats threshed or combined	Barley threshed or combined	Rye threshed or combined	Soybeans cut for hay	Red clover seed harvested	Land in fruit orchards, etc. ¹
Total Corn Belt:	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
All commercial farms.....	32.3	9.7	6.8	15.9	0.7	0.4	0.1	0.4	0.1
Cash-grain farms.....	34.5	16.3	10.0	13.6	0.7	0.4	0.1	0.4	(Z)
Livestock farms ²	32.4	4.7	4.2	17.8	0.6	0.4	0.1	0.3	0.1
Eastern Corn Belt:									
All commercial farms.....	32.3	13.4	11.3	9.3	0.5	0.7	0.2	0.9	0.2
Cash-grain farms.....	34.5	20.7	12.3	8.2	0.3	0.7	0.1	1.0	(Z)
Livestock farms ²	32.7	7.6	10.6	9.8	0.7	0.7	0.2	0.6	0.1
Central Corn Belt:									
All commercial farms.....	38.8	14.0	2.1	19.9	0.2	0.1	(Z)	0.3	(Z)
Cash-grain farms.....	39.7	21.0	3.5	17.6	0.2	0.2	(Z)	0.3	(Z)
Livestock farms ²	38.6	6.2	0.8	22.0	0.2	0.1	(Z)	0.4	0.1
Northern Corn Belt:									
All commercial farms.....	29.5	8.7	1.1	23.3	1.4	0.2	(Z)	0.2	(Z)
Cash-grain farms.....	29.8	16.5	2.1	21.8	2.4	0.4	(Z)	0.2	(Z)
Livestock farms ²	31.8	4.2	0.6	24.1	0.9	0.1	(Z)	0.2	(Z)
Western Corn Belt:									
All commercial farms.....	34.6	2.4	9.4	17.0	0.6	0.4	(Z)	0.1	(Z)
Cash-grain farms.....	35.8	3.7	16.5	13.4	0.6	0.4	(Z)	0.1	(Z)
Livestock farms ²	34.2	1.5	4.5	19.5	0.6	0.5	(Z)	0.1	(Z)
Southern Corn Belt:									
All commercial farms.....	22.1	13.5	8.7	9.4	1.2	0.4	0.4	0.5	0.2
Cash-grain farms.....	25.9	23.8	12.8	7.1	1.0	0.5	0.3	0.6	0.1
Livestock farms ²	21.6	7.4	5.6	10.9	1.1	0.4	0.3	0.4	0.1

Z 0.05 percent or less.

¹ Land in bearing and nonbearing fruit orchards, groves, vineyards, and planted nut trees.² Livestock other than dairy and poultry farms.

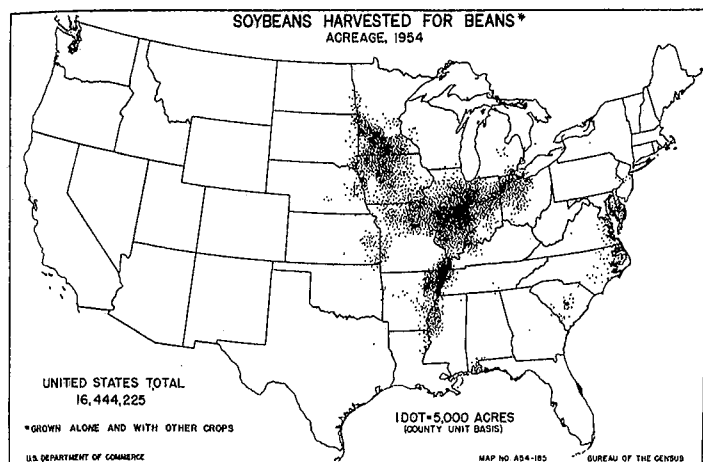


FIGURE 24.

Increases in soybean acreage and production have been a striking development in American agriculture during the last 30 years. In 1924 less than 2 million acres of soybeans were grown for all purposes and only a fourth of this acreage was harvested for beans (4). But the acreage increased gradually until 1934, and after that at a more rapid rate. At the same time, the proportion of the acreage harvested for beans increased from 25 percent in 1925 to 94 percent in 1956. The acreage harvested for beans in 1956 was estimated at 20.9 million acres (6, 1956). In 1954, soybeans for beans ranked sixth in acreage harvested and seventh in total value of production among all crops in the United States (6, 1955; 7). This rapid increase was made possible by the program of developing and testing improved varieties, by the development of markets for soybean oil and meal, and by the expansion of the soybean processing industry (4). It was encouraged also by the Government agricultural programs restricting the acreage of corn.

In the Corn Belt as a whole 9.7 percent of the total cropland on all commercial farms was in soybeans harvested for beans in 1954 (table 53). On cash-grain farms 16.3 percent of the cropland was in this crop. Livestock farms had smaller percentages of their cropland in soybeans than did cash-grain farms, but the livestock farms had a larger proportion of their cropland in oats. The Central Corn Belt had the largest proportion of cropland in soybeans and the Western Corn Belt had the smallest. Mainly because of the relatively low rainfall, the high summer temperatures, and the drying winds, soybeans are relatively less well adapted to the Western Corn Belt than are wheat and corn. Cash-grain farmers in the Central Corn Belt used 21.9 percent of their cropland for soybeans. At the other extreme were the livestock farmers in the Western Corn Belt, who used only 1.5 percent of their cropland for this crop.

The distribution of acreage of oats threshed or combined in the United States in 1954 is shown in figure 25. Oats are grown throughout most of the country, but especially in the northern half. The largest area of rather concentrated production is in the North Central States. Commercial farms in the Corn Belt had 19,343,798 acres of oats harvested for grain in 1954. This was 51.8 percent of the total acreage of oats threshed or combined on all commercial farms in the United States.

Oats harvested for grain (threshed or combined) were grown on 15.9 percent of the total cropland on all commercial farms in the Corn Belt in 1954 (table 53). This crop was second only to corn in total acreage harvested. Oats occupied a larger proportion of the cropland on livestock farms than on cash-grain farms. The largest proportion of cropland in oats was on livestock farms in the Northern Corn Belt; the smallest proportion was on cash-grain

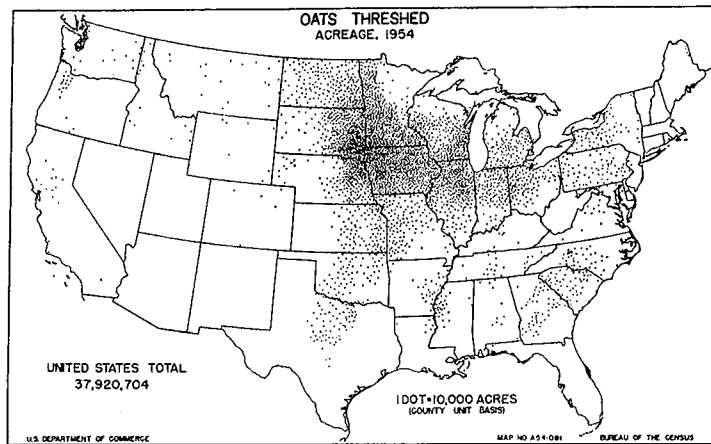


FIGURE 25.

farms in the Southern Corn Belt. The proportion of cropland in oats was exceeded by that in soybeans in the Southern Corn Belt and by that in wheat as well as in soybeans in the Eastern Corn Belt. Most of the oats produced are fed to livestock on the farms where the crop is grown. On some farms, especially on cash-grain farms, not all the oats produced are needed for feed, so a large proportion of the crop is sold.

Most of the wheat acreage in the United States is in the Great Plains and in other western States, but wheat is also an important crop in the Corn Belt (fig. 26). Commercial farms in the Corn Belt harvested 8,283,849 acres of wheat for grain in 1954. This was 16.4 percent of the 50,582,348 acres harvested for grain on all commercial farms in the United States. The proportion of total production in the Corn Belt was still greater because yields per acre of wheat averaged higher in the Corn Belt than in the rest of the country. The Corn Belt accounted for 23.2 percent of the total production of wheat on all commercial farms in the United States in 1954.

Wheat harvested for grain was grown on 6.8 percent of the cropland on commercial farms in the Corn Belt in 1954 (table 53). The proportion of total cropland used for wheat was highest in the Eastern Corn Belt and lowest in the Northern Corn Belt. A larger percentage of the cropland was used for wheat on cash-grain farms than on livestock farms. This was especially true in the Western and Southern Corn Belt. In the Western Corn Belt, for example, 16.5 percent of the cropland on cash-grain farms was in wheat, whereas only 4.5 percent of the cropland on livestock farms was in this crop.

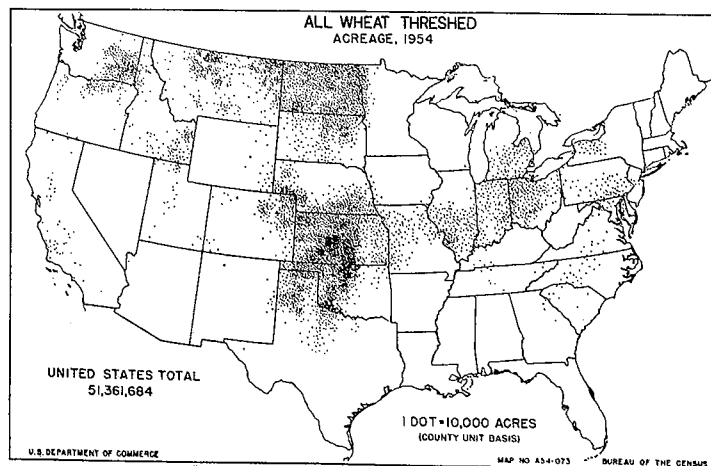


FIGURE 26.

Barley and rye for grain each occupied less than 1 percent of the cropland on commercial farms in this belt in 1954. The largest proportion of cropland in barley was on cash-grain farms in the Northern Corn Belt (2.4 percent), while the largest proportion in rye (0.7 percent) was on commercial farms in the Eastern Corn Belt. The smallest percentages of cropland in either barley or rye were in the Central Corn Belt.

Red clover seed was harvested on only 0.4 percent of the cropland on these commercial farms in 1954. The acreage from which red clover seed was harvested ranged from about 1 percent of the cropland in the Eastern Corn Belt to 0.1 percent of the cropland in the Western Corn Belt.

Alfalfa is the most important hay crop in the Corn Belt. In 1954, a total of 8,265,755 acres of alfalfa and alfalfa mixtures were cut for hay on the commercial farms. This was 31.8 percent of the total acreage of alfalfa and alfalfa mixtures cut for hay on all farms in the United States. The distribution of acreage of alfalfa cut for hay in 1954 is shown in figure 27. Most of the acreage is in the northern and western States. The large areas of heaviest concentration of acreage are in the dairy region of the Lake States, in the Northern and Western Corn Belt, and in the Central Valley of California. In the Corn Belt, alfalfa cut for hay in 1954 occupied 6.8 percent of all the cropland on commercial farms. The areas with the largest percentages of cropland in alfalfa were in northwestern Illinois, southwestern Wisconsin, eastern Iowa, and southeastern Nebraska. Most of the alfalfa crop was grown on livestock farms, but a large proportion was grown on cash-grain farms, for example, in southeastern Nebraska.

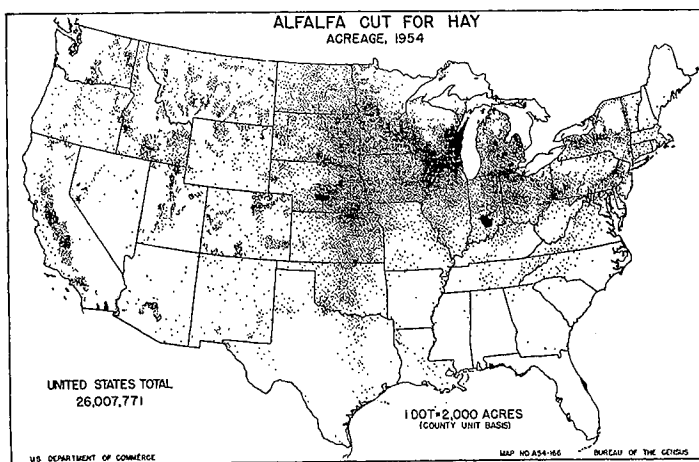


FIGURE 27.

Clover, timothy, and mixtures of clover and grasses constitute the second most important hay crop in the Corn Belt. A total of 5,368,928 acres of this hay crop was harvested on the commercial farms in the Corn Belt in 1954. This was 31.7 percent of the acreage on all farms in the United States. Most of the acreage of clover or timothy cut for hay in the country as a whole is in the North Central and Northeastern States (fig. 28). In the Corn Belt, clover, timothy, and mixtures of clover and grasses cut for hay occupied 4.4 percent of the cropland on commercial farms in that year. The smallest percentage of cropland in this hay crop was in the Western Corn Belt. The relatively heaviest areas of acreage concentration were on livestock farms in northeastern and southern Iowa and in the northeastern part of Missouri.

Averages per farm reporting for principal crops.—The percentage of farms reporting various crops in the Corn Belt has been discussed above. Data have been presented also on the acreage of cropland used for the different crops. From the standpoint of proportion of cropland utilized, as well as from the standpoint of

percentage of farms reporting, the leading crops are corn, oats, soybeans, and wheat, with soybeans ranking second to corn in total value of production.

In order to show more clearly the scale of crop production on individual farms in the different regions of the Corn Belt and in order to make comparisons between types and economic classes of farms, data for the four principal crops are given on a per-farm-reporting basis in the following tables.

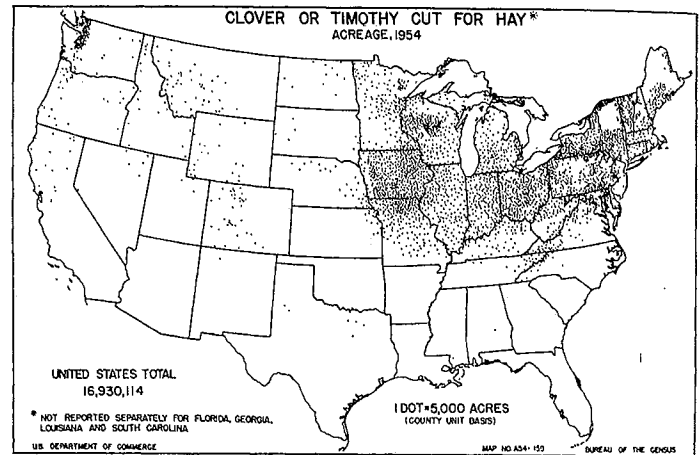


FIGURE 28.

The average acreage of corn harvested for grain per farm reporting in the Corn Belt in 1954 was 56 acres (table 54). On cash-grain farms the average was 65 acres, and on livestock farms 58 acres. In appraising these acreages it is helpful to keep in mind that cash-grain farms averaged larger than livestock farms in terms of acreage of cropland harvested (table 25). Cash-grain farms in the Western Corn Belt had the largest acreage of corn per farm reporting (83 acres), and livestock farms in the Southern Corn Belt had the smallest acreage (38 acres). In the Eastern Corn Belt the acreage of corn per farm reporting was almost as large on livestock farms as it was on cash-grain farms. However, corn was reported on a larger percentage of the cash-grain farms than of the livestock farms (see table 51).

TABLE 54.—AVERAGE ACREAGE OF PRINCIPAL CROPS PER FARM REPORTING, BY TYPE OF FARM, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Corn harvested for grain	Soybeans harvested for beans	Wheat threshed or combined	Oats threshed or combined
	Acres	Acres	Acres	Acres
Total Corn Belt:				
All commercial farms.....	56	36	29	34
Cash-grain farms.....	65	45	36	34
Livestock farms ¹	58	27	25	36
Eastern Corn Belt:				
All commercial farms.....	43	32	21	18
Cash-grain farms.....	49	38	23	18
Livestock farms ¹	48	27	23	20
Central Corn Belt:				
All commercial farms.....	67	41	24	38
Cash-grain farms.....	75	50	27	39
Livestock farms ¹	64	28	19	30
Northern Corn Belt:				
All commercial farms.....	49	35	23	40
Cash-grain farms.....	59	44	30	46
Livestock farms ¹	51	26	20	40
Western Corn Belt:				
All commercial farms.....	74	29	48	45
Cash-grain farms.....	83	37	61	42
Livestock farms ¹	72	22	36	48
Southern Corn Belt:				
All commercial farms.....	40	38	25	21
Cash-grain farms.....	50	50	31	21
Livestock farms ¹	38	30	21	23

¹ Livestock other than dairy and poultry farms.

The average acreage of soybeans harvested for beans per commercial farm reporting was 36 acres, the average for cash-grain farms was 45 acres, and for livestock farms, 27 acres. Cash-grain farms had substantially larger acreages of soybeans than did livestock farms in all regions. The acreage of soybeans per farm reporting was as large on cash-grain farms in the Southern Corn Belt as in the Central Corn Belt, and almost as large in the Northern Corn Belt. Since nearly all farmers had corn and a large percentage in every region had soybeans, it is evident that the acreage of intertilled crops (row crops) approaches or exceeds 100 acres on many farms.

In general, the acreage of wheat threshed or combined per farm reporting was smaller than the acreage of soybeans. In the Western Corn Belt, however, acreages of wheat per farm were substantially larger than acreages of soybeans. Cash-grain farms had larger acreages of wheat than did livestock farms except in the Eastern Corn Belt where the average was 23 acres on both types.

Livestock farms generally had somewhat larger acreages of oats than did cash-grain farms. However, in the Central Corn Belt the average oat enterprise on both types of farms was 39 acres, and in the Northern Corn Belt it was largest on the cash-grain farms.

A look at the average acreages of the principal crops on the different economic classes of farms gives a clearer mental picture of the relative sizes of these farms and the general scale of their crop operations. Class I cash-grain farms averaged 196 acres of corn per farm reporting, while Class II farms averaged 97 acres, and Class III farms, 64 acres (table 55). The average acreage of corn per farm reporting declined consistently with economic class to an average of only 20 acres on Class VI cash-grain farms. On livestock farms the pattern was similar, although the average acreages of corn were substantially smaller on the Classes I, II, and III livestock farms than they were on these classes of the cash-grain farms. With soybeans, wheat, and oats—as with corn—the pattern is consistent. The average acreage of these crops per farm reporting declines as we proceed from Class I to Class VI, reflecting the strong correlation between income size (economic class) of farm and the acreage size of the principal crop enterprises. Economic Class V cash-grain farms had an average of less than 30 acres of corn, 20 acres of soybeans, and less than 20 acres of wheat or oats per farm reporting these crops. The contrast in average size of operations on Class V farms and Class II farms is striking. Obviously, farm incomes must be relatively very low on the Class V farms and even lower on the Class VI farms.

TABLE 55.—AVERAGE ACREAGE OF PRINCIPAL CROPS PER FARM REPORTING, BY TYPE AND ECONOMIC CLASS OF FARM, IN THE CORN BELT: 1954

Type and economic class of farm	Corn harvested for grain	Soybeans harvested for beans	Wheat threshed or combined	Oats threshed or combined
	Acres	Acres	Acres	Acres
All commercial farms.....	56	36	29	34
Cash-grain farms:				
Total.....	65	45	36	34
Class I.....	196	135	91	68
II.....	97	63	51	44
III.....	64	40	36	34
IV.....	43	28	25	25
V.....	29	20	16	17
VI.....	20	15	12	14
Livestock farms: ¹				
Total.....	58	27	25	36
Class I.....	122	54	56	61
II.....	74	32	32	44
III.....	53	22	22	35
IV.....	38	16	16	27
V.....	29	13	13	18
VI.....	19	10	10	14

¹ Livestock other than dairy and poultry farms.

The quantity of grain produced per farm reporting is another useful measure of the size of farm business. It comes a step closer to indicating the potential income than does the acreage of crops. The average quantity of corn produced in 1954 per commercial farm reporting this crop in the Corn Belt was 2,624 bushels (table 56). In most regions of the Corn Belt the cash-grain farms produced somewhat more corn per farm than the livestock farms, but the differences between types were smaller than the differences between the averages per commercial farm in different regions. Corn production per farm was largest in the Central Corn Belt and smallest in the Southern Corn Belt, but in all regions corn production stands out as the big crop enterprise.

TABLE 56.—QUANTITY PRODUCED PER FARM REPORTING CROP HARVESTED, FOR PRINCIPAL CROPS, BY TYPE OF FARM IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Corn	Soybeans	Wheat	Oats
	Bushels	Bushels	Bushels	Bushels
Total Corn Belt:				
All commercial farms.....	2,624	793	737	1,216
Cash-grain farms.....	2,995	1,006	898	1,190
Livestock farms ¹	2,729	604	648	1,344
Eastern Corn Belt:				
All commercial farms.....	2,489	765	617	789
Cash-grain farms.....	2,729	902	674	777
Livestock farms ¹	2,839	660	663	906
Central Corn Belt:				
All commercial farms.....	3,872	1,074	759	1,480
Cash-grain farms.....	4,224	1,308	856	1,446
Livestock farms ¹	3,836	750	564	1,576
Northern Corn Belt:				
All commercial farms.....	2,779	727	265	1,495
Cash-grain farms.....	3,158	935	332	1,635
Livestock farms ¹	3,107	562	245	1,555
Western Corn Belt:				
All commercial farms.....	2,528	609	988	1,372
Cash-grain farms.....	2,737	833	1,268	1,231
Livestock farms ¹	2,591	540	725	1,525
Southern Corn Belt:				
All commercial farms.....	1,082	556	727	773
Cash-grain farms.....	1,365	755	937	741
Livestock farms ¹	1,112	460	607	848

¹ Livestock other than dairy and poultry farms.

The volume of soybean production per farm on the farms reporting this crop indicates the generally substantial scale of this cash-crop enterprise, especially in the Central Corn Belt. Even on livestock farms in the Southern Corn Belt the average production per farm reporting was 460 bushels. At 1954 season average prices, 460 bushels had a value of about \$1,100. The volume of wheat produced per farm reporting exceeded the volume of soybeans produced per farm that reported soybeans, in the Western and Southern Corn Belt, but it was much smaller than soybean production per farm in the Central and Northern Corn Belt. The volume of oat production per farm reporting ranks second only to that of corn throughout the Corn Belt. The average size of the oat crop per farm reporting ranged from 741 bushels on cash-grain farms in the Southern Corn Belt to 1,635 bushels on cash-grain farms in the Northern Corn Belt.

Quantities shown in table 56 provide a generalized down-on-the-farm picture of the volume of crops available for sale or for feeding. They also help to explain the popularity of mechanical harvesting machinery and trucks as labor-saving equipment on Corn Belt farms. In addition, they indicate the scale of farm-storage buildings needed for crops that are to be fed on the farm, and for cash crops if these are to be held on the farm for a period before marketing.

The average volume of production of principal crops on different economic classes of farms provides a comparison of the relative sizes of these farms that is even more vivid than the average acreage comparisons made above. The average quantity of corn produced per farm reporting was 11,617 bushels on Class I cash-grain farms (table 57). This was more than 20 times as large as the average crop of corn on Class VI cash-grain farms that harvested

TABLE 57.—QUANTITY PRODUCED PER FARM REPORTING FOR PRINCIPAL CROPS, BY ECONOMIC CLASS OF FARM IN THE CORN BELT: 1954

Type and economic class of farm	Corn	Soybeans	Wheat	Oats
	<i>Bushels</i>	<i>Bushels</i>	<i>Bushels</i>	<i>Bushels</i>
All commercial farms.....	2,624	793	737	1,216
Cash-grain farms:				
Total.....	2,995	1,006	898	1,190
Class I.....	11,617	3,737	2,724	2,988
II.....	5,162	1,567	1,377	1,708
III.....	2,753	842	873	1,142
IV.....	1,560	490	562	751
V.....	890	291	367	602
VI.....	523	169	258	387
Livestock farms: ¹				
Total.....	2,729	604	648	1,344
Class I.....	7,077	1,460	1,682	2,714
II.....	3,852	762	847	1,722
III.....	2,298	435	532	1,198
IV.....	1,307	266	352	822
V.....	806	161	250	535
VI.....	490	116	104	377

¹ Livestock other than dairy and poultry farms.

corn for grain. The volume of corn produced per farm reporting on Class II cash-grain farms was more than 3 times as great as that on Class IV cash-grain farms. The volume of each of the 4 principal crops produced per farm declines consistently as we go from Class I farms to Class VI farms, for livestock farms as well as for cash-grain farms. It can readily be seen, for example, that feed-grain production on Classes IV, V, and VI livestock farms provides a relatively small base for feeding operations compared with the scale of production on the Classes I, II, and III farms.

YIELDS PER ACRE

Average yields of corn per acre in the United States in 1954, on a county unit basis, are shown in figure 29. The largest area of yields averaging 60 bushels and over is in the North Central States. Most of this area is within the Corn Belt. It extends to the north of the Corn Belt in southern Wisconsin. Other areas of corn yields of 60 bushels and over are mainly in the irrigated sections of the West. In a large portion of the Northeast region to the east of the Corn Belt, yields of corn averaged from 40 to 59 bushels. Yields in the Southern and Western Corn Belt are significantly lower than those in the Central, Eastern, and Northern Corn Belt. The highest yields in the Corn Belt were obtained in the areas that had the most favorable combinations of fertile soil, adequate moisture, and warm summer temperature. Yields were considerably below average in the southern and southwestern parts of the Corn Belt in 1954 because of damage to the crop in those areas by severe drought. The average yield of corn per acre in the United States was 39.1 bushels.

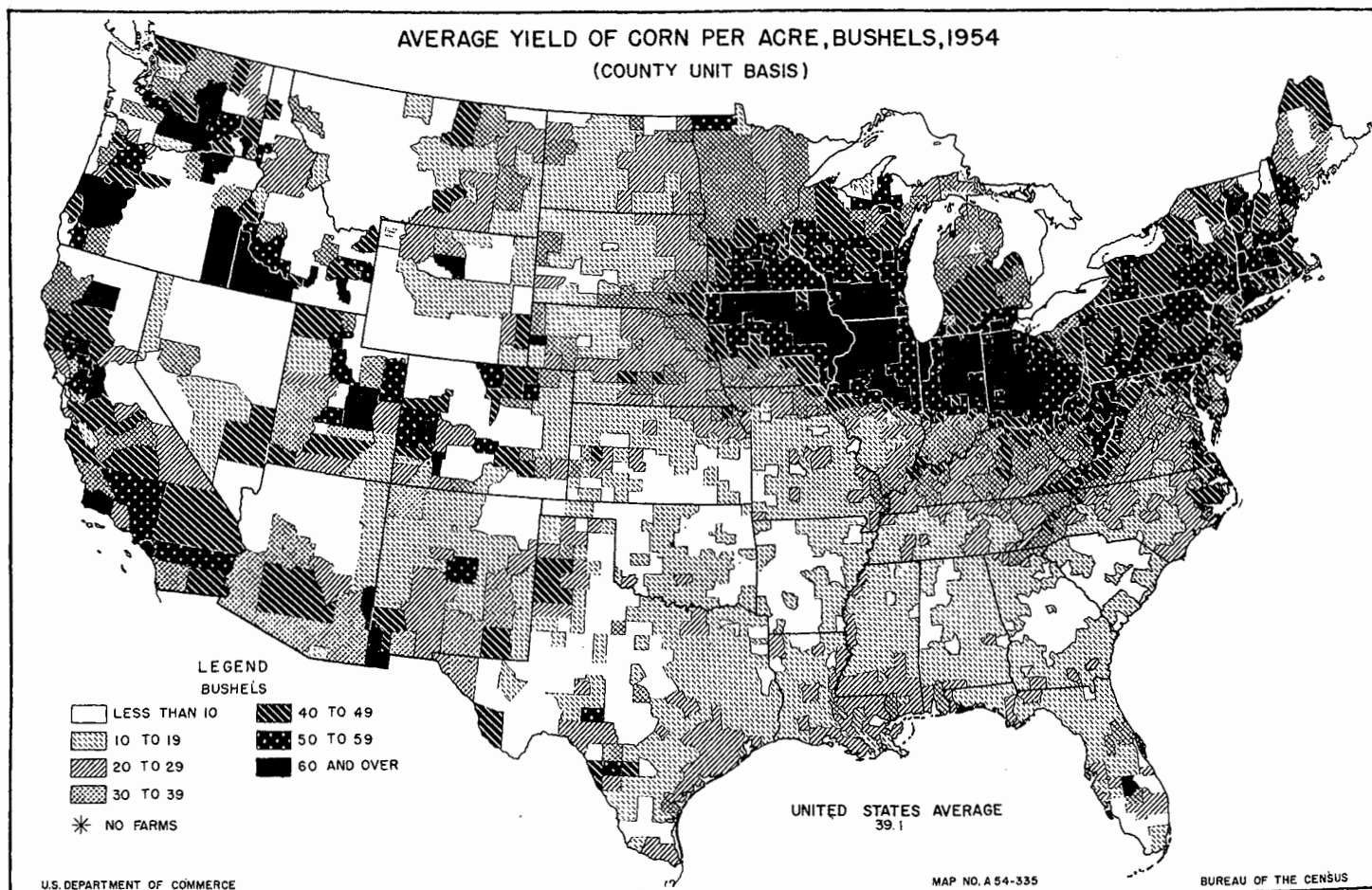


FIGURE 29.

The average yields per acre harvested for grain in 1954 for the 4 principal crops on all commercial farms in the Corn Belt were as follows: Corn, 46.6 bushels; soybeans, 22.1 bushels; wheat, 25.3 bushels; and oats, 36.3 bushels (table 58). The largest yields of corn were obtained in the Central Corn Belt (57.4 bushels), but yields in the Eastern and Northern Corn Belt were almost as high. Corn yields averaged only 27.2 bushels in the Southern Corn Belt, or less than half of those in the Central, Eastern, and Northern Corn Belt.

TABLE 58.—AVERAGE YIELD PER ACRE HARVESTED OF PRINCIPAL CROPS, BY TYPE OF FARM IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Corn harvested for grain	Soybeans harvested for beans	Wheat threshed or combined	Oats threshed or combined
	<i>Bushels</i>	<i>Bushels</i>	<i>Bushels</i>	<i>Bushels</i>
Total Corn Belt:				
All commercial farms.....	46.6	22.1	25.3	36.3
Cash-grain farms.....	46.1	22.5	25.2	35.4
Livestock farms ¹	47.4	22.3	25.4	37.0
Eastern Corn Belt:				
All commercial farms.....	57.2	23.8	28.9	43.6
Cash-grain farms.....	56.0	23.6	29.1	43.0
Livestock farms ¹	59.4	24.5	29.2	45.5
Central Corn Belt:				
All commercial farms.....	57.4	26.2	31.0	38.9
Cash-grain farms.....	56.0	26.1	31.5	37.4
Livestock farms ¹	59.5	26.8	29.4	40.8
Northern Corn Belt:				
All commercial farms.....	57.1	21.4	11.3	37.6
Cash-grain farms.....	53.6	21.4	11.0	35.6
Livestock farms ¹	60.4	21.8	12.2	38.7
Western Corn Belt:				
All commercial farms.....	34.1	23.3	20.5	30.7
Cash-grain farms.....	32.8	22.8	20.7	29.4
Livestock farms ¹	35.8	24.3	20.1	31.8
Southern Corn Belt:				
All commercial farms.....	27.2	14.8	29.1	36.0
Cash-grain farms.....	27.1	15.2	29.8	35.3
Livestock farms ¹	28.9	15.5	28.6	36.7

¹ Livestock other than dairy and poultry farms.

Yields of soybeans and wheat also were highest in the Central Corn Belt. The lowest average yield of soybeans was in the Southern Corn Belt (14.8 bushels), and the lowest average yield of wheat was in the Northern Corn Belt (11.3 bushels). The average yield of oats was highest in the Eastern Corn Belt (43.6 bushels), and lowest in the Western Corn Belt (30.7 bushels).

In every region of the Corn Belt the average yields of corn, soybeans, and oats were higher on livestock farms than on cash-grain farms in the respective regions. This appears to reflect a generally higher level of fertility of soils on livestock farms, brought about by the more frequent use of legumes and meadow crops in crop rotations, and by larger and more regular applications of livestock manure.

Yields of wheat averaged slightly higher on livestock farms than on cash-grain farms in the Corn Belt as a whole, but wheat yields were higher on cash-grain farms than on livestock farms in the Central, Western, and Southern Corn Belt. This may indicate that on livestock farms in these regions wheat was not given as high a priority among crops in the choice of land as it was given on cash-grain farms.

Yields per acre of the principal crops are strikingly correlated with economic class of farm (table 59). Yields are highest on the Class I farms, somewhat lower (but still above average) on the Class II farms, somewhat below average on the Class III farms, and so on down to the Class VI farms, which had the lowest yields. The higher levels of yield on the economic classes of farms with

larger income, coupled with the larger acreages of the principal crops on these farms, intensify the relative income-producing power of these farms. The higher yields on the larger income economic classes of farms are caused in part by the relatively high level of natural fertility of soils on these farms, but perhaps to a larger extent they are the result of superior management practices, heavier application of fertilizer, and other improved production techniques.

TABLE 59.—AVERAGE YIELD PER ACRE HARVESTED OF PRINCIPAL CROPS, BY TYPE AND ECONOMIC CLASS OF FARM, IN THE CORN BELT: 1954

Type and economic class of farm	Corn harvested for grain	Soybeans harvested for beans	Wheat threshed or combined	Oats threshed or combined
	<i>Bushels</i>	<i>Bushels</i>	<i>Bushels</i>	<i>Bushels</i>
All commercial farms.....	46.6	22.1	25.3	36.3
Cash-grain farms:				
Total.....	46.1	22.5	25.2	35.4
Class I.....	59.2	27.8	40.4	44.1
II.....	53.1	25.0	27.0	38.8
III.....	43.2	21.0	24.1	33.9
IV.....	35.9	17.7	22.5	30.6
V.....	31.2	14.6	22.7	29.0
VI.....	25.6	11.5	21.3	27.1
Livestock farms: ¹				
Total.....	47.4	22.3	25.4	37.0
Class I.....	58.0	26.7	28.3	44.6
II.....	52.2	23.9	26.8	39.6
III.....	43.7	19.8	24.2	34.5
IV.....	36.4	18.3	22.0	30.8
V.....	30.0	12.6	19.9	29.2
VI.....	25.5	11.2	19.2	27.6

¹ Livestock other than dairy and poultry farms.

CROP SALES

The value of crops sold from commercial farms in the Corn Belt in 1954 was approximately 2.5 billion dollars. This was about a fifth of the total value of crops sold by all commercial farms in the United States that year. Sales of crops accounted for somewhat more than a third of the total value of all farm products sold by commercial farms in the Corn Belt.

Crops contributing the largest share of receipts from crops sold in the Corn Belt are corn, soybeans, wheat, and oats. Sales of corn and oats are made by farmers who grow more of these feed crops than is needed on their farms. Most of the cash-grain farms as well as the livestock farms have some livestock. The average size of herds or flocks is generally smaller on cash-grain farms than on livestock farms. Soybeans for beans are grown as a cash crop on all farms that grow them. Wheat is grown primarily as a cash crop on both livestock and cash-grain farms. Differences between cash-grain and livestock farms as to sales of crops produced are reflected by the percentages of crops sold (table 60).

TABLE 60.—QUANTITY SOLD AS A PERCENTAGE OF TOTAL PRODUCTION, FOR SPECIFIED CROPS IN THE CORN BELT, BY TYPE OF FARM: 1954

Type of farm	Percentage of crops sold						
	Corn	Wheat	Oats	Barley	Rye	Alfalfa hay	Clover-timothy hay ¹
All commercial farms.....	41.5	90.4	25.9	35.3	63.1	10.3	6.4
Cash-grain farms.....	71.5	92.7	49.2	58.1	70.1	16.9	12.2
Livestock farms ²	14.9	87.5	12.4	17.7	67.7	6.3	3.1

¹ Clover, timothy, and mixtures of clover and grasses cut for hay.

² Livestock other than dairy and poultry farms.

In 1954, 41.5 percent of the corn grown on commercial farms in the Corn Belt was sold. On cash-grain farms the quantity sold was 71.5 percent of the crop produced, but on livestock farms only 14.9 percent of the corn crop was sold. Some of the corn is sold directly to other farmers in the community who need more feed, but most of the sales are made to local elevators and other buyers who, in turn, sell to farmers, terminal market buyers, or to commercial feed mixers. In recent years considerable quantities have been sold to the Government. Eventually, the major portion of all the corn sold is fed to livestock.

An estimated 96 percent of the total crop of soybeans produced on commercial farms in the Corn Belt in 1954 was sold. A small part of the crop was kept for seed on the farms where grown, but a large share of the seed used by farmers is of improved varieties grown by a relatively few certified seed growers and other producers. Less than 1 percent of the soybeans produced in the Corn Belt are fed directly to livestock. By far the largest part of the crop is sold for processing into oil and meal. The major uses of soybean oil are in the production of shortening, margarine, and other edible products; some soybean oil is used in paints and varnishes and other nonfood products. Most of the soybean meal is used for livestock feed. Soybean meal is the leading protein concentrate feed in the United States and large quantities are used on livestock farms in the Corn Belt.

About 90 percent of the wheat produced on commercial farms in the Corn Belt in 1954 was sold. Cash-grain farmers sold 92.7 percent of their production and livestock farmers 87.5 percent. Most of the wheat used for feed in the belt is fed to poultry.

A smaller percentage of the rye than of the wheat produced was sold (63.1 percent), but the difference between types of farms was greater in the case of rye. A relatively large percentage of the rye is kept for seed on the farms where grown, to be used for seeding rye for cover crop, green manure, or supplementary pasture, as well as for grain. About a fourth of the oat crop and a little more than a third of the barley crop were sold. Cash-grain farms sold a larger proportion of their production of these crops than did livestock farms.

Only relatively small percentages of the principal hay crops—alfalfa hay and clover-timothy hay—were sold on either cash-grain or livestock farms, but the percentage sold was larger on the cash-grain farms. This was true also for lespedeza hay, small-grain hay, and other hay.

In 1954, corn accounted for 43.7 percent, soybeans for 25.3 percent, wheat for 16 percent, and oats for 5 percent of the total value of all crops sold on commercial farms in the Corn Belt (table 61). Sales of all other crops accounted for only 10 percent

of the total farm receipts from crops sold. Corn accounted for more than half of the total value of all crops sold in the Central Corn Belt. Also, in the Northern and Western Corn Belt the value of corn sales amounted to almost half of the value of all crops sold. In the Southern Corn Belt, however, sales of soybeans and wheat were relatively greater than sales of corn, on both livestock and cash-grain farms. In the Eastern Corn Belt the value of corn sold was larger than that of either soybeans or wheat on cash-grain farms, but it was less than the value of either soybeans or wheat sold on livestock farms. Sales of oats made up a relatively small percentage of the total value of all crops sold in all regions. Oats were relatively most important as a cash crop in the Northern Corn Belt and relatively least important in the Southern and Eastern Corn Belt. Other crops which accounted for a total of 10 percent of the value of crops sold on all commercial farms were relatively most important in the Northern Corn Belt and relatively least so in the Central Corn Belt.

TABLE 61.—PERCENTAGE DISTRIBUTION OF VALUE AMONG CROPS SOLD, BY TYPE OF FARM, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Percentage distribution of value of—					
	All crops sold	Corn sold	Soybeans sold	Wheat sold	Oats sold	Other crops sold
Total Corn Belt:						
All commercial farms.....	100.0	43.7	25.3	16.0	5.0	10.0
Cash-grain farms.....	100.0	48.7	26.7	14.7	4.8	5.1
Livestock farms ¹	100.0	36.2	28.1	21.4	6.2	8.1
Eastern Corn Belt:						
All commercial farms.....	100.0	37.7	26.7	20.5	2.7	12.4
Cash-grain farms.....	100.0	47.0	29.5	16.7	3.1	3.7
Livestock farms ¹	100.0	18.3	32.1	39.4	2.4	7.8
Central Corn Belt:						
All commercial farms.....	100.0	54.2	31.7	4.5	5.9	3.7
Cash-grain farms.....	100.0	55.6	32.3	4.9	5.5	1.7
Livestock farms ¹	100.0	50.2	33.9	3.8	7.5	4.6
Northern Corn Belt:						
All commercial farms.....	100.0	48.7	26.6	1.4	8.1	15.2
Cash-grain farms.....	100.0	51.6	27.8	1.5	8.6	10.5
Livestock farms ¹	100.0	46.2	30.5	1.6	8.5	13.2
Western Corn Belt:						
All commercial farms.....	100.0	47.3	8.7	25.7	5.9	12.4
Cash-grain farms.....	100.0	49.7	8.1	27.9	5.0	9.3
Livestock farms ¹	100.0	45.2	12.3	24.6	8.5	9.4
Southern Corn Belt:						
All commercial farms.....	100.0	18.0	34.0	33.2	2.8	12.0
Cash-grain farms.....	100.0	23.9	36.6	30.5	2.7	6.3
Livestock farms ¹	100.0	11.2	37.5	38.9	3.0	9.4

¹ Livestock other than dairy and poultry farms.

USE OF COMMERCIAL FERTILIZER AND LIME

COMMERCIAL FERTILIZER

Fertilizers are applied to land for the purpose of improving the growth and increasing the yields of crops. Fertilizers contain one or more plant nutrients or elements that are needed by growing plants. Soils contain these same elements but often they are not present or available in sufficient quantity for best plant growth and yield. Hence, commercial fertilizers, barnyard manure, straw, and other fertilizing materials are applied to supplement the available nutrients in the soil.

The three major plant nutrients sold in commercial fertilizers are nitrogen, phosphorus, and potassium. Fertilizers may contain one, two, or all three of these elements and, in addition, they may contain calcium and/or some minor nutrients. Some of the common fertilizers containing nitrogen are ammonium nitrate, ammonium sulfate, and anhydrous ammonia. Among commercial fertilizers containing phosphorus the most widely used is superphosphate; others are finely ground phosphate rock, colloidal phosphate, and calcium metaphosphate. Muriate of potash is the most common fertilizer that supplies potassium. Mixed fertilizers contain two or all three of the major nutrients in various proportions. Soil tests and observation of growing plants are useful in indicating the particular mixture or proportion of nutrients that will give best results on a given soil for a given crop. The most profitable rate of application (pounds per acre) of fertilizer varies with the relative prices of the fertilizer and of the crop fertilized as well as with the yield response obtained from increasing quantities of fertilizer applied per acre.

Use of commercial fertilizer by farmers in the United States expanded greatly during the last 20 years. The proportion of all

farms reporting expenditures for commercial fertilizer and fertilizing material increased from 38.9 percent in 1939 to 44 percent in 1944 and 61 percent in 1954. In the North Central States the quantity of fertilizer used increased nearly three-fold during the 1941-50 decade (3). In some parts of this region the rate of increase was much greater than this. For example, the quantity of fertilizer used in Iowa increased from 9,000 tons in 1938 to over 600,000 tons in 1953 (1). The introduction of improved varieties of corn, the existence of relatively favorable fertilizer-crop price ratios, the increased knowledge of fertilizer use and soil management, and the improved capital position of farmers during this period contributed greatly to the expansion in fertilizer use in the Corn Belt. About two-thirds of the total fertilizer nutrients used in the belt is in the form of mixtures. In 1954, the commercial farms in the Corn Belt accounted for a fourth of the total expenditure for commercial fertilizer and fertilizing material by all commercial farms in the United States.

The percentage of farms reporting expenditures for commercial fertilizer in the United States, on a county basis, is shown in figure 30. The areas having the highest percentages of farms using commercial fertilizer are mainly in the eastern half of the country and particularly in the southern and southeastern States. Commercial fertilizer was used also by a large proportion of the farmers in irrigated areas of the West. In the Corn Belt, the highest percentage of farmers using commercial fertilizer was found in the eastern part. The proportion of farmers reporting expenditures for fertilizer ranged from more than 80 percent in parts of the Eastern and Northern Corn Belt to less than 10 percent in parts of the Western Corn Belt.

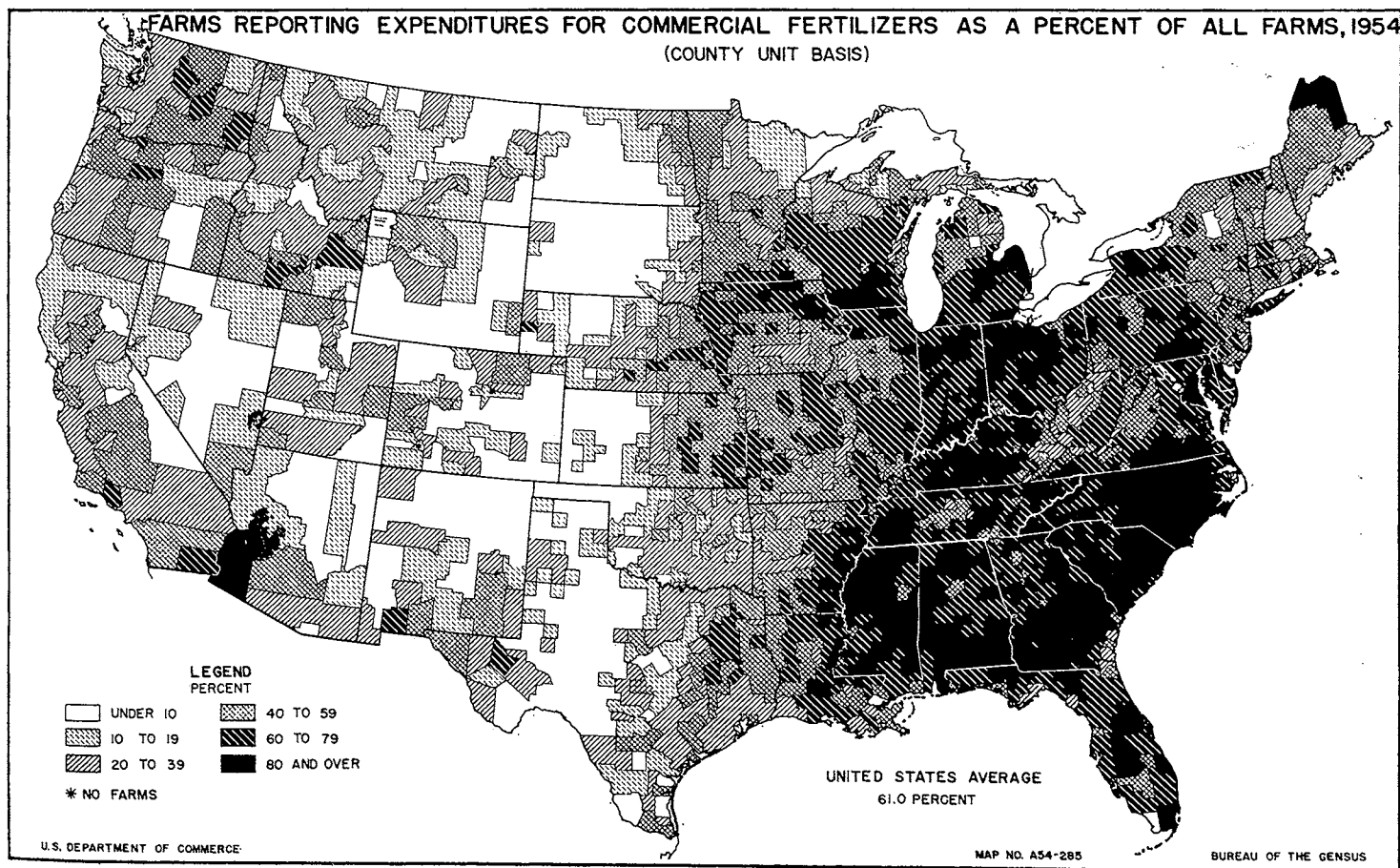


FIGURE 30.

Type of soil, amount and distribution of precipitation, and length of time the land has been farmed, are basic factors explaining the differences in kinds and quantities of commercial fertilizer used in different parts of the Corn Belt. The soils in the Eastern Corn Belt are relatively low in organic matter and native fertility, they are more acid, and they are more leached than are soils in most of the rest of the Corn Belt. Losses of available plant nutrients from leaching and cropping have been relatively greater in soils of the Eastern Corn Belt than in soils to the west and north because of the greater annual precipitation, the more open winters, and the longer time the land has been farmed. The prairie soils of the Central and Northern Corn Belt are generally high in organic matter and they are deeper, have a higher level of native fertility, and are less leached than are soils of the Eastern Corn Belt. Soils of the Southern Corn Belt generally have less organic matter, they are not as deep, and have less porous subsoils, and they are naturally less fertile than soils in most of the Central Corn Belt. The soils of the Western Corn Belt are generally well supplied with plant nutrients, including calcium, and they are often alkaline in reaction. Loss of native fertility has been at a relatively low rate in soils of the Western Corn Belt. There has been relatively little leaching. Moreover, losses from cropping have been rather light as the yields have been relatively low because of limited rainfall.

In the Corn Belt, the soil areas of relatively greatest deficiency in plant nutrients are in the eastern and southern regions. In these regions the precipitation is greater than in most of the rest of the Corn Belt so the supply of moisture does not limit the yield response to applications of fertilizer as often as it does in other parts. Nitrogen is used throughout the Corn Belt, and constitutes a higher percentage of the total fertilizer used in the western half than in the eastern half of the Corn Belt. Phosphate also is used in all parts, but the relatively greatest use is in the eastern half. Potash is used relatively little in the Western Corn Belt because of the high level of available potassium in most of the soils there. Potash is used relatively more in the Eastern and Southern Corn Belt and to an intermediate extent in the Northern and Central Corn Belt (3).

In the 1954 Census, the inquiry on fertilizer included all fertilizer purchased or to be purchased during the calendar year 1954 for use on the farm, whether bought by the operator or by the landlord, or jointly. Soil conditioners—such as lime, marl, and gypsum—were not to be included as commercial fertilizers or fertilizing materials. Also not to be included were barnyard manure, straw, and other refuse materials. No specific mention was made of basic slag, and this item was not considered to be a fertilizing material by many farmers and enumerators in the Corn Belt. The acreage fertilized was to be counted only once even if fertilizer was applied more than once to the same crop during 1954. The total tonnage used was to be reported whether applied in one or in more than one application.

Two out of every three commercial farms in the Corn Belt reported expenditures for commercial fertilizer and fertilizing material in 1954. A slightly larger percentage of the cash-grain farms than of the livestock farms in the Corn Belt as a whole reported this expenditure (table 62). In the Northern Corn Belt, the larger percentage of livestock farms than of cash-grain farms reporting commercial fertilizer may be explained by the fact that most of the livestock farms are in the eastern part, while most of the cash-grain farms are in the western part. The relatively lower level of native fertility of much of the soil in the eastern part,

along with the more ample supply of moisture compared with the western part of this region, results in a more marked response from applications of commercial fertilizer in the eastern part of the Northern Corn Belt.

Commercial fertilizer was most widely used by farmers in the Eastern Corn Belt, where expenditures for this item were reported on 88.1 percent of the commercial farms. The area ranking second was the Southern Corn Belt with 68.8 percent of the commercial farms reporting such expense. Only half of the commercial farms in the Western Corn Belt reported expenditures for fertilizer and fertilizing material.

Corn is the crop on which commercial fertilizer was most commonly used. It was used on corn by 56.7 percent of the commercial farms in the Corn Belt. The contrast in fertilizer use from east to west is shown by the percentage of cash-grain farms reporting, which ranged from 87.8 percent in the Eastern Corn Belt to 38.0 percent in the Western Corn Belt.

Use of commercial fertilizer on hay and pasture was reported by a larger proportion of the livestock farms than of the cash-grain farms in each region of the Corn Belt. This is partly a reflection of the more common occurrence of hay and pasture crops on livestock farms and partly a reflection of the greater importance placed on these crops by operators of livestock farms. Relatively very few farmers reported using commercial fertilizer on fruits, vegetables, and potatoes.

TABLE 62.—PERCENT OF ALL COMMERCIAL FARMS REPORTING EXPENDITURES FOR COMMERCIAL FERTILIZER AND USE OF COMMERCIAL FERTILIZER ON SPECIFIED CROPS, BY TYPE OF FARM, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Percent of all commercial farms						
	Farms reporting expenditures for commercial fertilizer and fertilizing material	Farms reporting commercial fertilizer used—					
		On hay and crop-land pasture	On other pasture	On corn	On wheat	On fruits, vegetables, and potatoes	On other crops
Total Corn Belt:							
All commercial farms.....	66.5	12.9	2.9	56.7	(NA)	1.3	(NA)
Cash-grain farms.....	68.8	9.9	1.9	59.6	(NA)	1.0	(NA)
Livestock farms ¹	65.4	14.5	3.5	55.8	(NA)	0.6	(NA)
Eastern Corn Belt:							
All commercial farms.....	88.1	16.0	3.4	82.7	(NA)	3.4	(NA)
Cash-grain farms.....	92.7	10.8	2.2	87.8	(NA)	2.5	(NA)
Livestock farms ¹	86.9	19.6	4.5	83.2	(NA)	1.8	(NA)
Central Corn Belt:							
All commercial farms.....	61.3	13.1	1.8	51.4	(NA)	0.6	(NA)
Cash-grain farms.....	64.4	12.0	1.6	54.2	(NA)	0.5	(NA)
Livestock farms ¹	61.2	13.8	2.1	51.8	(NA)	0.2	(NA)
Northern Corn Belt:							
All commercial farms.....	63.9	11.7	1.7	57.3	(NA)	0.7	(NA)
Cash-grain farms.....	54.3	11.3	0.8	46.7	(NA)	0.4	(NA)
Livestock farms ¹	71.6	12.5	1.9	65.8	(NA)	0.4	(NA)
Western Corn Belt:							
All commercial farms.....	50.2	10.6	3.4	38.3	12.7	0.3	20.5
Cash-grain farms.....	49.3	6.8	2.3	38.0	19.1	0.2	16.7
Livestock farms ¹	52.5	13.0	4.2	40.9	8.4	0.2	23.6
Southern Corn Belt:							
All commercial farms.....	68.8	12.8	3.8	54.3	34.8	1.3	30.2
Cash-grain farms.....	74.4	8.3	2.3	61.1	47.4	0.8	27.0
Livestock farms ¹	67.2	14.8	4.4	53.2	27.4	0.8	31.3

NA Not available.

¹ Livestock other than dairy and poultry farms.

Larger proportions of the farms in the higher economic classes than of the farms in the lower economic classes reported using commercial fertilizer. This was true in the case of each of the crops or groups of crops for which the information was obtained, on both the cash-grain and the livestock farms (table 63). For example, 77.0 percent of the Class I livestock farms reported using commercial fertilizer on corn, compared with 24.7 percent of the Class VI livestock farms.

TABLE 63.—PERCENT OF ALL COMMERCIAL FARMS REPORTING EXPENDITURES FOR COMMERCIAL FERTILIZER AND USE OF COMMERCIAL FERTILIZER ON SPECIFIED CROPS, BY TYPE AND ECONOMIC CLASS OF FARM, IN THE CORN BELT: 1954

Type and economic class of farm	Percent of all commercial farms						
	Farms reporting expenditures for commercial fertilizer and fertilizing material	Farms reporting commercial fertilizer used—					
		On hay and cropland pasture	On other pasture	On corn	On wheat	On fruits, vegetables, and potatoes	On other crops
All commercial farms.....	66.5	12.9	2.9	56.7	(NA)	1.3	(NA)
Cash-grain farms:							
Total.....	68.8	9.9	1.9	59.6	(NA)	1.0	(NA)
Class I.....	88.4	18.5	4.2	81.4	(NA)	2.1	(NA)
II.....	80.9	15.9	2.6	71.7	(NA)	1.3	(NA)
III.....	69.0	10.0	2.0	59.7	(NA)	0.9	(NA)
IV.....	62.2	6.5	1.5	52.9	(NA)	0.7	(NA)
V.....	60.8	5.1	1.2	51.2	(NA)	0.8	(NA)
VI.....	48.0	2.8	0.3	38.3	(NA)	0.9	(NA)
Livestock farms: ¹							
Total.....	65.4	14.5	3.5	55.8	(NA)	0.6	(NA)
Class I.....	84.9	23.6	5.9	77.0	(NA)	1.2	(NA)
II.....	80.2	19.7	4.4	70.6	(NA)	0.7	(NA)
III.....	69.0	14.9	3.6	58.8	(NA)	0.6	(NA)
IV.....	56.8	10.7	2.9	46.5	(NA)	0.5	(NA)
V.....	45.6	8.9	2.3	35.7	(NA)	0.5	(NA)
VI.....	31.0	5.0	1.3	24.7	(NA)	0.5	(NA)

NA Not available.

¹ Livestock other than dairy and poultry farms.

Commercial fertilizer was applied on 30.2 percent of all the cropland on commercial farms in the Corn Belt in 1954 (table 64). The percentage of cropland fertilized was highest in the Eastern Corn Belt (56.5 percent), and lowest in the Western Corn Belt (18.0 percent). There was relatively little difference between cash-grain farms and livestock farms in the percentage of cropland fertilized, except in the Northern Corn Belt where 29 percent of the cropland on livestock farms was fertilized compared with about 19 percent of the cropland on cash-grain farms. (Again, this situation in the Northern Corn Belt reflects the predominance of livestock farms in the eastern part and of cash-grain farms in the western part of the Northern Corn Belt.) Corn acreage accounted for half, or more than half, of the acreage fertilized in every region of the Corn Belt. In the Southern Corn Belt, about half of the acreage fertilized was in corn; in the Central Corn Belt about two-thirds; and in the Northern Corn Belt about three-fourths of the fertilized acreage was in corn. Of the total tonnage of fertilizer used on all crops, the proportion used on corn ranged from 49.3 percent in the Southern Corn Belt to 67.6 percent in the Northern Corn Belt.

In the Corn Belt as a whole only slightly more than half of the corn acreage was fertilized, but this practice differed considerably between regions, ranging from 91.7 percent of the corn acreage on

commercial farms in the Eastern Corn Belt down to 28.8 percent in the Western Corn Belt.

The average quantity of fertilizer applied per acre on corn, on all commercial farms in the Corn Belt, was 208 pounds (table 64). The average quantity applied per acre on all crops was 220 pounds. The quantity of fertilizer applied per acre on corn averaged highest on livestock farms in the Eastern Corn Belt (270 pounds), and lowest on cash-grain farms in the Western Corn Belt (148 pounds). In the Central and Northern Corn Belt, quantities of fertilizer applied per acre on other crops averaged higher than quantities applied on corn; but in the Eastern, Western, and Southern Corn Belt the rate of application on corn was about the same as on other crops.

TABLE 64.—USE OF COMMERCIAL FERTILIZER AND FERTILIZING MATERIAL ON COMMERCIAL FARMS, BY TYPE OF FARM, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Total acres fertilized as a percentage of total cropland	Acres of corn fertilized as a percentage of total acres fertilized	Acres of corn fertilized as a percentage of corn acreage for all purposes	Fertilizer used on corn as a percentage of total tons of fertilizer used	Quantity of fertilizer used per acre (pounds)	
					Average for total acres fertilized	Average for corn fertilized
Total Corn Belt:						
All commercial farms.....	30.2	59.1	51.1	56.3	220	208
Cash-grain farms.....	30.5	59.7	51.1	57.9	220	214
Livestock farms ¹	29.4	60.9	49.8	58.3	218	208
Eastern Corn Belt:						
All commercial farms.....	56.5	54.4	91.7	54.2	254	254
Cash-grain farms.....	55.7	55.5	88.5	56.2	244	246
Livestock farms ¹	59.2	55.9	95.6	56.7	266	270
Central Corn Belt:						
All commercial farms.....	26.8	66.7	44.6	59.9	240	214
Cash-grain farms.....	27.6	66.6	45.7	59.9	258	232
Livestock farms ¹	26.4	67.8	44.1	61.2	222	200
Northern Corn Belt:						
All commercial farms.....	24.2	74.8	55.5	67.6	184	166
Cash-grain farms.....	18.6	75.0	45.0	70.7	182	172
Livestock farms ¹	29.0	78.0	63.8	71.4	184	168
Western Corn Belt:						
All commercial farms.....	18.0	58.5	28.8	58.3	158	158
Cash-grain farms.....	17.6	60.2	28.9	61.5	144	148
Livestock farms ¹	18.9	58.7	29.8	58.2	168	166
Southern Corn Belt:						
All commercial farms.....	33.4	50.7	59.4	49.3	212	208
Cash-grain farms.....	35.3	52.0	61.4	51.3	200	196
Livestock farms ¹	31.7	52.1	57.3	51.1	228	224

¹ Livestock other than dairy and poultry farms.

As with the percentage of farms reporting, the percentage of total cropland fertilized declines as we go from Class I to Class VI farms (table 65). Commercial fertilizer was used on 43.3 percent of the cropland on Class I cash-grain farms but on only 21.5 percent of the cropland on Class VI cash-grain farms. Corn represented close to two-thirds of the total acreage fertilized on all economic classes of farms. But the three lower economic classes fertilized a smaller proportion of their corn acreage than did the three higher economic classes. Also, in general, the quantities of fertilizer used per acre on corn and other crops were smaller on the lower economic classes of farms. For example, the average rate of application on corn was 186 pounds on Class VI livestock farms, compared with 242 pounds on Class I livestock farms.

TABLE 65.—USE OF COMMERCIAL FERTILIZER AND FERTILIZING MATERIAL ON COMMERCIAL FARMS, BY TYPE AND ECONOMIC CLASS OF FARM, IN THE CORN BELT: 1954

Type and economic class of farm	Total acres fertilized as a percentage of total cropland	Acres of corn fertilized as a percentage of total acres fertilized	Acres of corn fertilized as a percentage of corn acreage for all purposes	Fertilizer used on corn as a percentage of total tons of fertilizer used	Quantity of fertilizer used per acre (pounds)	
					Average for total acres fertilized	Average for corn fertilized
All commercial farms.....	30.2	59.1	51.1	56.3	220	208
Cash-grain farms:						
Total.....	30.5	59.7	51.1	57.9	220	214
Class I.....	43.3	60.3	69.6	61.7	266	272
II.....	34.3	60.7	57.3	58.7	230	222
III.....	27.3	59.1	45.9	56.4	202	200
IV.....	25.2	57.6	41.7	55.2	200	192
V.....	27.1	59.1	46.3	56.5	206	200
VI.....	21.5	65.1	39.4	61.7	208	196
Livestock farms: ¹						
Total.....	29.4	60.9	49.8	58.3	218	208
Class I.....	39.7	62.3	62.9	61.3	246	242
II.....	33.0	61.2	54.1	58.7	214	206
III.....	25.8	60.4	43.9	56.7	204	192
IV.....	21.5	59.4	38.8	55.2	208	192
V.....	20.4	57.8	39.2	53.3	216	198
VI.....	18.2	62.8	42.5	57.8	204	186

¹ Livestock other than dairy and poultry farms.

LIME

Much of the land in the Corn Belt requires liming to correct soil acidity and to furnish available calcium for growing crops. Lime applied to acid soil also improves the physical condition of the soil, steps up the efficiency of fertilizers and manures applied, and increases the availability of phosphorus in the soil (11). Liming is particularly necessary on some soils for successful production of legume crops such as alfalfa, red clover, and sweet-clover. The quantity of lime used in the Corn Belt in 1954 was more than double the quantity used in 1939.

Lime and liming materials in the 1954 Census enumeration were to include ground limestone, hydrated and burnt lime, marl, oyster shells, and other forms of lime. All lime and liming materials purchased or to be purchased during the calendar year 1954 for use on the farm were to be included whether paid for by the operator, or by the landlord, or jointly. Lime used under the Agricultural Conservation Program was to be included. All lime used for sprays or for sanitation purposes was to be excluded. Gypsum was not included or counted as a liming material.

The proportion of farms reporting expenditures for lime and liming material in 1954 is shown on a county-unit basis for the United States in figure 31. In the western half of the country, lime was used on relatively few farms. In the eastern half, the percentage of farms reporting expenditures for lime ranged from less than 5 percent in many counties to 40 percent or more in some

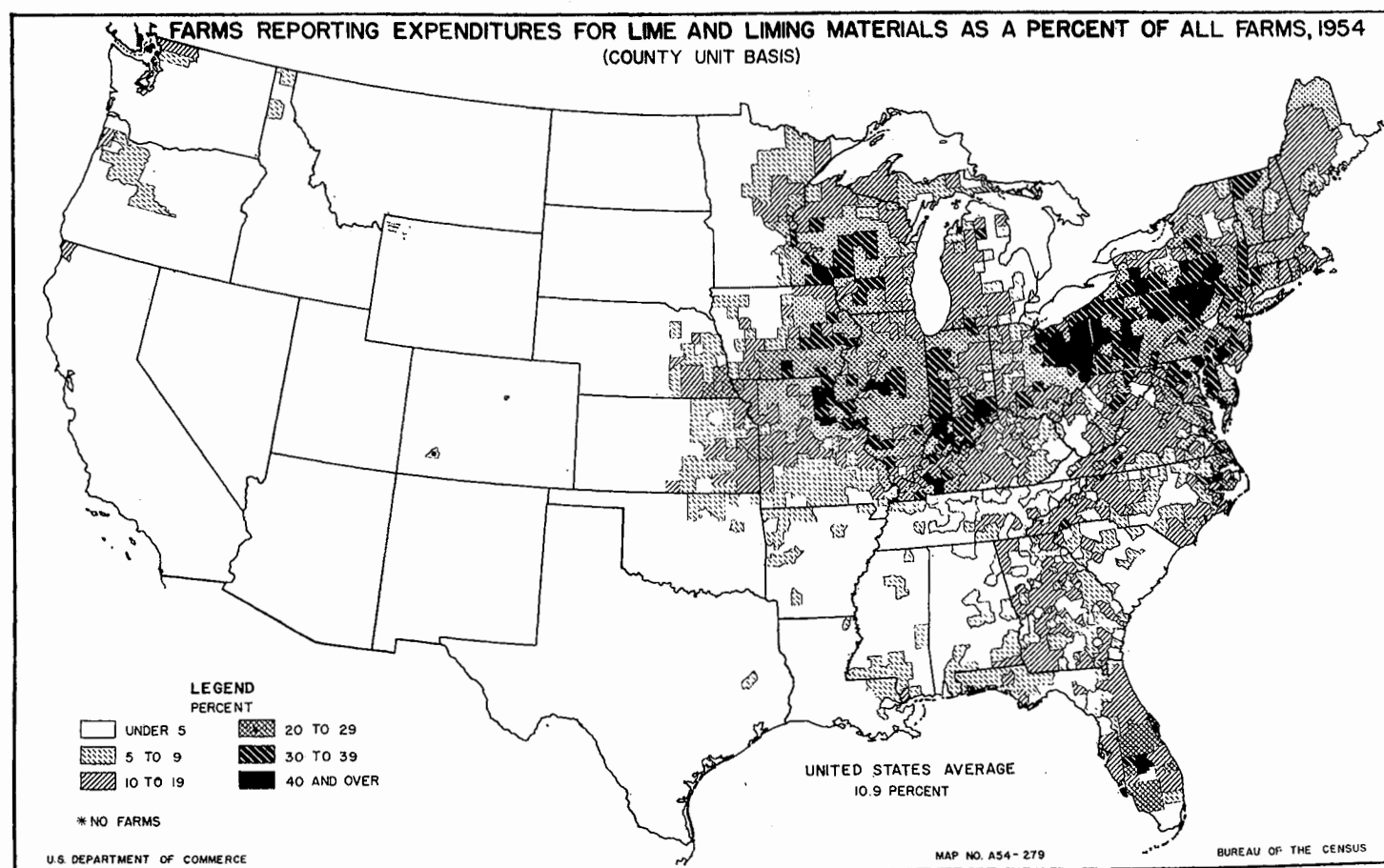


FIGURE 31.

counties. The area of most dense concentration of farms using lime was to the east of the Corn Belt, mainly in eastern Ohio, western and northern Pennsylvania, and southern New York. In the Corn Belt, most of the counties with relatively large percentages of the farms reporting expenditures for lime and liming material were in the eastern and southern areas. In the Western Corn Belt there were relatively few counties in which more than 10 percent of the farms reported this expenditure.

In the Corn Belt as a whole, 19 percent of the commercial farms reported expenditures for lime and liming material in 1954 (table 66). Slightly more than a fourth of the commercial farms in the Southern and Eastern Corn Belt and about a fifth of those in the Central Corn Belt reported this item. The smallest proportions of farms using lime were among the cash-grain farms of the Northern and Western Corn Belt.

TABLE 66.—USE OF LIME AND LIMING MATERIAL ON COMMERCIAL FARMS, BY TYPE OF FARM, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Percent of commercial farms reporting expenditures for lime and liming material	Acres limed as a percentage of total cropland	Average quantity of lime and liming material used per acre limed (tons)
Total Corn Belt:			
All commercial farms.....	19.0	3.0	2.1
Cash-grain farms.....	17.8	2.7	2.1
Livestock farms ¹	20.9	3.5	2.1
Eastern Corn Belt:			
All commercial farms.....	26.1	5.1	1.9
Cash-grain farms.....	24.4	4.3	1.9
Livestock farms ¹	31.6	6.6	1.9
Central Corn Belt:			
All commercial farms.....	20.1	3.5	2.1
Cash-grain farms.....	20.1	3.3	2.1
Livestock farms ¹	22.2	3.9	2.2
Northern Corn Belt:			
All commercial farms.....	13.9	2.0	2.5
Cash-grain farms.....	6.5	0.9	2.4
Livestock farms ¹	18.7	2.8	2.5
Western Corn Belt:			
All commercial farms.....	7.7	1.1	1.8
Cash-grain farms.....	6.4	0.8	1.8
Livestock farms ¹	8.7	1.3	1.8
Southern Corn Belt:			
All commercial farms.....	26.8	4.6	2.2
Cash-grain farms.....	27.0	4.0	2.3
Livestock farms ¹	28.7	5.4	2.1

¹ Livestock other than dairy and poultry farms.

Only 3 percent of the cropland on commercial farms in the Corn Belt was limed in 1954. On livestock farms in the Eastern Corn Belt 6.6 percent, and on livestock farms in the Southern Corn Belt 5.4 percent of the cropland was limed that year. But these percentages indicate that liming is an important farm practice in these areas, for after a field has been limed it usually does not have to be relimed for 6 to 10 years or more.

The average quantity of lime or liming material used per acre limed was 2.1 tons. The heaviest applications, on the average, were made in the Northern Corn Belt and the lightest in the Western Corn Belt.

Expenditures for lime and liming material were reported by larger proportions of the higher economic classes than of the lower economic classes of farms (table 67). About a third of the Class I farms reported using lime, compared with about a tenth of the Class VI farms. The percentage of cropland limed in 1954 did not show any particular relation to economic class except that the largest percentage of acreage limed was on the Class I farms. Rates of application per acre on Class V and Class VI farms appeared to be only slightly smaller than the average for all commercial farms.

TABLE 67.—USE OF LIME AND LIMING MATERIAL ON COMMERCIAL FARMS, BY TYPE AND ECONOMIC CLASS OF FARM, IN THE CORN BELT: 1954

Type and economic class of farm	Percent of commercial farms reporting expenditures for lime and liming material	Acres limed as a percentage of total cropland	Average quantity of lime and liming material used per acre limed (tons)
All commercial farms.....	19.0	3.0	2.1
Cash-grain farms:			
Total.....	17.8	2.7	2.1
Class I.....	34.7	4.2	2.1
II.....	23.8	2.9	2.1
III.....	17.0	2.2	2.1
IV.....	14.8	2.3	2.1
V.....	13.9	2.8	2.0
VI.....	9.7	2.5	2.0
Livestock farms: ¹			
Total.....	20.9	3.5	2.1
Class I.....	30.9	4.5	2.1
II.....	25.9	3.6	2.1
III.....	21.4	3.1	2.1
IV.....	17.6	2.9	2.1
V.....	14.2	3.4	2.0
VI.....	9.7	3.5	1.9

¹ Livestock other than dairy and poultry farms.

LIVESTOCK PRODUCTION

The Corn Belt is a major region in American food production. It is particularly important in the production of livestock for meat. In 1954, 69.7 percent of all hogs and pigs sold, 28.2 percent of all cattle and calves sold, and 21.3 percent of all sheep and lambs sold by commercial farms in the United States came from the Corn Belt. In addition, it produced 31.4 percent of all chicken eggs sold, and 20.7 percent of all milk sold by commercial farms. Most of the corn, oats, barley, and hay produced there is fed to livestock in the region, but large quantities of these feed crops, especially of corn and oats, are shipped out of the Corn Belt to be fed to dairy cattle, poultry, and other livestock in other regions of the country.

KIND AND NUMBER OF LIVESTOCK

Cattle and calves.—There were 22.9 million head of cattle and calves on commercial farms in the Corn Belt in 1954 (table 68). This was approximately a fourth of the United States total. Cattle and calves were distributed throughout the belt on all types of farms; somewhat more than half of the number were found on livestock farms, about a fifth on cash-grain farms, and the remainder on other types of farms. The heaviest concentration of cattle and calves was in the Western Corn Belt, which accounted for about a third of the total number.

A little more than a third of the cattle and calves in the Corn Belt were cows, but less than half of these were kept for milk (table 68). The large proportion of calves and other young stock, as well as the proportion of cows kept for raising calves but not for milk, reflects the emphasis on cattle kept for beef production. Milk cows were relatively most numerous in the

Northern and Eastern Corn Belt and most of them were on dairy farms.

A large proportion of the cattle fed on Corn Belt farms are calves and yearlings bought from the western range country. These young cattle are bought usually in the fall of the year and are kept for 3 to 15 months, during which time they are fed for additional growth and finish, to be marketed as fat heifers or steers. The length of time these feeder cattle (as they are called) are fed depends upon the supply of hay or other roughage and pasture available on the farm to which they are brought for fattening.

On farms where most of the land is level and practically all used for crops, with little or no hay or pasture (as on many farms in the Central Corn Belt), the feeder cattle are fed mainly corn and protein-supplement feeds for a period only long enough to obtain a good finish at a relatively rapid gain in weight. On the other hand, on farms that have a surplus of pasture or of hay and pasture, the feeder calves bought in the fall are generally fed mainly on roughage (hay, corn fodder, or oat straw, for example) through the winter, and mainly on pasture through the following summer, after which they are placed in the feed lot and fed mainly on corn and oil meal for a few months. They are then marketed as prime or choice fat cattle.

The size of the cattle-feeding enterprise, or the number of cattle fed on a farm, is flexible. It often varies considerably from year to year on a particular farm. An important factor affecting the scale of feeding operations is the supply of corn or other feed available and this varies from year to year with the volume of crop production, which in turn is affected by weather and other production conditions. Other major factors are the relative prices of feed grains, feeder cattle, and finished cattle. The anticipated market price of hogs, compared with that of cattle, is also a principal consideration to the farmer who weighs the alternative methods of marketing his feed grain.

Beef breeding herds are found usually on farms that have a large proportion of rolling or rough land or other untillable land that is kept in pasture or hay. Many such farms are found in the Corn Belt, especially in the southern and western parts. On these farms beef cows are kept for the primary purpose of producing calves; the calves are raised and fattened mainly on feed grown on the farm or they may be sold to other farmers for fattening. On some farms where calves are raised from beef cows on the farm, additional calves or young feeder cattle may be purchased, to be fed and fattened for market.

In 1954, cattle and calves were reported on 88.5 percent of all the commercial farms in the Corn Belt (table 69). The number of farms reporting ranged from about 82 percent in the Eastern Corn Belt to about 92 percent in the Western Corn Belt. Even among the cash-grain farms, 78.4 percent reported cattle and calves. Cows were reported on 82.9 percent and milk cows on 69.6 percent of the commercial farms. The difference in percentage of farms reporting milk cows and those reporting all cows is only a partial indication of the proportion of beef-breeding farms, as many farms with primarily beef herds had one or more milk cows for producing milk for home use or for sale. Also, the difference in percentage of farms reporting cows and those reporting any cattle and calves does not fully indicate the proportion of farms having feeder cattle only. Some farms had, or would have feeder cattle at some time during the year even though they did not have them on the dates of the Census enumeration.

TABLE 68.—NUMBER OF SPECIFIED LIVESTOCK ON COMMERCIAL FARMS, BY TYPE OF FARM, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Horses and/or mules	All cattle and calves	Cows ¹	Milk cows	Hogs and pigs	All sheep	Chick-ens ²
	1,000 head	1,000 head	1,000 head	1,000 head	1,000 head	1,000 head	1,000 head
Total Corn Belt:							
All commercial farms.....	451	22,908	8,719	4,158	36,654	5,424	110,369
Cash-grain farms.....	95	4,438	1,909	850	5,048	1,068	28,448
Livestock farms ³	235	13,521	4,399	1,434	25,366	3,498	45,225
Eastern Corn Belt:							
All commercial farms.....	60	3,173	1,323	848	6,401	1,200	19,433
Cash-grain farms.....	15	746	332	195	1,036	322	5,236
Livestock farms ³	21	1,362	455	173	3,997	602	4,942
Central Corn Belt:							
All commercial farms.....	70	4,993	1,658	768	11,138	1,231	25,219
Cash-grain farms.....	21	1,261	522	222	1,850	330	8,210
Livestock farms ³	36	3,070	842	316	7,950	773	10,948
Northern Corn Belt:							
All commercial farms.....	62	3,438	1,378	1,026	6,100	736	21,080
Cash-grain farms.....	10	467	195	122	644	142	4,603
Livestock farms ³	27	1,750	567	337	3,617	423	7,794
Western Corn Belt:							
All commercial farms.....	131	7,352	2,534	860	8,306	1,137	26,508
Cash-grain farms.....	28	1,336	559	198	919	140	6,676
Livestock farms ³	79	4,980	1,520	376	6,380	887	13,692
Southern Corn Belt:							
All commercial farms.....	129	3,952	1,825	656	4,708	1,120	18,128
Cash-grain farms.....	21	629	301	113	599	134	3,722
Livestock farms ³	71	2,360	1,016	232	3,423	807	7,849

¹ All cows, including heifers that have calved.

² Chickens 4 months old and over.

³ Livestock other than dairy and poultry farms.

TABLE 69.—PERCENT OF COMMERCIAL FARMS, BY TYPE, REPORTING SPECIFIED KINDS OF LIVESTOCK, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Horses and/or mules	All cattle and calves	Cows ¹	Milk cows	Hogs and pigs	All sheep	Chick-ens ²
	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Total Corn Belt:							
All commercial farms.....	25.3	88.5	82.9	69.6	69.4	15.8	78.3
Cash-grain farms.....	17.3	78.4	74.0	57.3	50.1	13.9	69.9
Livestock farms ³	31.3	95.0	87.7	70.0	87.3	18.7	80.6
Eastern Corn Belt:							
All commercial farms.....	14.8	82.3	75.6	62.1	60.3	19.5	70.2
Cash-grain farms.....	10.7	71.9	64.9	50.8	43.0	16.9	60.5
Livestock farms ³	17.9	91.1	80.4	57.4	86.2	26.6	70.3
Central Corn Belt:							
All commercial farms.....	18.6	88.1	81.6	64.2	73.7	19.3	76.6
Cash-grain farms.....	14.1	80.7	76.2	54.8	54.1	19.1	70.4
Livestock farms ³	23.0	94.8	84.6	67.0	92.7	20.3	79.6
Northern Corn Belt:							
All commercial farms.....	24.8	89.6	84.8	75.1	77.4	16.3	81.0
Cash-grain farms.....	16.1	74.3	69.8	55.5	53.5	14.5	73.0
Livestock farms ³	28.0	96.3	86.6	72.6	91.8	18.8	82.1
Western Corn Belt:							
All commercial farms.....	31.7	91.7	87.5	73.5	69.5	8.4	82.8
Cash-grain farms.....	23.7	83.4	80.7	64.7	48.6	6.0	76.1
Livestock farms ³	37.3	96.6	90.2	74.4	85.3	10.1	84.9
Southern Corn Belt:							
All commercial farms.....	37.2	91.4	85.5	75.5	69.3	16.5	81.8
Cash-grain farms.....	25.2	80.9	78.5	62.5	54.9	10.8	73.6
Livestock farms ³	43.6	95.9	93.3	75.1	82.8	22.3	82.5

¹ All cows, including heifers that have calved.² Chickens 4 months old and over.³ Livestock other than dairy and poultry farms.

The percentage of farms reporting cattle and calves was higher among the upper economic classes of farms, especially among the cash-grain farms (table 70). For example, 85.7 percent of the Class I cash-grain farms reported cattle and calves compared with 55.5 percent of the Class VI farms. In the case of livestock farms, the percentages of farms reporting cattle and calves were about the same for Classes I, II, and III, but were slightly smaller for Classes IV, V, and VI. The differences between economic classes were wider in the case of farms reporting cows. It should be noted also that the percentage of Class I farms reporting cows was smaller than that for farms in some of the other economic classes, especially among the livestock farms. This indicates the relatively greater frequency of feeder-cattle ventures on the Class I farms. Milk cows also were reported relatively less often on Class I and Class II farms than on Class III farms.

TABLE 70.—PERCENT OF FARMS IN EACH TYPE, REPORTING SPECIFIED KINDS OF LIVESTOCK, BY ECONOMIC CLASS OF FARM, IN THE CORN BELT: 1954

Type and economic class of farm	Horses and/or mules	All cattle and calves	Cows ¹	Milk cows	Hogs and pigs	All sheep	Chick-ens ²
	Percent	Percent	Percent	Percent	Percent	Percent	Percent
All commercial farms.....	25.3	88.5	82.9	69.6	69.4	15.8	78.3
Cash-grain farms:							
Total.....	17.3	78.4	74.0	57.3	50.1	13.9	69.9
Class I.....	22.5	85.7	77.8	54.4	60.5	20.1	60.1
II.....	16.5	85.3	80.1	60.3	60.1	18.5	71.2
III.....	16.0	83.1	79.4	62.8	55.3	14.4	74.5
IV.....	17.4	75.4	71.4	55.6	44.0	11.6	68.8
V.....	18.6	64.2	59.0	46.2	33.7	9.4	61.2
VI.....	24.6	55.5	51.4	40.3	27.0	5.4	61.7
Livestock farms: ³							
Total.....	31.3	95.0	87.7	70.0	87.3	18.7	80.6
Class I.....	36.0	96.6	75.9	63.6	90.0	19.6	70.0
II.....	27.5	96.5	85.8	69.9	92.8	19.5	80.9
III.....	28.9	96.5	91.4	74.7	92.4	18.2	84.1
IV.....	34.1	95.0	90.7	71.7	87.7	19.0	81.5
V.....	34.8	91.1	86.2	63.9	75.6	18.3	77.8
VI.....	37.4	87.2	83.4	61.8	58.1	16.5	76.5

¹ All cows, including heifers that have calved.² Chickens 4 months old and over.³ Livestock other than dairy and poultry farms.

The commercial farms reporting cattle and calves had an average of 32 head of cattle and calves per farm (table 71). The average size of herd was almost twice as large in the Western Corn Belt as in the Eastern (43 head compared with 22). Livestock farms averaged 44 head per herd, while cash-grain farms averaged 21. The largest herds were on livestock farms in the Western Corn Belt (averaging 56 head), and the smallest were on cash-grain farms in the Eastern Corn Belt (averaging 15 head). But herds on livestock farms in the Eastern Corn Belt averaged larger than those on cash-grain farms in every region. The number of cows per herd ranged from an average of 10 in the Eastern Corn Belt to 16 in the Western Corn Belt. The number of milk cows per farm reporting was largest in the Northern Corn Belt and smallest in the Southern and Western Corn Belt.

TABLE 71.—AVERAGE NUMBER OF SPECIFIED LIVESTOCK PER FARM REPORTING, FOR COMMERCIAL FARMS BY TYPE, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Horses and/or mules	All cattle and calves	Cows ¹	Milk cows	Hogs and pigs	All sheep	Chick-ens ²
	Number	Number	Number	Number	Number	Number	Number
Total Corn Belt:							
All commercial farms.....	2	32	13	7	66	43	177
Cash-grain farms.....	2	21	10	6	38	29	154
Livestock farms ³	2	44	15	6	89	57	172
Eastern Corn Belt:							
All commercial farms.....	2	22	10	8	60	35	156
Cash-grain farms.....	2	15	7	6	35	28	127
Livestock farms ³	2	29	11	6	90	44	137
Central Corn Belt:							
All commercial farms.....	2	34	12	7	90	38	196
Cash-grain farms.....	2	23	10	6	50	25	169
Livestock farms ³	2	45	14	7	119	53	191
Northern Corn Belt:							
All commercial farms.....	2	35	15	13	73	42	240
Cash-grain farms.....	2	23	10	8	44	36	230
Livestock farms ³	2	45	16	11	97	56	234
Western Corn Belt:							
All commercial farms.....	2	43	16	6	64	73	172
Cash-grain farms.....	2	27	12	5	32	39	149
Livestock farms ³	2	56	18	6	82	96	176
Southern Corn Belt:							
All commercial farms.....	2	27	14	6	43	43	141
Cash-grain farms.....	2	19	9	4	27	30	124
Livestock farms ³	2	35	15	4	58	51	134

¹ All cows, including heifers that have calved.² Chickens 4 months old and over.³ Livestock other than dairy and poultry farms.

TABLE 72.—AVERAGE NUMBER OF SPECIFIED LIVESTOCK PER FARM REPORTING, BY TYPE OF FARM BY ECONOMIC CLASS, IN THE CORN BELT: 1954

Type and economic class of farm	Horses and/or mules	All cattle and calves	Cows ¹	Milk cows	Hogs and pigs	All sheep	Chick-ens ²
	Number	Number	Number	Number	Number	Number	Number
All commercial farms.....	2	32	13	7	66	43	177
Cash-grain farms:							
Total.....	2	21	10	6	38	29	154
Class I.....	3	54	21	7	96	53	176
II.....	2	29	13	7	55	35	186
III.....	2	21	10	6	36	28	168
IV.....	2	16	7	5	23	24	134
V.....	2	10	5	3	14	19	99
VI.....	2	7	4	3	8	13	75
Livestock farms: ³							
Total.....	2	44	15	6	89	57	172
Class I.....	3	135	24	6	220	206	211
II.....	2	55	19	7	126	61	209
III.....	2	38	16	7	79	45	185
IV.....	2	28	13	6	51	38	151
V.....	2	20	10	4	31	34	115
VI.....	2	13	7	3	18	26	85

¹ All cows, including heifers that have calved.² Chickens 4 months old and over.³ Livestock other than dairy and poultry farms.

The average size of cattle herd shows a strong correlation with economic class of farm (table 72). Among the cash-grain farms, Class I farms had an average of 54 head of cattle and calves per farm reporting, while Class VI farms had an average of only 7. Among the livestock farms, Class I farms had an average of 135 head per farm reporting; Class VI farms had 13. The size of herds on other economic classes of farms ranged between these extremes. The situation was similar for cows per herd on the different economic classes of farms. The general pattern was also similar for milk cows, but the differences were less extreme.

Hogs and pigs.—Hogs and pigs on commercial farms in the Corn Belt in 1954 numbered 36.7 million head, approximately two-thirds of the total number on all commercial farms in the United States (table 68). Hog numbers in the United States and in the Corn Belt were relatively low in 1954 in comparison with numbers during the preceding 15 years (9). Hogs and pigs were found on all types of farms throughout the Corn Belt, but were relatively most numerous on livestock farms in the Central Corn Belt. In the Corn Belt as a whole, about 69 percent of the hogs and pigs were on livestock farms.

Hogs and pigs are not found on as many farms as are cattle and calves, but hog production is a major enterprise and a principal source of income on a larger proportion of farms. Pigs are usually raised and finished for market on the farm where they are farrowed. Relatively few commercial farms in the Corn Belt raise feeder pigs that are shipped in from other areas. Usually, less than two-thirds as many litters of pigs are farrowed in the fall as in the spring in the Corn Belt as a whole. Fall farrowing is much less common in the Western and Northern Corn Belt than in the Eastern and Southern Corn Belt because the more severe winters in the northern and western regions are less favorable for the raising of fall pigs. As hogs are fed largely on concentrate feeds, the hog enterprise is well adapted to farms where large crops of corn are raised. Hogs and beef cattle, or hogs and dairy production, are often found on the same farm. Where beef cattle are fed, hogs can salvage feed that otherwise would be wasted; and on dairy farms where only cream is sold, the skim milk can be fed to hogs.

Hogs and pigs were reported on 69.4 percent of the commercial farms in the Corn Belt in 1954 (table 69). They were most frequently reported on farms in the Northern and Central Corn Belt and relatively least frequently in the Eastern Corn Belt. They were found on 50.1 percent of the cash-grain farms and on 87.3 percent of the livestock farms in the Corn Belt.

Hogs and pigs were found relatively more often on the higher income classes than on the lower income classes of farms (table 70). On cash-grain farms about 60 percent of the Class I and Class II farms reported hogs and pigs compared with 27 percent on Class VI farms. On livestock farms, hogs and pigs were reported on 90 percent or more of the Classes I, II, and III farms and on 75.6 percent of the Class V farms.

The average number of hogs and pigs per farm reporting in the Corn Belt was 66 for all commercial farms, 38 for cash-grain farms, and 89 for livestock farms (table 71). The average number per farm was highest on livestock farms in the Central Corn Belt (119 head), and lowest on cash-grain farms in the Southern Corn Belt (27 head). The great variation in size of the hog enterprise on different farms is shown strikingly in table 72. Class I livestock farms had an average of 220 hogs and pigs per farm reporting while Class II livestock farms had 126, Class VI livestock farms had 18, Class I cash-grain farms had 96, and Class VI cash-grain farms had 8.

Chickens.—Approximately a third of all the chickens 4 months old and over on commercial farms in the United States in the fall of 1954 were in the Corn Belt. From the national standpoint, the Corn Belt is a leading source of chicken eggs. The 110.4 million chickens reported on commercial farms in the Corn Belt in 1954 were widely distributed throughout all regions and were found on all types of farms (table 68). Chickens were reported on from 70 percent to 83 percent of all commercial farms in the various regions (table 69). They were found somewhat more frequently on livestock farms than on cash-grain farms. Flocks were kept by a relatively larger proportion of the Classes II, III, and IV farms than of the higher income and lower income classes of farms (table 70). The average size of flock on all farms reporting was 177 birds (table 71). The largest average size of flock was on commercial farms in the Northern Corn Belt and the smallest on cash-grain farms in the Southern Corn Belt. In general, the higher economic classes of farms had larger flocks than the lower economic classes, the number of birds ranging from an average of 211 on Class I livestock farms down to 75 on Class VI cash-grain farms (table 72).

Farm flocks of chickens in the Corn Belt are kept mainly for egg production. Hens and a few cockerels are raised mainly from chicks bought in the spring from commercial hatcheries. The principal income from the flocks is from eggs sold. Sales of chickens for meat arise mainly from the culling of hens and pullets and the sale of a few extra chickens, so as to reduce the size of flock to the capacity of the poultry house in the fall.

From the standpoint of total farm income in the Corn Belt, chicken and egg production is a relatively minor enterprise. Nevertheless, it is a fairly important source of income on many farms and it provides a valuable contribution in the form of eggs and meat for the household on most of the farms. The farm flock requires a relatively small investment of capital and much of the labor is relatively light and is frequently done by the farm wife or other members of the operator's family.

Sheep.—Sheep production is a minor enterprise in the Corn Belt as a whole. However, there were 5.4 million sheep on commercial farms in the Corn Belt in 1954 and they were found on all types of farms in all regions. Sheep production is of two general types. The most usual is the farm flock, found most frequently on farms having a high percentage of untillable land or other low-grade pasture, and on which the production of concentrate feeds in proportion to pasture crops is not great enough to produce beef cattle. Such farms are found scattered throughout the Corn Belt and are relatively most numerous in the Southern and Eastern Corn Belt. The other form of the sheep enterprise is the feeding and fattening of western lambs. Most of the lamb feeding is on farms in the Central and Western Corn Belt where large quantities of corn and oats are grown.

Sheep were reported on 15.8 percent of the commercial farms in the Corn Belt in 1954, and more frequently on livestock farms than on cash-grain farms (table 69). Among cash-grain farms, sheep were reported on relatively fewer of the lower income classes of farms, but among livestock farms the frequency of reporting was more nearly alike on all economic classes. The average size of flock per commercial farm reporting was 43 head. Flocks averaged largest on livestock farms in the Western Corn Belt (96 head), and smallest on cash-grain farms in the Central Corn Belt (25 head per farm reporting). Size of flock declines steadily as we go from the higher to the lower economic classes of farms. Class I livestock farms had an average of 206 sheep per flock; Class VI livestock farms had an average of 26.

SALES OF LIVESTOCK AND LIVESTOCK PRODUCTS

Data on sales of livestock and livestock products are essential to an accurate understanding of livestock operations on commercial farms. Sales data serve to supplement the information on farms reporting and on numbers of livestock on an inventory date. They give a more complete picture of livestock enterprises by revealing livestock production carried on at a different time of the year but not present at the time of the Census enumeration—for example, cattle sold, hogs sold, etc. They present the commercial phase of livestock operations as distinguished from the overall phase which often includes a considerable proportion of production that is primarily or exclusively for direct use by the farm household.

Distribution of cattle and calves sold alive in the United States in 1954 is shown in figure 32. Cattle are sold on farms throughout the Nation, but the main regions where large numbers are sold are the Corn Belt and the Great Plains States. The concentration of sales is particularly heavy in areas of the Western and Central Corn Belt. Sales of cattle were reported on 81.9 percent of the farms in the Corn Belt in 1954 (table 73). This was a larger percentage of farms than reported sales of any other livestock or livestock product in the Corn Belt as a whole. The greatest proportion of farms reporting sales of cattle and calves was among livestock farms in the Western Corn Belt and the smallest proportion was among cash-grain farms in the Eastern Corn Belt. Cattle were sold by 97.9 percent of the Class I livestock farms and by more than 90 percent of the Classes II, III, and IV livestock farms (table 74). Only 27 percent of the Class VI cash-grain farms reported cattle sold, but even this number was greater than the number selling any other livestock item except chicken eggs. The average value of cattle sold per farm reporting, however, was smaller than the average sales of hogs per farm reporting on every economic class of farm except Class I (table 75). The wide differences in incomes of the different economic classes of farms are apparent from the great spread from Class I to Class VI farms in the receipts from the two principal classes of livestock—cattle and hogs.¹

TABLE 73.—PERCENT OF FARMS REPORTING SALES OF SPECIFIED LIVESTOCK AND LIVESTOCK PRODUCTS, BY PRINCIPAL TYPES OF FARMS, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Livestock and livestock products sold				
	Cattle and calves	Hogs and pigs	Chickens	Chicken eggs	Sheep
Total Corn Belt:					
All commercial farms.....	81.9	69.0	48.9	66.2	13.7
Cash-grain farms.....	65.6	48.1	39.4	55.9	11.1
Livestock farms ¹	92.8	80.1	51.6	69.4	17.3
Eastern Corn Belt:					
All commercial farms.....	78.4	59.3	41.6	54.1	16.6
Cash-grain farms.....	57.0	40.1	31.9	44.1	13.4
Livestock farms ¹	87.4	88.6	42.8	55.3	24.2
Central Corn Belt:					
All commercial farms.....	80.8	74.8	51.7	65.6	15.9
Cash-grain farms.....	68.3	54.2	44.0	57.0	15.1
Livestock farms ¹	92.1	94.9	54.7	69.4	17.8
Northern Corn Belt:					
All commercial farms.....	85.6	77.9	55.0	74.1	13.3
Cash-grain farms.....	64.4	53.0	45.2	65.1	11.5
Livestock farms ¹	94.3	93.6	58.3	76.4	16.3
Western Corn Belt:					
All commercial farms.....	86.2	69.8	52.0	72.8	7.6
Cash-grain farms.....	72.5	47.5	42.2	64.1	4.9
Livestock farms ¹	94.8	86.7	55.1	75.4	9.6
Southern Corn Belt:					
All commercial farms.....	84.9	66.7	46.5	67.0	15.8
Cash-grain farms.....	66.0	48.5	36.1	55.7	9.4
Livestock farms ¹	93.9	84.0	46.6	67.8	22.4

¹ Livestock other than dairy and poultry farms.

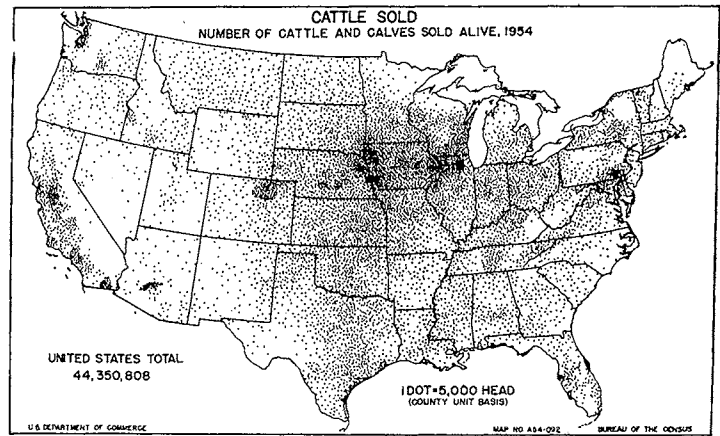


FIGURE 32.

TABLE 74.—PERCENT OF COMMERCIAL FARMS REPORTING SPECIFIED LIVESTOCK AND LIVESTOCK PRODUCTS SOLD, BY TYPE AND ECONOMIC CLASS OF FARM, IN THE CORN BELT: 1954

Type and economic class of farm	Livestock and livestock products sold				
	Cattle and calves	Hogs and pigs	Chickens	Chicken eggs	Sheep
All commercial farms.....	Percent 81.9	Percent 69.0	Percent 48.9	Percent 66.2	Percent 13.7
Cash-grain farms:					
Total.....	65.6	48.1	39.4	55.0	11.1
Class I.....	81.3	62.9	36.1	46.0	17.3
II.....	78.4	61.2	46.1	59.3	15.5
III.....	72.8	54.8	45.8	62.5	11.4
IV.....	59.9	40.4	35.3	54.5	9.2
V.....	41.9	27.0	24.4	42.3	7.0
VI.....	26.6	14.2	18.7	36.0	3.2
Livestock farms: ¹					
Total.....	92.8	89.1	51.6	69.4	17.3
Class I.....	97.9	92.6	49.8	59.9	18.7
II.....	96.0	95.1	60.1	72.6	18.1
III.....	95.3	94.3	57.7	75.1	16.7
IV.....	91.8	89.1	47.0	69.4	17.7
V.....	84.3	77.3	37.3	60.7	17.0
VI.....	76.9	56.5	29.5	55.9	15.2

¹ Livestock other than dairy and poultry farms.

TABLE 75.—AVERAGE VALUE OF SPECIFIED LIVESTOCK AND LIVESTOCK PRODUCTS SOLD PER COMMERCIAL FARM REPORTING, IN THE CORN BELT: 1954

Type and economic class of farm	Livestock and livestock products sold (dollars)				
	Cattle and calves	Hogs and pigs	Chickens	Chicken eggs	Sheep
All commercial farms.....	2,559	3,076	160	448	735
Cash-grain farms:					
Total.....	970	1,343	90	340	323
Class I.....	4,543	4,528	162	505	666
II.....	1,490	1,917	113	473	402
III.....	766	1,199	89	356	297
IV.....	466	652	70	254	242
V.....	278	378	58	162	179
VI.....	152	235	39	94	125
Livestock farms: ¹					
Total.....	4,462	4,383	94	401	1,115
Class I.....	28,450	13,325	165	601	7,907
II.....	5,325	6,080	112	547	899
III.....	2,055	3,551	90	422	512
IV.....	1,180	1,881	74	292	407
V.....	742	981	59	198	353
VI.....	391	450	40	108	260

¹ Livestock other than dairy and poultry farms.

Distribution of hogs and pigs sold alive in the United States in 1954 is shown in figure 33. Sales of hogs are not so widely diffused through all States as are cattle sales. The great bulk and concentration of hog sales is in the Corn Belt where they were reported on 69 percent of all the commercial farms. On livestock farms in the Eastern and Central Corn Belt, the numbers of farms reporting sales of hogs and pigs were slightly greater than the numbers reporting sales of cattle and calves (table 73). Sales of hogs and pigs were reported by 48.1 percent of the cash-grain farms and by 89.1 percent of the livestock farms. Sales from this enterprise were made by relatively more of the farms in the higher economic classes than in the lower economic classes.

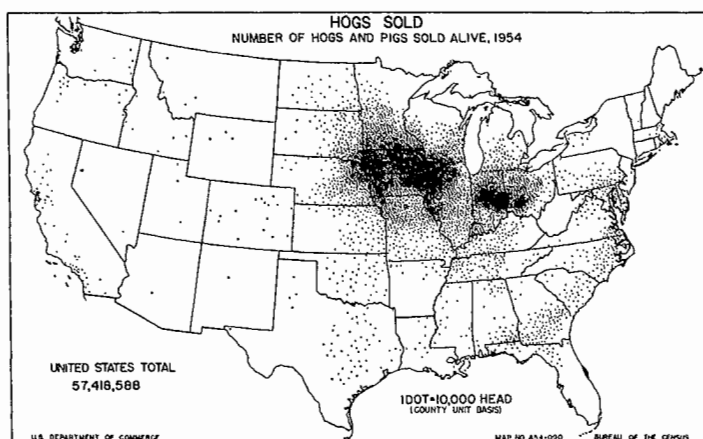


FIGURE 33.

The Corn Belt is one of the three main areas supplying chicken eggs for market in the United States (fig. 34). The other areas are in the Northeastern States and in California. Egg production is not so densely concentrated in any part of the Corn Belt as it is in some sections of the Northeast and of California. But the great number of laying flocks throughout the Corn Belt makes this one of the principal egg-producing regions of the country.

Chicken eggs were sold by 66.2 percent of all commercial farms in the Corn Belt in 1954. The highest proportion of farms selling

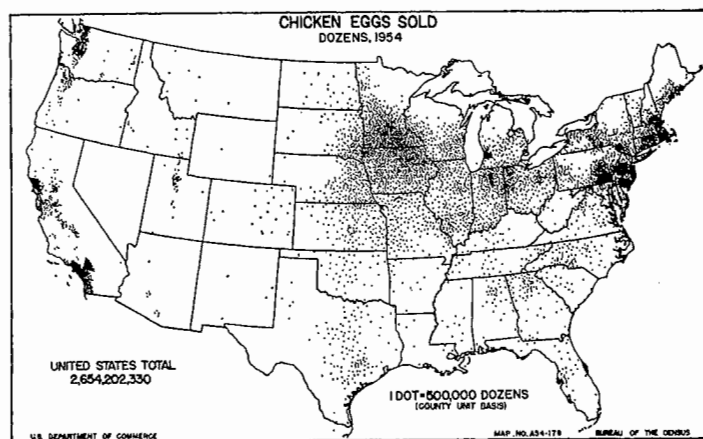


FIGURE 34.

eggs was in the Northern Corn Belt (74.1 percent). Egg sales were reported by 55.9 percent of the cash-grain farms and by 69.4 percent of the livestock farms in the Corn Belt. Farms selling eggs were a larger proportion of all farms among Class II and Class III farms than among Class I farms or among the lower economic classes. The average value of sales of eggs per farm reporting, however, was greatest on Class I farms. On livestock farms, the value of eggs sold per farm ranged from \$601 on Class I farms down to \$108 on Class VI farms. On Class VI cash-grain farms, sales of eggs averaged only \$94 per farm reporting. Sales of chickens were reported by fewer farms than the number reporting egg sales in all regions and on all economic classes of farms. The average value of chickens sold per farm was consistently less than the value of eggs sold.

Turkeys are raised on many farms throughout the United States, but the bulk of the production is concentrated in several relatively small areas in scattered locations (fig. 35). Several areas of intensive turkey production are located within the Corn Belt, mainly in the Northern, Central, and Eastern Corn Belt. Although turkey production is found on relatively few farms in the Corn Belt as a whole, it is a large enterprise in many counties, and is usually a major source of income to the producers. Turkey raising is typically a large-scale enterprise. Flocks of 5,000 or more turkeys are not uncommon. The average size of the turkey enterprise in Iowa in 1954 was about 2,000 birds.

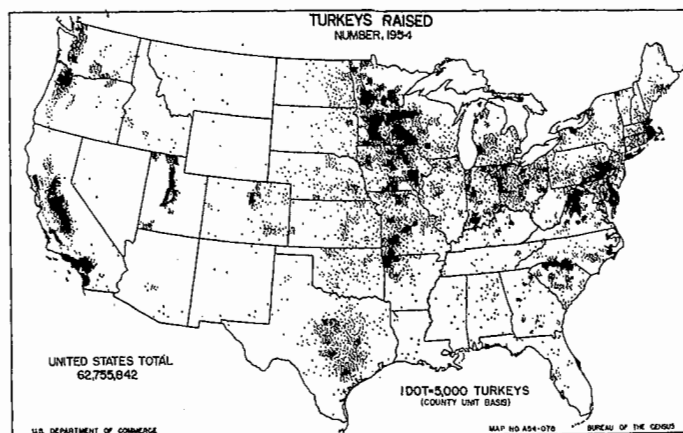


FIGURE 35.

Sales of sheep were reported by only 13.7 percent of all the commercial farms in the Corn Belt in 1954, but the proportion of farms selling sheep varied rather widely between regions and types of farms. Sheep were sold by about a fourth of the livestock farms in the Eastern Corn Belt, but by only a twentieth of the cash-grain farms in the Western Corn Belt. Generally, sales of sheep were reported by fewer farmers than reported sheep on hand. This reflects the practice of keeping sheep primarily for wool production on a number of farms. The average value of sheep sold per farm reporting among Class I livestock farms was \$7,907, but it ranged from \$899 on Class II livestock farms down to \$260 on Class VI livestock farms. On cash-grain farms, the average receipts from sheep sold were smaller. The large receipts from sheep sold on Class I livestock farms apparently were made up largely from sales of fattened feeder lambs.

Cattle and hogs each accounted for approximately 39 percent of the total value of livestock and livestock products sold on all commercial farms in the Corn Belt in 1954 (table 76). Cattle and hogs together accounted for 68.5 percent of the total on cash-grain farms and for 89.3 percent of the total on livestock farms. Sales of chickens and eggs totaled about 7 percent, milk (and cream) accounted for 12.8 percent, and sheep and wool for 2.3 percent of the livestock and livestock product receipts on all commercial farms. Hogs and pigs brought a larger proportion of the total than did cattle and calves in all regions except in the

Western Corn Belt. The largest percentage of livestock receipts accounted for by eggs was in the Northern Corn Belt; this was also the region where receipts from milk were relatively the greatest.

On Class I farms of both the cash-grain and livestock types, cattle accounted for a larger percentage of the total livestock sales than did hogs (table 77). This was the case also for Class VI farms of both types and for Class IV and Class V cash-grain farms. On Class I livestock farms cattle sales brought in 65 percent of the livestock receipts, while hogs brought in 28.8 percent. On

TABLE 76.—PERCENTAGE COMPOSITION OF VALUE OF SALES OF SPECIFIED LIVESTOCK AND LIVESTOCK PRODUCTS ON PRINCIPAL TYPES OF FARMS, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Livestock and livestock products sold							
	Total ¹	Cattle and calves	Hogs and pigs	Chickens	Chicken eggs	Milk	Sheep	Wool ²
	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
Total Corn Belt:								
All commercial farms.....	100.0	38.8	39.3	1.4	5.5	12.8	1.9	0.4
Cash-grain farms.....	100.0	34.0	34.5	1.9	10.1	16.9	1.9	0.6
Livestock farms ³	100.0	46.0	43.3	0.5	3.1	4.6	2.1	0.3
Eastern Corn Belt:								
All commercial farms.....	100.0	23.8	43.8	3.2	6.7	20.3	1.7	0.5
Cash-grain farms.....	100.0	24.9	35.5	2.3	9.5	24.2	2.6	0.9
Livestock farms ³	100.0	30.3	58.1	0.7	2.8	5.8	1.9	0.5
Central Corn Belt:								
All commercial farms.....	100.0	39.7	44.6	1.0	4.8	8.1	1.5	0.3
Cash-grain farms.....	100.0	35.0	35.9	1.8	9.6	14.3	1.8	0.6
Livestock farms ³	100.0	44.2	47.0	0.5	2.8	3.8	1.5	0.2
Northern Corn Belt:								
All commercial farms.....	100.0	30.0	38.1	1.1	7.2	21.5	1.9	0.3
Cash-grain farms.....	100.0	27.7	34.0	1.9	14.2	19.9	1.8	0.6
Livestock farms ³	100.0	38.9	43.1	0.6	4.6	9.9	2.6	0.3
Western Corn Belt:								
All commercial farms.....	100.0	54.1	31.6	0.8	4.0	7.0	2.2	0.3
Cash-grain farms.....	100.0	44.6	30.3	1.6	9.4	12.5	1.3	0.4
Livestock farms ³	100.0	50.0	32.4	0.4	2.6	2.9	2.4	0.3
Southern Corn Belt:								
All commercial farms.....	100.0	36.0	39.7	1.7	6.0	13.7	2.3	0.6
Cash-grain farms.....	100.0	33.6	37.1	1.9	9.9	14.5	2.2	0.7
Livestock farms ³	100.0	42.3	46.5	0.6	3.5	3.7	2.7	0.7

¹ Total of 7 livestock items listed in columns at right.

² Value of wool shorn. Practically all of the wool shorn was sold.

³ Livestock other than dairy and poultry farms.

TABLE 77.—PERCENTAGE COMPOSITION OF TOTAL VALUE OF SALES OF SPECIFIED LIVESTOCK AND LIVESTOCK PRODUCTS ON COMMERCIAL FARMS, BY ECONOMIC CLASS, IN THE CORN BELT: 1954

Type and economic class of farm	Livestock and livestock products sold							
	Total ¹	Cattle and calves	Hogs and pigs	Chickens	Chicken eggs	Milk	Sheep	Wool ²
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
All commercial farms.....	100.0	38.8	39.3	1.4	5.5	12.8	1.9	0.4
Cash-grain farms:								
Total.....	100.0	34.0	34.5	1.9	10.1	16.9	1.9	0.6
Class I.....	100.0	48.5	37.4	0.8	3.1	8.5	1.5	0.3
II.....	100.0	35.3	35.5	1.6	8.5	16.7	1.9	0.6
III.....	100.0	29.7	35.1	2.2	11.9	18.7	1.8	0.6
IV.....	100.0	30.6	28.8	2.7	15.1	19.4	2.4	0.9
V.....	100.0	30.1	26.3	3.7	17.7	17.7	3.3	1.3
VI.....	100.0	29.1	24.1	5.2	24.4	12.9	2.8	1.4
Livestock farms: ³								
Total.....	100.0	46.0	43.3	0.5	3.1	4.6	2.1	0.3
Class I.....	100.0	65.0	28.8	0.2	0.8	1.4	3.4	0.2
II.....	100.0	40.3	49.6	0.5	3.1	5.0	1.3	0.2
III.....	100.0	31.3	53.5	0.8	5.1	7.6	1.4	0.4
IV.....	100.0	32.3	50.0	1.1	6.1	7.7	2.1	0.7
V.....	100.0	36.5	44.2	1.3	7.0	6.4	3.5	1.1
VI.....	100.0	42.0	35.5	1.7	8.4	5.0	5.5	1.9

¹ Total of 7 livestock items listed in columns at right.

² Value of wool shorn. Practically all of the wool shorn was sold.

³ Livestock other than dairy and poultry farms.

TABLE 78.—VALUE OF SALES OF SPECIFIED LIVESTOCK AND LIVESTOCK PRODUCTS ON COMMERCIAL FARMS IN THE CORN BELT: 1954

Type and economic class of farm	Livestock and livestock products sold (thousand dollars)							
	Total ¹	Cattle and calves	Hogs and pigs	Chickens	Chicken eggs	Milk	Sheep	Wool ²
All commercial farms.....	4,308,838	1,600,081	1,692,387	62,430	236,152	552,101	80,477	15,242
Cash-grain farms:								
Total.....	494,661	168,332	170,719	9,379	50,206	83,468	9,505	3,044
Class I.....	49,480	23,692	18,506	380	1,513	4,182	747	160
II.....	205,102	72,430	72,809	3,239	17,399	34,236	3,851	1,137
III.....	168,866	50,226	50,266	3,664	20,052	31,541	3,068	1,050
IV.....	50,680	17,327	16,342	1,643	8,583	11,007	1,372	506
V.....	13,142	3,955	3,402	481	2,321	2,323	428	171
VI.....	1,381	402	333	72	337	178	39	19
Livestock farms: ³								
Total.....	2,042,050	1,352,178	1,275,000	15,866	90,924	135,035	63,150	9,897
Class I.....	973,005	632,561	280,337	1,869	8,181	14,105	33,524	2,429
II.....	1,070,320	431,144	530,723	5,626	33,204	53,435	13,584	2,604
III.....	592,098	185,176	316,502	4,900	29,900	45,143	8,077	2,301
IV.....	224,529	72,598	112,326	2,374	13,599	17,262	4,819	1,549
V.....	68,584	25,023	30,312	872	4,804	4,408	2,403	762
VI.....	13,514	5,676	4,801	225	1,136	681	744	251

¹ Total of 7 livestock items listed in columns at right.² Value of wool shorn. Practically all of the wool shorn was sold.³ Livestock other than dairy and poultry farms.

Class III livestock farms, cattle sales accounted for 31.3 percent, while hogs accounted for 53.5 percent. Receipts from milk sold were relatively more important among the livestock and livestock products sold on cash-grain farms than on livestock farms. The same was true for chickens and eggs.

The economic magnitude of the receipts from sales of livestock and livestock products on the different economic classes of farms is indicated by the total value of sales figures presented in table 78. The total value of livestock and livestock products sold on all commercial farms in the Corn Belt in 1954 was 4.3 billion dollars. Receipts from cattle sales and hog sales each totaled about 1.7 billion dollars. Sales from Class II and Class III farms accounted for more than half of the value of the total sales of livestock and livestock products by all economic classes of farms. The total sales from Class V and Class VI farms were a relatively very minor part of the total for all commercial farms.

Although dairy production is a major enterprise on relatively few farms in the Corn Belt, receipts from the sale of milk and cream are fairly important on many farms. The total value of milk and cream sold on all commercial farms in the Corn Belt in 1954 was approximately 552 million dollars (table 79). Whole milk accounted for three-fourths and cream accounted for one-fourth of this total. Whole milk made up the largest proportion of milk and cream sales in the Eastern Corn Belt (97 percent), and the smallest proportion in the Western Corn Belt (47.1 percent). On livestock farms in the Western Corn Belt, 79.4 percent of the total value of milk and cream sold was from cream. Most of the cream is sold on a butterfat basis to creameries and cream stations. Farms selling cream usually use the skim milk as feed for hogs or other livestock.

TABLE 79.—VALUE OF WHOLE MILK AND CREAM SOLD ON PRINCIPAL TYPES OF COMMERCIAL FARMS IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Value (thousand dollars)			Percentage distribution of value		
	Total milk and cream sold	Whole milk sold	Cream sold	Total milk and cream sold	Whole milk sold	Cream sold
Total Corn Belt:						
All commercial farms.....	552,161	416,598	135,562	100.0	75.4	24.6
Cash-grain farms.....	83,468	60,102	23,366	100.0	72.0	28.0
Livestock farms ¹	135,035	70,039	64,996	100.0	51.9	48.1
Eastern Corn Belt:						
All commercial farms.....	153,098	148,435	4,663	100.0	97.0	3.0
Cash-grain farms.....	26,910	25,064	946	100.0	96.5	3.5
Livestock farms ¹	23,370	22,024	1,346	100.0	94.2	5.8
Central Corn Belt:						
All commercial farms.....	93,118	57,895	35,223	100.0	62.2	37.8
Cash-grain farms.....	22,849	16,429	6,419	100.0	71.9	28.1
Livestock farms ¹	31,574	12,990	18,584	100.0	41.1	58.9
Northern Corn Belt:						
All commercial farms.....	147,989	110,705	37,283	100.0	74.8	25.2
Cash-grain farms.....	12,562	7,747	4,815	100.0	61.7	38.3
Livestock farms ¹	39,788	23,334	16,454	100.0	58.6	41.4
Western Corn Belt:						
All commercial farms.....	81,148	38,201	42,947	100.0	47.1	52.9
Cash-grain farms.....	13,276	4,017	9,259	100.0	30.3	69.7
Livestock farms ¹	26,443	5,460	20,983	100.0	20.6	79.4
Southern Corn Belt:						
All commercial farms.....	76,809	61,362	15,447	100.0	79.9	20.1
Cash-grain farms.....	7,871	5,944	1,927	100.0	75.5	24.5
Livestock farms ¹	13,861	6,231	7,630	100.0	45.0	55.0

¹ Livestock other than dairy and poultry farms.

GROSS SALES AND INCOME

In summarizing the data on value of farm products sold on the various types and economic classes of commercial farms in the Corn Belt, it is helpful to reduce the figures to a per farm basis. This has been done in tables 80, 81, and 82. In this form it is relatively easy to compare the gross incomes on the different kinds of farms and to see the proportion that each group of products contributes to the total gross income from products sold. It should be observed, however, that the gross income from farm products sold is not the same as the total gross farm income, because it does not include the value of farm products used in farm households.

It should be kept in mind that the figures in tables 80, 81, and 82 are averages for all the farms in each group and that the value of products sold on individual farms may, and does, vary considerably from these averages. For example, the average value of livestock and livestock products sold per farm on cash-grain farms is relatively low partly because many cash-grain farms sold little or no livestock or livestock products. Likewise, the average value of crops sold per livestock farm is relatively low partly because many livestock farms had little or no income from crops sold. The value of forest products per farm is very low largely because forest products were reported as sold on relatively few farms in 1954. Nevertheless, the average values provide a useful basis for comparison of receipts from products sold on the different groups of farms.

The average value of all farm products sold by commercial farms in the Corn Belt in 1954 was \$8,602 per farm (table 80). Crops sold accounted for an average of \$3,110 per farm, or 36.2 percent of the total. Livestock and livestock products sold averaged \$5,487 per farm, or 63.8 percent of the total.

The largest average gross incomes per farm were obtained by farms in the Central Corn Belt (\$11,531). The lowest average gross incomes per farm were in the Southern Corn Belt (\$5,496). Gross incomes on livestock farms averaged higher than those on cash-grain farms and those on all commercial farms in every region of the Corn Belt. Sales of crops made up the largest proportion of the total value of products sold on cash-grain farms in the Central Corn Belt (77.7 percent). Livestock sales were relatively most important on livestock farms in the Northern Corn Belt.

The average gross income from farm products sold on Class I cash-grain farms was \$34,428 (table 81). This was more than 4 times as great as the average for all cash-grain farms. Class III cash-grain farms, the largest group of cash-grain farms in terms of number of farms included, had an average gross income of \$7,312 from farm products sold. The total value of farm products sold on Class VI cash-grain farms was only slightly more than a tenth of that on the Class III cash-grain farms.

The largest average gross income from farm products sold by any group of farms in the Corn Belt was obtained by Class I livestock farms (\$47,410). Class III farms, the most numerous among the livestock farms, averaged \$7,387 for all farm products sold. Again, the Class VI farms sold only a little more than a tenth as much value of farm products as did Class III farms.

The gross sales on Classes IV, V, and VI cash-grain farms were almost identical to those on the corresponding classes of livestock farms. This came about largely, of course, because of the income criteria of classification. But the gross sales on Class I and Class II livestock farms were significantly larger than the gross sales on the corresponding classes of cash-grain farms.

TABLE 80.—AVERAGE VALUE OF FARM PRODUCTS SOLD, AND PERCENTAGE COMPOSITION, FOR PRINCIPAL TYPES OF FARMS IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Average value per farm (dollars)				Percentage composition of value			
	All farm products sold	All crops sold	Livestock and livestock products sold	Forest products sold	All farm products sold	All crops sold	Livestock and livestock products sold	Forest products sold
Total Corn Belt:								
All commercial farms.....	8,602	3,110	5,487	4	100.0	36.2	63.8	(Z)
Cash-grain farms.....	7,843	5,963	1,877	3	100.0	76.0	23.9	(Z)
Livestock farms ¹	10,402	1,374	9,026	3	100.0	13.2	86.8	(Z)
Eastern Corn Belt:								
All commercial farms.....	7,828	3,498	4,324	7	100.0	44.7	55.2	0.1
Cash-grain farms.....	7,203	5,568	1,631	4	100.0	77.3	22.6	0.1
Livestock farms ¹	9,610	1,763	7,841	6	100.0	18.3	81.6	0.1
Central Corn Belt:								
All commercial farms.....	11,531	4,599	6,929	2	100.0	39.9	60.1	(Z)
Cash-grain farms.....	10,475	8,140	2,333	2	100.0	77.7	22.3	(Z)
Livestock farms ¹	13,484	1,815	11,667	2	100.0	13.5	86.5	(Z)
Northern Corn Belt:								
All commercial farms.....	9,039	2,527	6,509	(Z) 3	100.0	28.0	72.0	(Z)
Cash-grain farms.....	7,937	5,629	2,308	(Z)	100.0	70.9	29.1	(Z)
Livestock farms ¹	10,989	1,080	9,907	3	100.0	9.8	90.2	(Z)
Western Corn Belt:								
All commercial farms.....	9,068	2,797	6,270	1	100.0	30.8	69.1	(Z)
Cash-grain farms.....	7,221	5,414	1,806	1	100.0	75.0	25.0	(Z)
Livestock farms ¹	11,373	1,270	10,102	1	100.0	11.2	88.8	(Z)
Southern Corn Belt:								
All commercial farms.....	5,496	1,858	3,631	7	100.0	33.8	66.1	0.1
Cash-grain farms.....	5,301	3,962	1,333	6	100.0	74.7	25.1	0.1
Livestock farms ¹	6,271	949	5,317	4	100.0	15.1	84.8	0.1

Z. Less than 0.50 or less than 0.05 percent.

¹ Livestock other than dairy and poultry farms.

TABLE 81.—AVERAGE VALUE OF FARM PRODUCTS SOLD, BY ECONOMIC CLASS OF FARM, IN THE CORN BELT: 1954

Type and economic class of farm	Average value per farm (dollars)			
	All farm products sold	All crops sold	Livestock and livestock products sold	Forest products sold
All commercial farms.....	8,602	3,110	5,487	4
Cash-grain farms:				
Total.....	7,843	5,963	1,877	3
Class I.....	34,428	26,753	7,662	14
II.....	14,209	10,884	3,321	3
III.....	7,312	5,430	1,880	2
IV.....	3,841	2,921	918	3
V.....	1,919	1,527	389	2
VI.....	796	655	141	1
Livestock farms: ¹				
Total.....	10,402	1,374	9,025	3
Class I.....	47,410	4,425	42,979	5
II.....	15,250	2,423	12,824	3
III.....	7,387	1,112	6,272	3
IV.....	3,844	480	3,361	3
V.....	1,911	188	1,721	3
VI.....	791	69	721	1

¹ Livestock other than dairy and poultry farms.

The proportion of receipts from crops and from livestock and livestock products sold showed relatively little variation from class to class among either the cash-grain farms or the livestock farms (table 82). The widest difference among classes of cash-grain farms was 8 percent, comparing Class III with Class VI. The widest

difference between livestock farms was 7 percent, comparing Class II with Class VI. These differences in source of income are relatively insignificant when compared with the differences in levels of income.

TABLE 82.—PERCENTAGE COMPOSITION OF VALUE OF FARM PRODUCTS SOLD ON COMMERCIAL FARMS IN THE CORN BELT: 1954

Type and economic class of farm	Total value of farm products sold	Value of all crops sold	Value of livestock and livestock products sold	Value of forest products sold
All commercial farms.....	Percent 100.0	Percent 36.2	Percent 63.8	Percent (Z)
Cash-grain farms:				
Total.....	100.0	76.0	23.9	(Z)
Class I.....	100.0	77.7	22.3	(Z)
II.....	100.0	76.6	23.4	(Z)
III.....	100.0	74.3	25.7	(Z)
IV.....	100.0	76.0	23.9	0.1
V.....	100.0	79.6	20.3	0.1
VI.....	100.0	82.3	17.7	0.1
Livestock farms: ¹				
Total.....	100.0	13.2	86.8	(Z)
Class I.....	100.0	9.3	90.7	(Z)
II.....	100.0	15.9	84.1	(Z)
III.....	100.0	15.0	84.8	(Z)
IV.....	100.0	12.5	87.4	0.1
V.....	100.0	9.8	90.0	0.1
VI.....	100.0	8.8	91.1	0.1

Z. 0.05 percent or less.

¹ Livestock other than dairy and poultry farms.

SPECIFIED EXPENSES

In the 1954 Census of Agriculture information was obtained on expenditures for machine hire, hired labor, feed for livestock and poultry, gasoline and other petroleum fuel and oil, commercial fertilizer and fertilizing material, and lime and liming material. These items account for a major share of the cash expenses on most farms (5). It is estimated that, in general, the specified expenses account for approximately two-thirds of all the farm expenses on Corn Belt farms, exclusive of land rent, interest on capital investment, and depreciation of buildings, machinery, and equipment.

Every farm did not have expenditures for each of the items covered by the Census inquiry. The proportion of commercial farms reporting specified expenditures by region and type of farm in the Corn Belt is shown in table 83.

About 70 percent of all the commercial farms reported expenditures for machine hire. This item included customwork such as tractor hire, combining, threshing, silo filling, baling, plowing, and spraying. Farms reporting machine hire were relatively most numerous in the Northern Corn Belt (75.3 percent), and relatively least numerous in the Eastern Corn Belt (65.1 percent).

Expenditures for hired labor were reported on 51.8 percent of the commercial farms in the Corn Belt. Almost half the farms used no hired help. The Central Corn Belt had the largest percentage of farms using hired labor (55.5 percent), and the Southern Corn Belt had the smallest proportion (47 percent). Hired labor was used by a larger proportion of the livestock farms than of the cash-grain farms in every region.

Expenditures for feed for livestock and poultry were reported on 89.2 percent of the commercial farms. This was a larger proportion of the farms than those reporting any other specified expense except for gasoline and oil. Items included under feed expenditures were grain, hay, mill feeds, concentrates and roughages purchased, and payments for grinding and mixing feed. The largest percentage of farms reporting expenditures for feed was in the Northern Corn Belt (91.6 percent), and the smallest percentage was in the Eastern Corn Belt (85.2 percent). A considerably larger proportion of livestock farmers than of cash-grain farmers reported expenditures for feed. For example, in the Eastern Corn Belt, 94.7 percent of the livestock farmers and 73.6 percent of the cash-grain farmers reported this expense.

Expenditures for gasoline and other petroleum fuel and oil for the farm business were reported by 92.2 percent of the commercial farms. The highest proportions of farms reporting this item were in the Northern, Western, and Central Corn Belt. This item was reported somewhat more frequently on cash-grain farms than on livestock farms in every region, reflecting the generally more complete degree of mechanization on the cash-grain farms. Farmers who did not report expenditures for gasoline and oil apparently were mainly those who use horse and mule power exclusively and those who hired tractors or custom operators to do all their field work.

Commercial fertilizer or fertilizing materials were bought by about two-thirds of all the commercial farms in the Corn Belt in 1954. The highest percentage of farms reporting expenditures for fertilizer was in the Eastern Corn Belt (88.1 percent), and the smallest percentage was among farms in the Western Corn Belt (50.2 percent). In the Eastern, Southern, and Central Corn Belt, the proportion of cash-grain farms reporting expenditures for fertilizer was larger than the proportion of livestock farms reporting fertilizer expenditures, but the opposite was true in the other two regions.

Expenditures for lime and liming material were reported by about a fifth of the commercial farms. Lime expenditures were reported relatively most frequently among farmers in the Southern and Eastern Corn Belt, and relatively least frequently among farmers in the Western Corn Belt. The percentage of farms reporting expenditures for lime generally varied considerably more between regions than between types of farms within regions.

TABLE 83.—PERCENT OF COMMERCIAL FARMS REPORTING SPECIFIED EXPENDITURES, BY TYPE OF FARM, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Specified farm expenditures					
	Ma- chine hire	Hired labor	Feed	Gas- oline and oil	Com- mercial fertil- izer	Lime and liming mate- rial
Total Corn Belt:	Percent	Percent	Percent	Percent	Percent	Percent
All commercial farms.....	69.7	51.8	89.2	92.2	66.5	19.0
Cash-grain farms.....	69.7	49.8	78.4	95.1	68.8	17.8
Livestock farms ¹	70.3	56.0	95.7	91.8	65.4	20.9
Eastern Corn Belt:						
All commercial farms.....	65.1	51.1	85.2	89.3	88.1	26.1
Cash-grain farms.....	66.1	47.8	73.6	93.2	92.7	24.4
Livestock farms ¹	64.8	56.0	94.7	88.1	86.9	31.6
Central Corn Belt:						
All commercial farms.....	70.3	55.5	90.1	94.1	61.3	20.1
Cash-grain farms.....	71.7	54.1	81.7	95.7	64.4	20.1
Livestock farms ¹	69.5	58.9	96.8	94.2	61.2	22.2
Northern Corn Belt:						
All commercial farms.....	75.3	52.9	91.6	95.7	63.9	13.9
Cash-grain farms.....	74.2	49.4	79.7	97.0	54.3	6.5
Livestock farms ¹	74.9	58.1	96.3	95.8	71.6	18.7
Western Corn Belt:						
All commercial farms.....	72.6	52.7	90.1	94.3	50.2	7.7
Cash-grain farms.....	74.2	51.4	79.8	96.8	49.3	6.4
Livestock farms ¹	72.3	55.9	96.8	93.8	52.5	8.7
Southern Corn Belt:						
All commercial farms.....	67.0	47.0	90.0	88.4	68.8	26.8
Cash-grain farms.....	63.0	43.5	78.2	93.7	74.4	27.0
Livestock farms ¹	69.7	52.1	94.7	87.2	67.2	28.7

¹ Livestock other than dairy and poultry farms.

Machine hire was reported somewhat more frequently among Class II and Class III farms than among the higher and lower economic classes of farms (table 84). Hired labor was reported relatively most frequently among the higher economic classes, ranging among the cash-grain farms, for example, from 88.8 percent of the Class I farms down to 18.2 percent of the Class VI farms. Expenditures for feed also were generally reported relatively more frequently among the upper economic classes of farms, but the range in frequency of farms reporting was greater among cash-grain farms than among livestock farms. Even among the Class VI livestock farms, 87.5 percent reported expenditures for feed. Gasoline and oil purchases were reported by nearly all Classes I, II, and III farms and by 60 to 75 percent of Class VI farms.

Commercial fertilizer and lime also were reported relatively more frequently by the upper economic classes of farms. Among cash-grain farms, for example, the range from Class I to Class VI farms in percentage of farms reporting expenditures for fertilizer was from 88.4 percent down to 48 percent. For lime on livestock farms, the percentage of farms reporting ranged from 30.9 percent of the Class I farms down to 9.7 percent of the Class VI farms.

TABLE 84.—PERCENT OF COMMERCIAL FARMS REPORTING SPECIFIED EXPENDITURES, IN THE CORN BELT: 1954

Type and economic class of farm	Specified farm expenditures					
	Ma- chine hire	Hired labor	Feed	Gas- oline and oil	Com- mercial ferti- lizer	Lime and liming mate- rial
All commercial farms.....	Percent 69.7	Percent 51.8	Percent 89.2	Percent 92.2	Percent 66.5	Percent 19.0
Cash-grain farms:						
Total.....	69.7	49.8	78.4	95.1	68.8	17.8
Class I.....	67.0	38.8	84.1	97.5	88.4	34.7
II.....	70.7	68.8	86.3	97.8	80.9	23.8
III.....	71.1	52.0	83.7	97.4	69.0	17.0
IV.....	69.7	39.6	74.4	95.2	62.2	14.8
V.....	68.2	29.5	63.3	89.6	60.8	13.9
VI.....	58.9	18.2	64.8	74.6	48.0	9.7
Livestock farms: ¹						
Total.....	70.3	56.0	95.7	91.8	65.4	20.9
Class I.....	70.6	87.0	98.3	98.0	84.9	30.9
II.....	73.0	70.8	97.7	97.5	80.2	25.9
III.....	74.1	57.4	96.9	96.8	69.0	21.4
IV.....	71.8	47.6	95.2	91.8	56.8	17.6
V.....	64.2	34.7	91.8	70.7	45.6	14.2
VI.....	45.6	21.6	87.5	59.9	31.0	9.7

¹ Livestock other than dairy and poultry farms.

Feed was the largest item of expenditure per commercial farm reporting (table 85). This was true for all commercial farms and for practically every economic class of cash-grain and livestock farms. Among the 89.2 percent of the commercial farms buying feed, the average expenditure for feed in 1954 was \$1,510. On cash-grain farms, this expenditure averaged \$2,134 on Class I farms, \$1,120 on Class II farms, \$696 on Class III farms, and \$193 on Class VI farms. On livestock farms the average expenditure for feed, by the 95.7 percent of the farmers who reported this expenditure, was \$2,117. On Class I livestock farms the average amount spent for feed was \$9,458. From this rather tidy sum, the average expenditures ranged downward to \$2,855 on Class II farms, and to \$293 on Class VI farms. A large part of the expenditure for feed by farmers in the Corn Belt is for oil meal, such as soybean meal or linseed meal, and for commercially mixed feeds, such as pig starter and poultry laying mash.

TABLE 85.—AVERAGE EXPENDITURE PER COMMERCIAL FARM REPORTING EACH SPECIFIED EXPENSE IN THE CORN BELT: 1954

Type and economic class of farm	Specified farm expenditures (dollars)					
	Ma- chine hire	Hired labor	Feed	Gas- oline and oil	Com- mercial ferti- lizer	Lime and liming mate- rials
All commercial farms.....	242	575	1,510	525	489	165
Cash-grain farms:						
Total.....	251	475	725	574	552	188
Class I.....	575	2,474	2,134	1,712	2,192	427
II.....	325	663	1,120	868	840	233
III.....	253	289	696	570	465	175
IV.....	208	195	416	381	308	133
V.....	159	144	279	240	211	103
VI.....	109	95	193	157	134	88
Livestock farms: ¹						
Total.....	250	609	2,117	526	498	168
Class I.....	456	2,166	9,458	1,175	1,286	325
II.....	301	680	2,855	688	616	195
III.....	245	334	1,490	490	390	144
IV.....	202	237	893	353	273	111
V.....	154	104	529	230	199	100
VI.....	108	120	293	153	147	92

¹ Livestock other than dairy and poultry farms.

Hired labor was the second largest expenditure per farm reporting. Only about half the farms used hired labor, but on farms where it was used, it was generally a substantial expense. Hired labor was used to the largest extent on the larger farms. On Class I cash-grain farms, the average wage bill per farm reporting was \$2,474, and on Class I livestock farms it was \$2,166. On Class II and smaller farms, however, the average expenditure for hired labor was one of the smallest expenditure items reported.

Gasoline and oil constituted the third largest item of expenditure per farm reporting. This item averaged \$574 on cash-grain farms and \$526 on livestock farms. The range in size of the gasoline and oil bill per farm reporting among cash-grain farms was from \$157 on Class VI farms up to \$1,712 on Class I farms. Class for class, the average expenditure for gas and oil was smaller on livestock farms than on cash-grain farms.

The average expenditure for commercial fertilizer per farm reporting ranged from \$2,192 down to \$134 on the economic classes of cash-grain farms, and from \$1,286 down to \$147 on the economic classes of livestock farms. Expenditures for lime and liming material averaged smaller than any other specified expenses reported. The range on cash-grain farms was from \$427 on Class I farms to \$88 on Class VI farms.

The average bill for machine hire among the 69.7 percent of the farmers who reported this item was \$242. The size of this expenditure ran slightly lower on the livestock farms than it did on the corresponding classes of cash-grain farms.

The total amount of the 6 specified expenses on all commercial farms in the Corn Belt in 1954 was 2.1 billion dollars (table 86). About half of this was spent by livestock farmers, and about a fourth by cash-grain farmers. More than half of the expenditures among both cash-grain and livestock farms were made by the Class II and Class III farms. Expenditures for feed reached almost 1.1 billion dollars, or approximately half of the total specified expenditures. On cash-grain farms, the expenditure for feed was only slightly greater than the expenditure for gasoline and oil, but on livestock farms the expenditure for feed was relatively much greater. On all economic classes of farms except Class I, the total expense for commercial fertilizer was greater than the total expense for hired labor.

TABLE 86.—TOTAL SPECIFIED EXPENDITURES ON COMMERCIAL FARMS IN THE CORN BELT: 1954

Type and economic class of farm	Specified farm expenditures (thousand dollars)						
	Total	Ma- chine hire	Hired labor	Feed	Gas- oline and oil	Com- mercial ferti- lizer	Lime and liming mate- rial
All commercial farms.....	2,115,745	134,543	237,679	1,073,633	385,652	259,213	25,026
Cash-grain farms:							
Total.....	513,080	46,254	62,471	150,381	144,570	100,621	8,862
Class I.....	52,824	2,505	14,264	11,669	10,851	12,582	963
II.....	200,643	14,250	28,272	59,937	52,645	42,111	3,428
III.....	163,906	16,196	13,531	52,505	50,068	28,928	2,678
IV.....	68,643	8,986	4,785	19,232	22,524	11,896	1,222
V.....	23,289	3,682	1,447	5,995	7,313	4,366	486
VI.....	3,755	636	173	1,064	1,168	640	85
Livestock farms: ¹							
Total.....	1,106,354	57,446	111,498	961,732	157,793	106,420	11,464
Class I.....	314,408	7,321	42,812	211,060	26,144	24,801	2,281
II.....	303,190	18,342	40,249	233,017	56,054	41,301	4,227
III.....	244,907	17,168	18,120	136,464	44,804	25,443	2,908
IV.....	107,655	9,721	7,551	56,946	21,739	10,388	1,310
V.....	37,167	3,964	2,279	19,408	7,322	3,625	569
VI.....	9,027	930	488	4,848	1,731	862	169

¹ Livestock other than dairy and poultry farms.

The relative importance or magnitude of different items among the specified expenses was not the same on all economic classes of farms. Among cash-grain farms, the item accounting for the largest percentage of the total specified expenses was hired labor on Class I farms, feed on Class II and Class III farms, and gasoline and oil on Classes IV, V, and VI farms (table 87). Among livestock farms, feed accounted for the largest percentage of the specified expenditures on all economic classes of farms. Expenditures for machine hire and for fuel were larger percentages of the total on the lower economic classes than on the higher economic classes of farms, while expenditures for hired labor were larger percentages of the total on the higher economic classes.

TABLE 87.—PERCENTAGE COMPOSITION OF TOTAL SPECIFIED EXPENDITURES ON COMMERCIAL FARMS, BY ECONOMIC CLASS, IN THE CORN BELT: 1954

Type and economic class of farm	Percentage composition of specified farm expenditures						
	Total	Machine hire	Hired labor	Feed	Gasoline and oil	Commercial fertilizer	Lime and liming material
All commercial farms.....	100.0	6.4	11.2	50.7	18.2	12.3	1.2
Cash-grain farms:							
Total.....	100.0	9.0	12.2	29.3	28.2	19.6	1.7
Class I.....	100.0	4.7	27.0	22.1	20.5	23.8	1.8
II.....	100.0	7.1	14.1	29.9	26.2	21.0	1.7
III.....	100.0	9.9	8.3	32.0	30.5	17.6	1.6
IV.....	100.0	13.1	7.0	28.0	32.8	17.3	1.8
V.....	100.0	15.8	6.2	25.7	31.4	18.7	2.1
VI.....	100.0	16.9	4.6	28.1	31.1	17.0	2.3
Livestock farms: ¹							
Total.....	100.0	5.2	10.1	59.8	14.3	9.6	1.0
Class I.....	100.0	2.3	13.6	67.1	8.3	7.9	0.7
II.....	100.0	4.7	10.2	59.3	14.3	10.5	1.1
III.....	100.0	7.0	7.4	55.7	18.3	10.4	1.2
IV.....	100.0	9.0	7.0	52.9	20.2	9.6	1.2
V.....	100.0	10.7	6.1	52.2	19.7	9.8	1.5
VI.....	100.0	10.3	5.4	53.7	19.2	9.5	1.9

¹ Livestock other than dairy and poultry farms.

The total specified expenditures per commercial farm in 1954 are shown by economic class of farm for each region of the Corn Belt in table 88. The average for all commercial farms was \$2,654. The largest average expenditure per commercial farm for the specified items was in the Central Corn Belt (\$3,230). The Western Corn Belt ranked second with an average total expenditure per farm of \$2,703. The largest average expenditure for any group of farms was \$16,324 on Class I farms in the Southern Corn Belt. Average expenditures on Class II and Class III farms, which are rather typical of much of the Corn Belt, were between \$1,700 and \$3,800 for cash-grain farms in the various regions, and between \$2,300 and \$5,400 for livestock farms.

TABLE 88.—AVERAGE OF TOTAL SPECIFIED EXPENDITURES PER COMMERCIAL FARM IN THE CORN BELT AND COMPONENT REGIONS: 1954

Type and economic class of farm	Corn Belt, total	Eastern Corn Belt	Central Corn Belt	Northern Corn Belt	Western Corn Belt	Southern Corn Belt
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
All commercial farms.....	2,654	2,582	3,230	2,597	2,703	2,101
Cash-grain farms:						
Total.....	1,939	1,927	2,372	1,881	1,696	1,621
Class I.....	8,132	9,407	7,608	7,339	7,559	9,284
II.....	3,236	3,489	3,136	3,097	3,051	3,711
III.....	1,819	1,935	1,754	1,749	1,705	2,051
IV.....	1,106	1,098	1,053	1,076	1,047	1,261
V.....	686	654	647	612	666	775
VI.....	378	326	392	348	341	436
Livestock farms: ¹						
Total.....	3,387	3,412	4,125	3,161	3,593	2,484
Class I.....	13,846	13,647	12,238	11,347	16,177	16,324
II.....	4,706	5,068	4,606	4,143	4,638	5,365
III.....	2,591	2,766	2,623	2,352	2,603	2,759
IV.....	1,607	1,647	1,683	1,516	1,588	1,602
V.....	929	892	923	890	943	948
VI.....	478	478	461	456	516	466

¹ Livestock other than dairy and poultry farms.

Information was not obtained in the 1954 Census on expenditures for livestock and poultry purchased. This expense item is relatively important on many Corn Belt farms, especially on those farms where feeder cattle and feeder sheep are sizable enterprises. Information obtained on this item in the 1950 Census showed that it was somewhat larger than the expenditures for feed purchased in the Corn Belt as a whole. The distribution of expenditures for livestock and poultry bought on farms in the United States in 1949 is shown in figure 36. The concentration of expenditures for livestock purchases was relatively heavy in the Corn Belt, and especially in parts of the Western and Central Corn Belt.

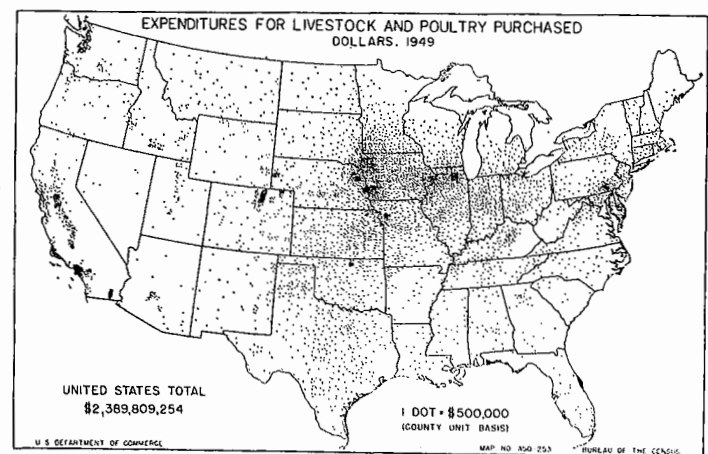


FIGURE 36.

INVESTMENT COST

Total capital investment on Corn Belt farms has been discussed above. It has been noted, for example, that the average value of investment on all commercial farms in the Corn Belt in 1954 was about \$44,000 and that the range in average value of investment among economic classes of farms was from about \$10,000 up to almost \$200,000 (table 31).

Capital is not available without cost. The cost of capital may be in the form of interest charges on money borrowed, interest payments on a mortgage or on indebtedness for machinery or equipment, or it may be an interest rate determined by the alternative opportunities of investment.

Estimated interest charges for capital investment per commercial farm, by major category of investment, and by type of farm in the different regions in the Corn Belt are given in table 89. These interest charges have been computed by using an interest rate of 5 percent for the investment in land and buildings, and an interest rate of 7 percent for the investment in machinery, equipment, and livestock. Because of the large investment frequently found on Corn Belt farms it is interesting to note the estimated charges, at prevailing interest rates, represented by these capital investments.

The relatively large interest charge for investment in land and buildings indicates the cost of land ownership and helps to explain

TABLE 89.—ESTIMATED INTEREST CHARGE FOR CAPITAL INVESTMENT PER COMMERCIAL FARM, BY MAJOR CATEGORIES OF INVESTMENT, BY TYPE OF FARM, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Total capital investment	Land and buildings ¹	Machinery and equipment ²	Livestock ³
	Dollars	Dollars	Dollars	Dollars
Total Corn Belt:				
All commercial farms.....	2,416	1,677	419	320
Cash-grain farms.....	2,614	1,997	448	169
Livestock farms ³	2,615	1,688	442	485
Eastern Corn Belt:				
All commercial farms.....	2,218	1,586	414	218
Cash-grain farms.....	2,288	1,735	433	120
Livestock farms ³	2,556	1,736	447	373
Central Corn Belt:				
All commercial farms.....	3,402	2,546	469	387
Cash-grain farms.....	3,810	3,105	503	202
Livestock farms ³	3,380	2,281	512	587
Northern Corn Belt:				
All commercial farms.....	2,275	1,443	448	384
Cash-grain farms.....	2,235	1,579	404	192
Livestock farms ³	2,567	1,531	482	554
Western Corn Belt:				
All commercial farms.....	2,477	1,667	424	386
Cash-grain farms.....	2,370	1,736	438	196
Livestock farms ³	2,759	1,758	448	553
Southern Corn Belt:				
All commercial farms.....	1,611	1,026	346	239
Cash-grain farms.....	1,747	1,223	385	139
Livestock farms ³	1,721	1,060	337	334

¹ Interest charge at 5 percent.

² Interest charge at 7 percent.

³ Livestock other than dairy and poultry farms.

the high proportion of farmers who are part owners or tenants in the relatively high-priced land areas of the Corn Belt. To a tenant, the actual cost of investment in land is not in the form of a direct payment of interest, but it is a cost included in rents paid in the long run by tenants and part owners to their landlords.

The estimated interest charge for total capital investment averaged \$2,416 per commercial farm in the Corn Belt in 1954. It was highest (averaging \$3,810 per farm) on cash-grain farms in the Central Corn Belt. It was relatively the lowest on commercial farms in the Southern Corn Belt, where it averaged \$1,611 per farm. The estimated interest charge for investment in land and buildings averaged \$1,677 for all commercial farms in the Corn Belt, while the average interest on investment in machinery and equipment was \$419 and the average interest on investment in livestock averaged \$320 per commercial farm.

The estimated average charges for interest on the various economic classes of cash-grain and livestock farms in the Corn Belt are shown in table 90. Interest on the total investment was highest on Economic Class I cash-grain farms, averaging \$9,011 per farm. On Economic Class I livestock farms it was \$6,711. Total interest, as well as the interest charge in each category of investment, is progressively lower as we go from Economic Class I farms to Economic Class VI farms. The interest on investment in land and buildings was \$7,495 per farm on Class I cash-grain farms, but only \$442 on Class VI cash-grain farms. The estimated interest charge on machinery and equipment averaged \$1,052 on Class I cash-grain farms, but only \$168 on Class VI cash-grain farms. On livestock farms, the average interest charge for investment in livestock per farm ranged from \$1,395 on Economic Class I farms down to \$109 on Class VI farms.

TABLE 90.—ESTIMATED INTEREST CHARGE FOR CAPITAL INVESTMENT PER FARM, BY MAJOR CATEGORIES OF INVESTMENT, BY TYPE AND ECONOMIC CLASS OF FARM, IN THE CORN BELT: 1954

Type and economic class of farm	Total capital investment	Land and buildings ¹	Machinery and equipment ²	Livestock ³
	Dollars	Dollars	Dollars	Dollars
All commercial farms.....	2,416	1,677	419	320
Cash-grain farms:				
Total.....	2,614	1,997	448	169
Class I.....	9,011	7,495	1,052	464
II.....	4,322	3,430	631	261
III.....	2,512	1,879	454	179
IV.....	1,575	1,121	343	111
V.....	1,005	688	256	61
VI.....	646	442	168	36
Livestock farms: ³				
Total.....	2,615	1,688	442	485
Class I.....	6,711	4,422	894	1,395
II.....	3,738	2,482	594	662
III.....	2,396	1,522	434	440
IV.....	1,610	985	322	303
V.....	1,041	628	228	185
VI.....	649	396	144	108

¹ Interest charge at 5 percent.

² Interest charge at 7 percent.

³ Livestock other than dairy and poultry farms.

INDICATORS OF FARM EFFICIENCY

Efficiency of farm operations is reflected in the returns or output obtained in relation to the quantity or value of inputs used. Farming inputs may be grouped under the broad categories of land, labor, operating capital, and management. Operating capital includes investments in machinery, equipment, and livestock, and current expenditures for items such as gasoline and oil, machine hire, seed, feed, and fertilizer. Investment in land and buildings is also a capital input, but because of the basic role of land in agriculture and its spatial as well as productivity aspects, it is helpful in some phases of an analysis of farming to consider the land resources in terms of acreage as well as in terms of capital investment. Likewise, it is helpful in an examination of farming efficiency to make some analysis of output in relation to physical units of labor as well as in relation to the value of labor services (5).

One of the best measures of average resource productivity and efficiency is the relationship of total production to all resources used in farming. An overall output-input measure of that kind for the different types and economic classes of farms in the Corn Belt would require data on items in addition to those for which information was available in the present study. On the output side, data on value of farm products used in farm households would be necessary in addition to the value of all farm products sold. On the input side, data on various expenditures and costs in addition to those reported in the Census would be necessary. However, the available data do make possible a number of comparisons of the intensity of resource use on the different types and economic classes of farms and the computation of some measures that indicate the relative efficiency of production on different economic classes of farms. Data providing some comparisons of resource use and some indications of relative efficiency for farms in the Corn Belt are presented in the following tables.

PRODUCTION PER UNIT OF LAND

The percentage of land in high return crops is a measure of intensity of cropping and it often is useful in explaining differences in economic returns of individual farms or groups of farms. In the Corn Belt the two most widely grown high return crops are corn and soybeans. The percentages of cropland occupied by each of these crops on farms in different regions of the Corn Belt in 1954 are shown in table 91. Groups of farms having a relatively high percentage of cropland in both of these crops are generally those showing the highest value of farm products sold per acre of cropland. The percentage of harvested cropland used for corn and soybeans is shown for each economic class of cash-grain and livestock farms in table 92. On cash-grain farms there was no consistent relationship between economic class and percent of cropland in corn. On livestock farms, however, Class I farms had the highest percentage of cropland in corn and the proportion of cropland in corn declined consistently from Class I to Class VI farms. The percentage of cropland in soybeans was highest on Class I farms and consistently less on each of the lower economic classes of farms. This was true on livestock farms as well as on cash-grain farms.

The number of cattle and calves and of hogs and pigs per 100 acres of land in farms indicate the relative intensity of production of these livestock (tables 91 and 92). In the Corn Belt as a whole, livestock farms had more than twice as many cattle and more

than 4 times as many hogs per 100 acres as did cash-grain farms. The average number of cattle and calves per 100 acres on livestock farms was highest in the Central and Northern Corn Belt (22 head and 21 head, respectively), and lowest in the Southern Corn Belt (14 head). The Central Corn Belt had the largest number of hogs and pigs per 100 acres of farmland on both cash-grain and livestock farms as well as on all commercial farms. Livestock farms in the Central Corn Belt had an average of 56 hogs and pigs per 100 acres of farmland compared with 21 on livestock farms in the Southern Corn Belt. The number of head of livestock per 100 acres of farmland was strongly correlated with economic class of farm on the livestock farms. Economic Class I livestock farms had an average of 28 cattle and calves per 100 acres, while Class VI livestock farms had only 12. The average number of hogs and pigs per 100 acres was 42 on Class I livestock farms and 11 on Class VI livestock farms. On cash-grain farms, all economic classes of farms had much fewer livestock per 100 acres than did livestock farms, and the differences between classes were less conspicuous.

The number of hogs and pigs per 100 acres of cropland on livestock farms ranged from 60 on Economic Class I farms down to 48 on Class III farms, and 25 on Class VI farms. On cash-grain farms, the Classes I, II, and III farms had 11 or 12 hogs and pigs per 100 acres of cropland, while the Class IV farms had 8, and the Class VI farms had only 4.

TABLE 91.—PRODUCTION OF CORN, SOYBEANS, CATTLE, AND HOGS IN RELATION TO ACREAGE OF FARMLAND, BY TYPE OF FARM, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Percent of total acres of cropland harvested		Head of livestock per 100 acres of all land in farms		Number of hogs and pigs per 100 acres of cropland
	Corn harvested for grain	Soybeans harvested for beans	All cattle and calves	All hogs and pigs	
Total Corn Belt:					
All commercial farms.....	37.7	11.3	13	22	30
Cash-grain farms.....	38.7	18.3	8	8	11
Livestock farms ¹	39.0	5.7	18	34	51
Eastern Corn Belt:					
All commercial farms.....	38.5	16.0	12	23	30
Cash-grain farms.....	39.1	23.4	6	9	11
Livestock farms ¹	41.1	9.5	16	48	62
Central Corn Belt:					
All commercial farms.....	43.6	15.7	15	33	41
Cash-grain farms.....	43.1	23.8	8	12	14
Livestock farms ¹	44.9	7.2	22	56	71
Northern Corn Belt:					
All commercial farms.....	33.2	9.8	15	27	36
Cash-grain farms.....	32.1	17.8	7	10	12
Livestock farms ¹	36.5	4.9	21	42	58
Western Corn Belt:					
All commercial farms.....	40.2	2.7	14	16	23
Cash-grain farms.....	41.3	4.3	8	5	7
Livestock farms ¹	40.1	1.7	18	23	38
Southern Corn Belt:					
All commercial farms.....	27.7	16.9	12	14	23
Cash-grain farms.....	29.9	27.5	7	6	9
Livestock farms ¹	28.7	9.9	14	21	38

¹ Livestock other than dairy and poultry farms.

TABLE 92.—PRODUCTION OF CORN, SOYBEANS, CATTLE, AND HOGS IN RELATION TO ACREAGE OF FARMLAND, BY TYPE AND ECONOMIC CLASS OF FARM, IN THE CORN BELT: 1954

Type and economic class of farm	Percent of total acres of cropland harvested		Head of livestock per 100 acres of all land in farms		Number of hogs and pigs per 100 acres of cropland
	Corn harvested for grain	Soybeans harvested for beans	All cattle and calves	All hogs and pigs	
All commercial farms.....	37.7	11.3	13	22	30
Cash-grain farms:					
Total.....	38.7	18.3	8	8	11
Class I.....	40.5	24.3	8	9	11
II.....	39.3	20.8	8	10	12
III.....	38.0	16.8	8	9	11
IV.....	37.9	14.7	7	6	8
V.....	39.1	15.2	6	4	6
VI.....	42.2	12.9	5	3	4
Livestock farms: ¹					
Total.....	39.0	5.7	18	34	51
Class I.....	41.1	7.0	28	42	60
II.....	40.1	6.9	18	41	57
III.....	38.3	5.0	16	32	48
IV.....	36.6	3.9	15	25	41
V.....	35.9	3.1	14	18	34
VI.....	36.1	2.4	12	11	25

¹ Livestock other than dairy and poultry farms.

CAPITAL INPUTS AND PRODUCT OUTPUT PER ACRE

Data on specified resource inputs and value of farm products sold in relation to land acreage are shown in tables 93 and 94. The highest value of all farm products sold per acre of land was found on farms in the Central and Eastern Corn Belt. These were also the regions where capital investment per acre and total speci-

fied expenses per acre were relatively high. The relatively high value of land and buildings per acre contributed to the relatively high value of total investment per acre on farms in the Central and Eastern Corn Belt, but the investment in machinery and equipment per acre of cropland and the number of tractors in relation to crop acres in these regions were also relatively high. Farms in the Southern Corn Belt had the relatively smallest investment in land and buildings, machinery, and livestock per acre, and they also had the lowest average value of farm products sold per acre of any region in the Corn Belt.

Total capital investment per acre of all land in farms ranged from an average of \$277 on Class I cash-grain farms down to \$142 on Class VI cash-grain farms. Among livestock farms also, total capital investment per acre was only half as great on Class VI farms as on Class I farms, with investment per acre on the other economic classes ranging between these extremes. Total specified expenses per acre likewise were highest on the upper economic classes of farms, ranging on livestock farms, for example, from \$29 on Class I farms down to \$5 on Class VI farms. It has been pointed out above that crop yields were highest on the upper economic classes and lowest on the lower economic classes of farms (table 59).

The investment in machinery and equipment per acre of cropland was lower on the upper economic classes than on the lower economic classes of farms. This comes about because the larger farms had more acres of cropland on which to use their machines so that the acreage per machine was larger. For example, Class I cash-grain farms had an average of 144 acres of cropland per tractor, while Class VI cash-grain farms had 65. In other words, the overhead cost of a set of farm machinery is greater on a per acre basis on small farms than on large farms.

TABLE 93.—SPECIFIED RESOURCE INPUTS AND VALUE OF FARM PRODUCTS SOLD IN RELATION TO LAND ACREAGE, BY TYPE OF FARM, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Capital investment per acre of all land in farms (dollars)		Total specified expenses per acre of all land in farms ² (dollars)	Acres of cropland per tractor	Investment in machinery and equipment per acre of cropland (dollars)	Value of all crops sold per acre of cropland (dollars)	Value of farm products sold per acre of all land in farms (dollars)	
	Total ¹	Livestock, machinery, and equipment					Livestock and livestock products	All farm products
Total Corn Belt:								
All commercial farms.....	206	49	12	92	39	20	26	40
Cash-grain farms.....	216	39	9	101	36	33	8	35
Livestock farms ³	204	57	15	91	41	9	39	45
Eastern Corn Belt:								
All commercial farms.....	265	59	17	72	49	29	28	51
Cash-grain farms.....	250	46	11	79	45	40	10	42
Livestock farms ³	285	72	21	73	51	14	48	59
Central Corn Belt:								
All commercial farms.....	318	62	16	85	41	28	35	58
Cash-grain farms.....	333	47	11	94	38	43	11	48
Livestock farms ³	311	80	21	80	47	12	59	68
Northern Corn Belt:								
All commercial farms.....	198	58	13	87	41	16	32	44
Cash-grain farms.....	178	41	8	103	35	29	10	34
Livestock farms ³	217	71	15	83	45	7	47	52
Western Corn Belt:								
All commercial farms.....	157	40	9	116	32	15	22	32
Cash-grain farms.....	148	31	6	134	28	24	6	24
Livestock farms ³	163	47	12	110	34	7	33	37
Southern Corn Belt:								
All commercial farms.....	134	39	10	98	38	14	17	25
Cash-grain farms.....	137	32	7	107	33	24	6	23
Livestock farms ³	132	41	11	99	38	7	23	27

¹ Value of total investment in land, buildings, livestock, machinery, and equipment.

² Total of expenditures for machine hire, hired labor, feed bought, gasoline and other petroleum fuel and oil, commercial fertilizer and fertilizing material, and lime and liming material.

³ Livestock other than dairy and poultry farms.

The value of crops sold per acre of cropland and the value of all farm products sold per acre of all land ranged from highest on Class I farms to lowest on Class VI farms. On livestock farms, the average value of all farm products sold per acre of all land was \$100 on Class I farms, \$32 on Class III farms, and \$8 on Class VI farms.

For all commercial farms in the Corn Belt in 1954 the average

value of farm products sold per acre of land in farms was \$40. The average for all farms in the United States was \$21.28 (fig. 37). In a number of smaller regions in different parts of the United States, the average value of farm products sold per acre of farmland was equal to or above that of the Central and Eastern Corn Belt. But most of the area of the United States was below the Corn Belt average. Parts of the Southern and Western Corn Belt were about equal to or below the United States average.

TABLE 94.—SPECIFIED RESOURCE INPUTS AND VALUE OF FARM PRODUCTS SOLD IN RELATION TO LAND ACREAGE, BY TYPE AND ECONOMIC CLASS OF FARM, IN THE CORN BELT: 1954

Type and economic class of farm	Capital investment per acre of all land in farms (dollars)		Total specified expenses per acre of all land in farms ² (dollars)	Acres of cropland per tractor	Investment in machinery and equipment per acre of cropland (dollars)	Value of all crops sold per acre of cropland (dollars)	Value of farm products sold per acre of all land in farms (dollars)	
	Total ¹	Livestock, machinery, and equipment					Livestock and livestock products	All farm products
All commercial farms.....	206	49	12	92	39	20	26	40
Cash-grain farms:								
Total.....	216	39	9	101	36	33	8	35
Class I.....	277	35	13	144	29	51	12	56
II.....	252	40	10	114	33	40	10	44
III.....	202	39	8	101	36	30	8	32
IV.....	173	39	7	86	40	24	6	23
V.....	162	40	6	68	47	20	3	17
VI.....	142	36	5	65	47	13	2	10
Livestock farms: ³								
Total.....	204	57	15	91	41	9	39	45
Class I.....	257	69	29	113	39	13	91	100
II.....	235	62	16	96	41	12	45	53
III.....	188	55	11	88	41	7	28	32
IV.....	158	49	9	81	42	4	19	21
V.....	143	46	7	68	48	3	13	15
VI.....	123	38	5	70	50	2	8	8

¹ Value of total investment in land, buildings, livestock, machinery, and equipment.
² Total of expenditures for machine hire, hired labor, feed bought, gasoline and other petroleum fuel and oil, commercial fertilizer and fertilizing material, and lime and mining material.

³ Livestock other than dairy and poultry farms.

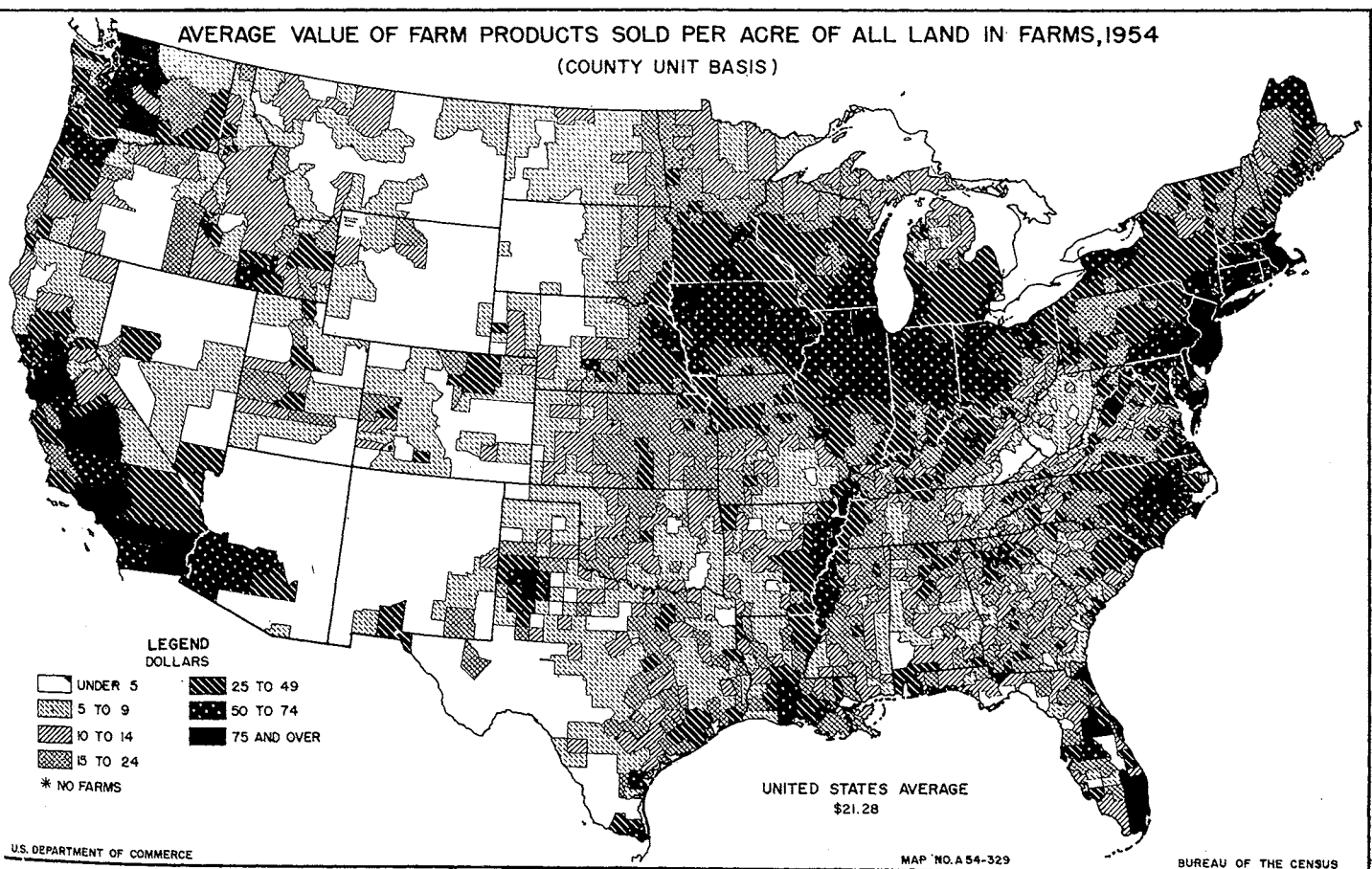


FIGURE 37.

PRODUCTION PER UNIT OF LABOR

Labor productivity is an important measure of efficiency in farming (5). Even on farms that are highly mechanized, labor represents a large proportion of the total inputs. The level of farm income is mainly a function of the value of products produced per worker. The productivity of labor, generally, is increased as the quantity of other resources used per worker is increased.

Quantities of specified resources used per man-equivalent of labor on cash-grain and livestock farms in the Corn Belt are shown in table 95 along with the value of farm products sold per man-equivalent. The average acreage of all land per man-equivalent of labor on all commercial farms in the Corn Belt in 1954 was 171 acres. Land acreage per man-equivalent averaged largest on cash-grain farms in the Western Corn Belt (240 acres), and smallest on livestock farms in the Eastern Corn Belt (140 acres). The acreage of land per man-equivalent was larger on cash-grain farms than on livestock farms in every region.

TABLE 95.—SPECIFIED RESOURCES USED AND VALUE OF FARM PRODUCTS SOLD, PER MAN-EQUIVALENT OF LABOR, BY TYPE OF FARM, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Resources per man-equivalent of labor						Value of all farm products sold per man-equivalent of labor
	All land	Crop-land harvested	Capital investment		Total specified ex- penses ²	Trac- tors	
			Total ¹	Livestock, ma- chinery, and equipment			
Total Corn Belt:	<i>Acres</i>	<i>Acres</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Number</i>	<i>Dollars</i>
All commercial farms.....	171	105	35,217	8,429	2,120	1.33	6,870
Cash-grain farms.....	195	138	41,996	7,587	1,670	1.53	6,756
Livestock farms ³	179	98	36,454	10,271	2,027	1.31	8,070
Eastern Corn Belt:							
All commercial farms.....	136	89	35,952	7,968	2,279	1.47	6,408
Cash-grain farms.....	165	118	41,270	7,846	1,867	1.68	6,981
Livestock farms ³	140	85	39,985	10,091	2,938	1.47	8,275
Central Corn Belt:							
All commercial farms.....	154	113	48,782	9,447	2,496	1.49	8,909
Cash-grain farms.....	179	143	59,681	8,331	1,961	1.66	8,662
Livestock farms ³	145	98	45,129	11,534	3,036	1.44	9,923
Northern Corn Belt:							
All commercial farms.....	147	98	29,052	8,481	1,851	1.28	6,443
Cash-grain farms.....	181	139	32,188	7,371	1,478	1.45	6,236
Livestock farms ³	148	94	31,985	10,423	2,226	1.29	7,738
Western Corn Belt:							
All commercial farms.....	219	126	34,406	8,864	2,070	1.26	6,946
Cash-grain farms.....	240	156	35,568	7,352	1,377	1.35	5,868
Livestock farms ³	226	118	36,879	10,666	2,679	1.26	8,479
Southern Corn Belt:							
All commercial farms.....	184	89	24,612	7,115	1,791	1.14	4,685
Cash-grain farms.....	208	127	28,520	6,679	1,447	1.37	4,733
Livestock farms.....	198	82	26,167	8,202	2,125	1.11	5,366

¹ Value of total investment in land, buildings, livestock, machinery, and equipment.

² Total expenditures for machine hire, hired labor, feed bought, gasoline and other petroleum fuel and oil, commercial fertilizer and fertilizing material, and lime and liming material.

³ Livestock other than dairy and poultry farms.

For all commercial farms in the Corn Belt in 1954, total capital investment per man-equivalent of labor averaged \$35,217, of which about a fourth was investment in livestock, machinery, and equipment. Total specified expenses per man-equivalent averaged \$2,120, but ranged from an average of \$3,036 on livestock farms in the Central Corn Belt down to \$1,377 on cash-grain farms in the Western Corn Belt. Value of all farm products sold per man-equivalent of labor averaged \$6,870 for all commercial farms.

Livestock farms in the Central Corn Belt obtained the greatest value of all farm products sold per man-equivalent of labor (\$9,923). This group of farms also had the largest investment in livestock, machinery, and equipment per man-equivalent and the greatest current inputs in terms of total specified expenses per man-equivalent. Cash-grain farms in the Central Corn Belt obtained an average of \$8,662 in value of farm products sold per man-equivalent of labor. This was a greater amount than that obtained by the cash-grain farms in any other region. Cash-grain farms in the Central Corn Belt had the largest total capital investment per man-equivalent among all groups of farms and the largest amount of total specified expenses per man-equivalent among the cash-grain farms in all regions. Cash-grain farms in the Southern Corn Belt averaged lowest among the cash-grain farms in all regions as to the value of farm products sold per man-equivalent, and were also lowest among the cash-grain farms in value of total investment and in value of investment in livestock, machinery, and equipment. Cash-grain farms in the Southern Corn Belt were among the lowest groups in total specified expenses per man-equivalent of labor. Livestock farms in the Southern Corn Belt ranked lowest among the livestock farms in all regions as to value of farm products sold per man-equivalent and as to total capital investment, investment in livestock, machinery and equipment, and total specified expenses per man-equivalent of labor.

Value of farm products sold per man-equivalent of labor is strongly correlated with economic class of farm (table 96). Economic Class I farms among both the cash-grain and livestock types ranked much higher than any other economic class in terms of value of farm products sold per man-equivalent. Likewise, Class II farms ranked substantially above Class III farms, Class III farms ranked above Class IV farms, and so on down to Class VI farms, where the value of farm products sold per man-equivalent was the lowest of all.

TABLE 96.—SPECIFIED RESOURCES USED AND VALUE OF FARM PRODUCTS SOLD, PER MAN-EQUIVALENT OF LABOR, BY TYPE AND ECONOMIC CLASS OF FARM, IN THE CORN BELT: 1954

Type and economic class of farm	Resources per man-equivalent of labor						Value of all farm products sold per man-equivalent of labor
	All land	Crop-land harvested	Capital investment		Total specified expenses ²	Tractors	
			Total ¹	Livestock, machinery, and equipment			
All commercial farms.....	Acres 171	Acres 105	Dollars 35, 217	Dollars 8, 429	Dollars 2, 120	Number 1. 33	Dollars 6, 870
Cash-grain farms:							
Total.....	195	138	41, 996	7, 587	1, 670	1. 53	6, 756
Class I.....	261	202	72, 132	9, 103	3, 419	1. 54	14, 475
II.....	224	170	56, 621	8, 876	2, 252	1. 64	9, 889
III.....	193	137	39, 132	7, 584	1, 527	1. 52	6, 139
IV.....	169	110	29, 321	6, 577	1, 123	1. 45	3, 897
V.....	148	85	23, 924	5, 923	897	1. 50	2, 509
VI.....	101	48	14, 327	3, 560	460	0. 96	970
Livestock farms: ³							
Total.....	179	98	36, 454	10, 271	2, 627	1. 31	8, 070
Class I.....	211	125	54, 168	14, 624	6, 192	1. 31	21, 201
II.....	194	118	45, 426	12, 061	3, 163	1. 45	10, 251
III.....	178	99	33, 452	9, 731	2, 018	1. 34	6, 755
IV.....	163	78	25, 787	8, 049	1, 448	1. 21	3, 461
V.....	150	57	21, 494	6, 864	1, 082	1. 15	2, 227
VI.....	111	31	13, 645	4, 264	566	0. 70	937

¹ Value of total investment in land, buildings, livestock, machinery, and equipment.

² Total expenditures for machine hire, hired labor, feed bought, gasoline and other petroleum fuel and oil, commercial fertilizer and fertilizing material, and lime and liming material.

³ Livestock other than dairy and poultry farms.

Not only did the upper economic classes of farms have the greatest value of sales per man-equivalent of labor; they also had the largest capital investment and the largest amounts of total specified expenses per man-equivalent of labor. For example, in the case of livestock farms, Class I farms obtained an average of \$21,201 value of farm products sold per man-equivalent of labor, while the total capital investment on these farms averaged \$54,168, and the total specified expenses averaged \$6,192 per man-equivalent. At the other extreme, Class VI livestock farms averaged only \$937 in value of farm products sold per man-equivalent. The average total investment on Class VI livestock farms was only \$13,645, and the average total specified expenses was only \$566 per man-equivalent of labor.

The acreage of land per man-equivalent worker was greater on the upper than on the lower economic classes of farms. The ratio of tractors to men was greater also on the upper economic classes of farms with the exception of Class I farms where the ratio was smaller than on the Class II farms.

PRODUCTION PER UNIT OF CAPITAL

Value of all farm products sold in relation to amount of capital invested or used in the farm business is another useful indicator of efficiency. Data on value of farm products sold per thousand dollars of total investment and per dollar of specified expenses are shown for Corn Belt farms in tables 97 and 98.

The value of all farm products sold per thousand dollars of total investment on all commercial farms in the Corn Belt in 1954 was \$195. The average for cash-grain farms was \$161, and the average for livestock farms was \$221. Livestock farms had a

TABLE 97.—VALUE OF FARM PRODUCTS SOLD PER THOUSAND DOLLARS CAPITAL INVESTMENT AND PER DOLLAR OF SPECIFIED EXPENSES, BY TYPE OF FARM, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Value of all farm products sold	
	Per thousand dollars of total investment ¹	Per dollar of 6 specified expenses ²
	Dollars	Dollars
Total Corn Belt:		
All commercial farms.....	195	3.24
Cash-grain farms.....	161	4.04
Livestock farms ³	221	3.07
Eastern Corn Belt:		
All commercial farms.....	192	3.03
Cash-grain farms.....	160	3.74
Livestock farms ³	207	2.82
Central Corn Belt:		
All commercial farms.....	183	3.57
Cash-grain farms.....	145	4.42
Livestock farms ³	220	3.27
Northern Corn Belt:		
All commercial farms.....	222	3.48
Cash-grain farms.....	194	4.22
Livestock farms ³	242	3.48
Western Corn Belt:		
All commercial farms.....	202	3.35
Cash-grain farms.....	165	4.26
Livestock farms ³	230	3.17
Southern Corn Belt:		
All commercial farms.....	190	2.62
Cash-grain farms.....	166	3.27
Livestock farms ³	205	2.62

¹ Per thousand dollars of investment in land and buildings, machinery and equipment, and livestock.

² Per dollar of expenditures for machine hire, hired labor, feed, gasoline and other petroleum fuel and oil, commercial fertilizer and fertilizing material, and lime and liming material.

³ Livestock other than dairy and poultry farms.

greater value of sales per thousand dollars of investment than did cash-grain farms in every region of the Corn Belt. The highest value of sales per thousand dollars of investment was on livestock farms in the Northern Corn Belt (\$242), and the lowest was on cash-grain farms in the Central Corn Belt (\$145). Cash-grain farms in the Northern Corn Belt showed up relatively higher in returns to total capital investment than they did in returns per man-equivalent of labor.

The average value of farm products sold per dollar of 6 specified expenses was \$4.04 for all cash-grain farms and \$3.07 for all livestock farms in the Corn Belt. Value of sales per dollar of the specified current expense inputs was above the Corn Belt average on both cash-grain and livestock farms in the Central, Western, and Northern Corn Belt. The value of sales per thousand dollars of total investment on cash-grain farms in the Central Corn Belt was relatively low, but the return per dollar of current expense inputs was relatively high. All groups of farms in the Southern and Eastern Corn Belt were below the corresponding group averages for the total Corn Belt in value of products sold per dollar of specified expenses.

The value of all farm products sold per thousand dollars of total investment is consistently greater on the higher economic classes of farms. This is also true for the value of products sold per dollar of specified expenses (table 98). In terms of the latter ratio, the differences between the higher and lower economic classes of farms are somewhat greater than they would have been if expenditures for livestock purchased had been included among the specified expenses. On cash-grain farms, the value of products sold per thousand dollars of total investment ranged from a high of \$201 on Class I farms to a low of \$68 on Class VI farms. On livestock farms the range was from \$391 on Class I farms to \$69 on Class VI farms. Value of sales per dollar of specified expenses was only half as large on Class VI cash-grain farms as on Class I cash-grain farms (\$2.11 compared with \$4.23). On livestock farms, the range was from \$3.42 on Class I farms to \$1.66 on Class VI farms.

TABLE 98.—VALUE OF FARM PRODUCTS SOLD PER THOUSAND DOLLARS OF CAPITAL INVESTMENT AND PER DOLLAR OF SPECIFIED EXPENSES, BY TYPE AND ECONOMIC CLASS OF FARM, IN THE CORN BELT: 1954

Type and economic class of farm	Value of all farm products sold	
	Per thousand dollars of total investment ¹	Per dollar of 6 specified expenses ²
	Dollars	Dollars
All commercial farms.....	195	3.24
Cash-grain farms:		
Total.....	161	4.04
Class I.....	201	4.23
II.....	175	4.39
III.....	157	4.02
IV.....	133	3.47
V.....	105	2.80
VI.....	68	2.11
Livestock farms: ³		
Total.....	221	3.07
Class I.....	391	3.42
II.....	226	3.24
III.....	172	2.85
IV.....	134	2.39
V.....	104	2.06
VI.....	69	1.66

¹ Per thousand dollars of investment in land and buildings, machinery and equipment, and livestock.

² Per dollar of expenditures for machine hire, hired labor, feed, gasoline and other petroleum fuel and oil, commercial fertilizer and fertilizing material, and lime and liming material.

³ Livestock other than dairy and poultry farms.

LITERATURE CITED

- (1) Anderson, M. A., Cairns, L. E., Heady, Earl O., and Baum, E. L.
1956. An Appraisal of Factors Affecting the Acceptance and Use of Fertilizer in Iowa, 1953. Iowa State College and Agr. Expt. Sta. Special Report No. 16, 36 pp., illus.
- (2) Davis, Joe F.
1956. Use of Electricity on Farms, a summary report of 10 area studies. U. S. Dept. Agr., Agr. Inform. Bul. 161, 38 pp., illus.
- (3) National Soil and Fertilizer Research Committee, the Fertilizer Work Group.
1954. Fertilizer Use and Crop Yields in the United States. U. S. Dept. Agr. Handbook 68, 75 pp. (U. S. Agr. Res. Serv., Soil and Water Conservation Res. and Prod. Econ. Res. Br. cooperating.)
- (4) Strand, Edwin G.
1948. Soybeans in American Farming. U. S. Dept. Agr., Tech. Bul. 966, 66 pp., illus.
- (5) Strand, Edwin G., Heady, Earl O., and Seagraves, James A.
1955. Productivity of Resources Used on Commercial Farms. U. S. Dept. Agr., Tech. Bul. 1128, 86 pp., illus.
- (6) United States Agricultural Marketing Service.
1955-56. Annual Summary. Crop Production. Acreage, Yield, and Production of Principal Crops, by States, with Comparisons, 1955, 1956. (Processed.)
- (7) United States Agricultural Marketing Service.
1955. Crop Values. Season Average Prices and Value of Production, 1954 and 1955, by States. 33 pp. (Processed.)
- (8) United States Agricultural Marketing Service.
1956. Field Crops by States, 1949-54. U. S. Dept. Agr. Statis. Bul. 185, 64 pp.
- (9) United States Agricultural Marketing Service.
1956. Livestock and Poultry Inventory, January 1. Number, Value, and Classes—by States, 1940-54. U. S. Dept. Agr. Statis. Bul. 177, 117 pp.
- (10) United States Bureau of Agricultural Economics.
1950. Generalized Types of Farming in the United States. U. S. Dept. Agr., Agr. Inform. Bul. 3, 35 pp., illus.
- (11) United States Department of Agriculture.
1938. Yearbook of Agriculture: 1938. Soils and Men. 1232 pp., illus.



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United States Census of Agriculture: 1954

Volume III SPECIAL REPORTS

Part 9

Farmers and Farm Production in the United States (A Cooperative Report)

Chapter VIII

Part-Time Farming

CHARACTERISTICS OF FARMERS and FARM PRODUCTION •
PRINCIPAL TYPES OF FARMS •



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PREFACE

The purpose of this report is to present an analysis of the characteristics of farmers and farm production for the most important types of farms as shown by data for the 1954 Census of Agriculture. The analysis deals with the relative importance, pattern of resource use, some measures of efficiency, and problems of adjustment and change for the principal types of farms.

The data given in the various chapters of this report have been derived largely from the special tabulation of data for each type of farm, by economic class, for the 1954 Census of Agriculture. The detailed statistics for each type of farm for the United States and the principal subregions appear in Part 8 of Volume III of the reports for the 1954 Census of Agriculture.

This cooperative report was prepared under the direction of Ray Hurley, Chief of the Agriculture Division of the Bureau of the Census, U. S. Department of Commerce, and Kenneth L. Bachman, Head, Production, Income, and Costs Section, Production Economics Research Branch, Agricultural Research Service of the U. S. Department of Agriculture.

Jackson V. McElveen, Agricultural Economist, Production, Income, and Costs Section, Production Economics Research Branch, Agricultural Research Service of the U. S. Department of Agriculture, supervised a large part of the detailed planning and analysis for the various chapters.

The list of chapters and the persons preparing each chapter are as follows:

Chapter I.....	Wheat Producers and Wheat Production A. W. Epp, University of Nebraska.	Chapter VI....	Western Stock Ranches and Livestock Farms Mont H. Saunderson, Western Ranching and Lands Consultant, Bozeman, Mont.
Chapter II.....	Cotton Producers and Cotton Production Robert B. Glasgow, Production Economics Research Branch, Agricultural Research Service, United States Department of Agriculture.	Chapter VII....	Cash-grain and Livestock Producers in the Corn Belt Edwin G. Strand, Production Economics Research Branch, Agricultural Research Service, United States Department of Agriculture.
Chapter III....	Tobacco and Peanut Producers and Production R. E. L. Greene, University of Florida.	Chapter VIII..	Part-time Farming H. G. Halcrow, University of Connecticut.
Chapter IV....	Poultry Producers and Poultry Production William P. Mortenson, University of Wisconsin.	Chapter IX....	Agricultural Producers and Production in the United States—A General View Jackson V. McElveen, Production Economics Research Branch, Agricultural Research Service, United States Department of Agriculture.
Chapter V.....	Dairy Producers and Dairy Production P. E. McNall, University of Wisconsin.		

The editorial work for this report was performed by Caroline B. Sherman, and the preparation of the statistical tables was supervised by Margaret Wood.

December 1956

UNITED STATES CENSUS OF AGRICULTURE: 1954

REPORTS

Volume I.—Counties and State Economic Areas. Statistics for counties include number of farms, acreage, value, and farm operators; farms by color and tenure of operator; facilities and equipment; use of commercial fertilizer; farm labor; farm expenditures; livestock and livestock products; specified crops harvested; farms classified by type of farm and by economic class; and value of products sold by source.

Data for State economic areas include farms and farm characteristics by tenure of operator, by type of farm, and by economic class.

Volume I is published in 33 parts.

Volume II.—General Report. Statistics by Subjects, United States Census of Agriculture, 1954. Summary data and analyses of the data for States, for Geographic Divisions, and for the United States by subjects.

Volume III.—Special Reports

Part 1.—Multiple-Unit Operations. This report will be similar to Part 2 of Volume V of the reports for the 1950 Census of Agriculture. It will present statistics for approximately 900 counties and State economic areas in 12 Southern States and Missouri for the number and characteristics of multiple-unit operations and farms in multiple units.

Part 2.—Ranking Agricultural Counties. This special report will present statistics for selected items of inventory and agricultural production for the leading counties in the United States.

Part 3.—Alaska, Hawaii, Puerto Rico, District of Columbia, and U. S. Possessions. These areas were not included in the 1954 Census of Agriculture. The available current data from various Government sources will be compiled and published in this report.

Part 4.—Agriculture, 1954, a Graphic Summary. This report will present graphically some of the significant facts regarding agriculture and agricultural production as revealed by the 1954 Census of Agriculture.

Part 5.—Farm-Mortgage Debt. This will be a cooperative study by the Agricultural Research Service of the U. S. Department of Agriculture and the Bureau of the Census. It will present, by States, data based on the 1954 Census of Agriculture and a special mail survey conducted in January 1956, on the number of mortgaged farms, the amount of mortgage debt, and the amount of debt held by principal lending agencies.

Part 6.—Irrigation in Humid Areas. This cooperative report by the Agricultural Research Service of the U. S. Department of Agriculture and the Bureau of the Census will present data obtained by a mail survey of operators of irrigated farms in 28 States on the source of water, method of applying water, number of pumps used, acres of crops irrigated in 1954 and 1955, the number of times each crop was irrigated, and the cost of irrigation equipment and the irrigation system.

Part 7.—Popular Report of the 1954 Census of Agriculture. This report is planned to be a general, easy-to-read publication for the general public on the status and broad characteristics of United States agriculture. It will seek to delineate such aspects of agriculture as the geographic distribution and differences by size of farm for such items as farm acreage, principal crops, and important kinds of livestock, farm facilities, farm equipment, use of fertilizer, soil conservation practices, farm tenure, and farm income.

Part 8.—Size of Operation by Type of Farm. This will be a cooperative special report to be prepared in cooperation with the Agricultural Research Service of the U. S. Department of Agriculture. This report will contain data for 119 economic sub-

regions (essentially general type-of-farming areas) showing the general characteristics for each type of farm by economic class. It will provide data for a current analysis of the differences that exist among groups of farms of the same type. It will furnish statistical basis for a realistic examination of production of such commodities as wheat, cotton, and dairy products in connection with actual or proposed governmental policies and programs.

Part 9.—Farmers and Farm Production in the United States. The purpose of this report is to present an analysis of the characteristics of farmers and farm production for the most important types of farms as shown by data for the 1954 Census of Agriculture. The analysis deals with the relative importance, pattern of resource use, some measures of efficiency, and problems of adjustment and change for the principal types of farms. The report was prepared in cooperation with the Agricultural Research Service of the U. S. Department of Agriculture.

The list of chapters (published separately only) and title for each chapter are as follows:

Chapter I—*Wheat Producers and Wheat Production*

II—*Cotton Producers and Cotton Production*

III—*Tobacco and Peanut Producers and Production*

IV—*Poultry Producers and Poultry Production*

V—*Dairy Producers and Dairy Production*

VI—*Western Stock Ranches and Livestock Farms*

VII—*Cash-Grain and Livestock Producers in the Corn Belt*

VIII—*Part-Time Farming*

IX—*Agricultural Producers and Production in the United States—A General View*

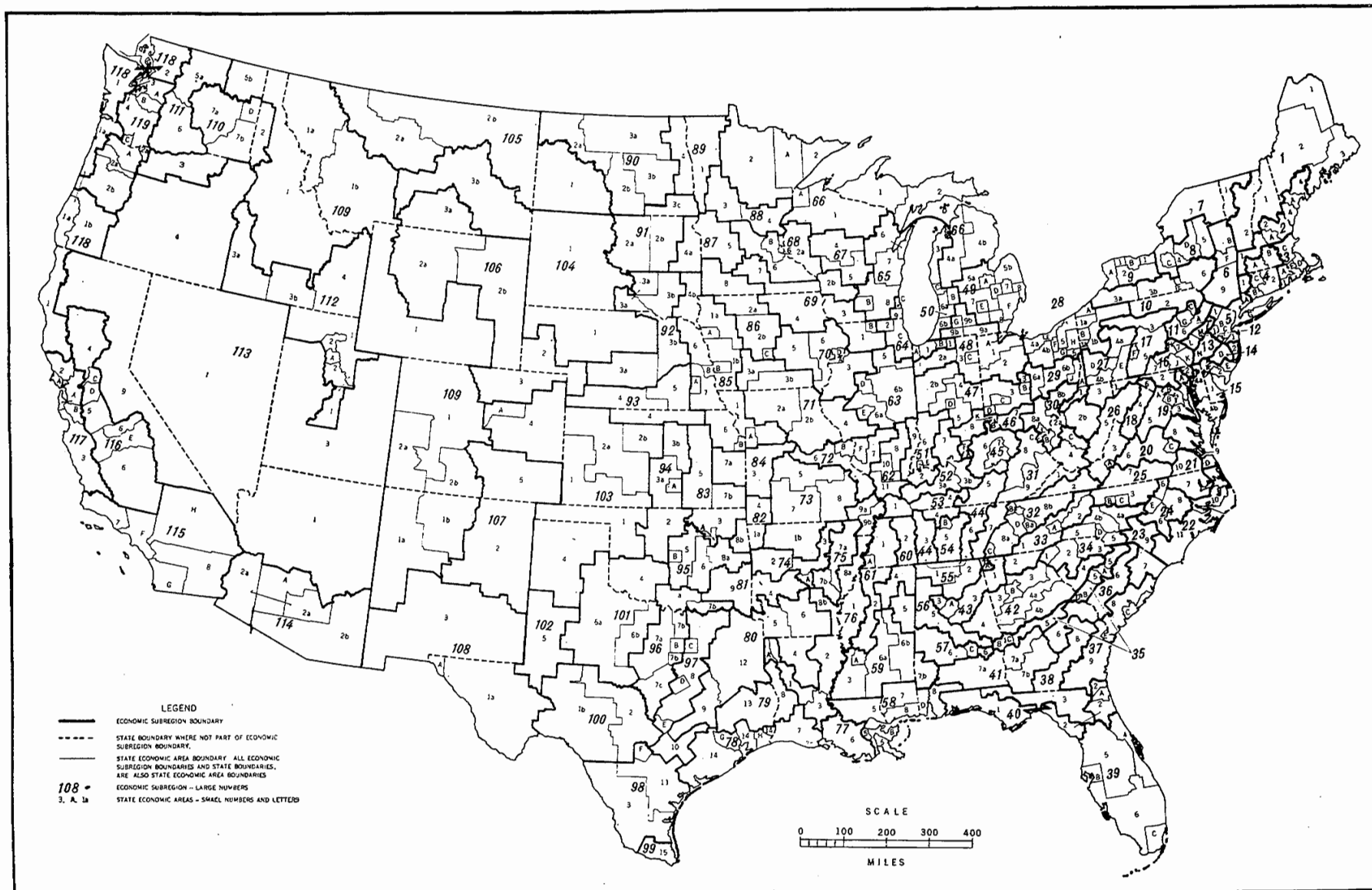
Part 10.—Use of Fertilizer and Lime. The purpose of this report is to present in one publication most of the detailed data compiled for the 1954 Census of Agriculture regarding the use of fertilizer and lime. The report presents data for counties, State economic areas, and generalized type-of-farming areas regarding the quantity used, acreage on which used, and expenditures for fertilizer and lime. The Agricultural Research Service cooperated with the Bureau of the Census in the preparation of this report.

Part 11.—Farmers' Expenditures. This report presents detailed data on expenditures for a large number of items used for farm production in 1955, and on the living expenditures of farm operators' families. The data were collected and compiled cooperatively by the Agricultural Marketing Service of the U. S. Department of Agriculture and the Bureau of the Census.

Part 12.—Methods and Procedures. This report contains an outline and a description of the methods and procedures used in taking and compiling the 1954 Census of Agriculture.

INTRODUCTION

ECONOMIC SUBREGIONS AND STATE ECONOMIC AREAS



INTRODUCTION

Purpose and scope.—American agriculture is exceedingly diverse and is undergoing revolutionary changes. Farmers and their families obtain their income by producing a large variety of products under a large variety of conditions as well as from sources other than farming. The organization of production, type of farming, productivity, income, expenditures, size, and characteristics of operators of the 4.8 million farms in the United States vary greatly. Agriculture has been a dynamic, moving, adjusting part of our economy. Basic changes in farming have been occurring and will continue to be necessary. Adjustments brought by technological change, by changing consumer wants, by growth of population, and by changes in the income of nonfarm people, have been significant forces in changing agriculture since World War II. The transition from war to an approximate peacetime situation has also made it necessary to reduce the output of some farm products. Some of the adjustments in agriculture have not presented relatively difficult problems as they could be made by the transfer of resources from the production of one product to another. Others require substantial shifts in resources and production.

Moreover, a considerable number of farm families, many of whom are employed full time in agriculture, have relatively low incomes. Most of these families operate farms that are small when compared with farms that produce higher incomes. The acreage of land and the amount of capital controlled by the operators of these small farms are too small to provide a very high level of income. In recent years, many farm families on these small farms have made adjustments by leaving the farm to earn their incomes elsewhere, by discontinuing their farm operations, and by earning more non-farm income while remaining on the farm or on the place they farmed formerly.

One objective of this report is to describe and analyze some of the existing differences and recent adjustments in the major types of farming and farm production. For important commodities and groups of farms, the report aims to make available, largely from the detailed data for the 1954 Census of Agriculture but in a more concise form, facts regarding the size of farms, capital, labor, and land resources on farms, amounts and sources of farm income and expenditures, combinations of crop and livestock enterprises, adjustment problems, operator characteristics, and variation in use of resources and in size of farms by areas and for widely differing production conditions. Those types of farms on which production of surplus products is important have been emphasized. The report will provide a factual basis for a better understanding of the widespread differences among farms in regard to size, resources, and income. It will also provide a basis for evaluating the effects of existing and proposed farm programs on the production and incomes of major types and classes of farms.

Income from nonfarm sources is important on a large number of farms. About 1.4 million of the 4.8 million farm-operator families, or about 3 in 10, obtain more income from off-farm sources than from the sale of agricultural products. More than three-fourths of a million farm operators live on small-scale part-time farms and ordinarily are not dependent on farming as the main source of family income. These part-time farmers have a quite different relation to adjustments, changes, and farm problems than do commercial farmers. A description of and facts regarding these part-time farms and the importance of nonfarm income for commercial farms are presented in Chapter 8.

Except for Chapter 8, this report deals with commercial farms (see economic class of farm). The analysis is limited to the major types of agricultural production and deals primarily with geographic areas in which each of the major types of agricultural production has substantial significance.

Source of data.—Most of the data presented in this report are from special compilations made for the 1954 Census of Agriculture, although pertinent data from research findings and surveys of the U. S. Department of Agriculture, State Agricultural Colleges, and other agencies have been used to supplement Census data. The detailed Census data used for this report are contained in Part 8 of Volume III of the reports of the 1954 Census of Agriculture. Reference should be made to that report for detailed explanations and definitions and statements regarding the characteristics and reliability of the data.

Areas for which data are presented.—Data are presented in this report primarily for selected economic subregions and for the United States. The boundaries of the 119 subregions used for the compilation of data on which this report is based are indicated by the map on page vi. These subregions represent primarily general type-of-farming areas. Many of them extend into two or more States. (For a more detailed description of economic subregions, see the publication "Economic Subregions of the United States, Series Census BAE; No. 19, published cooperatively by the Bureau of the Census, and the Bureau of Agricultural Economics, U. S. Department of Agriculture, July 1953.)

DEFINITIONS AND EXPLANATIONS

Definitions and explanations are given only for some of the more important items. For more detailed definitions and explanations, reference can be made to Part 8 of Volume III and to Volume II of the reports of the 1954 Census of Agriculture.

A farm.—For the 1954 Census of Agriculture, places of 3 or more acres were counted as farms if the annual value of agricultural products, exclusive of home-garden products, amounted to \$150 or more. The agricultural products could have been either for home use or for sale. Places of less than 3 acres were counted as farms only if the annual value of sales of agricultural products amounted to \$150 or more. Places for which the value of agricultural products for 1954 was less than these minima because of crop failure or other unusual conditions, and places operated at the time of the Census for the first time were counted as farms if normally they could be expected to produce these minimum quantities of agricultural products.

All the land under the control of one person or partnership was included as one farm. Control may have been through ownership, or through lease, rental, or cropping arrangement.

Farm operator.—A "farm operator" is a person who operates a farm, either performing the labor himself or directly supervising it. He may be an owner, a hired manager, or a tenant, renter, or sharecropper. If he rents land to others or has land cropped for him by others, he is listed as the operator of only that land which he retains. In the case of a partnership, only one partner was included as the operator. The number of farm operators is considered the same as the number of farms.

FARMERS AND FARM PRODUCTION

Farms reporting or operators reporting.—Figures for farms reporting or operators reporting, based on a tabulation of all farms, represent the number of farms, or farm operators, for which the specified item was reported. For example, if there were 11,922 farms in a subregion and only 11,465 had chickens over 4 months old on hand, the number of farms reporting chickens would be 11,465. The difference between the total number of farms and the number of farms reporting an item represents the number of farms not having that item, provided the inquiry was answered completely for all farms.

Farms by type.—The classification of commercial farms by type was made on the basis of the relationship of the value of sales from a particular source, or sources, to the total value of all farm products sold from the farm. In some cases, the type of farm was determined on the basis of the sale of an individual farm product, such as cotton, or on the basis of the sales of closely related products, such as dairy products. In other cases, the type of farm was determined on the basis of sales of a broader group of products, such as grain crops including corn, sorghums, all small grains, field peas, field beans, cowpeas, and soybeans. In order to be classified as a particular type, sales or anticipated sales of a product or group of products had to represent 50 percent or more of the total value of products sold.

The types of commercial farms for which data are shown, together with the product or group of products on which the classification is based are:

<i>Type of farm</i>	<i>Product or group of products amounting to 50 percent or more of the value of all farm products sold</i>
Cash-grain-----	Corn, sorghum, small grains, field peas, field beans, cowpeas, and soybeans.
Cotton-----	Cotton (lint and seed).
Other field-crop-----	Peanuts, Irish potatoes, sweet-potatoes, tobacco, sugarcane, sugar beets for sugar, and other miscellaneous crops.
Vegetable-----	Vegetables.
Fruit-and-nut-----	Berries and other small fruits, and tree fruits, nuts, and grapes.
Dairy-----	Milk and other dairy products. The criterion of 50 percent of the total sales was modified in the case of dairy farms. A farm for which the value of sales of dairy products represented less than 50 percent of the total value of farm products sold was classified as a dairy farm if— (a) Milk and other dairy products accounted for 30 percent or more of the total value of products sold, and (b) Milk cows represented 50 percent or more of all cows, and (c) Sales of dairy products, together with the sales of cattle and calves, amounted to 50 percent or more of the total value of farm products sold.
Poultry-----	Chickens, eggs, turkeys, and other poultry products.
Livestock farms other than dairy and poultry.	Cattle, calves, hogs, sheep, goats, wool, and mohair, provided the farm did not qualify as a dairy farm.

Type of farm

General-----	<p><i>Product or group of products amounting to 50 percent or more of the value of all farm products sold</i></p> <p>Farms were classified as general when the value of products from one source or group of sources did not represent as much as 50 percent of the total value of all farm products sold. Separate figures are given for three kinds of general farms:</p> <p>(a) Primarily crop. (b) Primarily livestock. (c) Crop and livestock.</p> <p><i>Primarily crop farms</i> are those for which the sale of one of the following crops or groups of crops—vegetables, fruits and nuts, cotton, cash grains, or other field crops—did not amount to 50 percent or more of the value of all farm products sold, but for which the value of sales for all these groups of crops represented 70 percent or more of the value of all farm products sold.</p> <p><i>Primarily livestock farms</i> are those which could not qualify as dairy farms, poultry farms, or livestock farms other than dairy and poultry, but on which the sale of livestock and poultry and livestock and poultry products amounted to 70 percent or more of the value of all farm products sold.</p> <p><i>General crop and livestock farms</i> are those which could not be classified as either crop farms or livestock farms, but on which the sale of all crops amounted to at least 30 percent but less than 70 percent of the total value of all farm products sold.</p>
Miscellaneous-----	This group of farms includes those that had 50 percent or more of the total value of products accounted for by sale of horticultural products, or sale of horses, or sale of forest products.

Farms by economic class.—A classification of farms by economic class was made for the purpose of segregating groups of farms that are somewhat alike in their characteristics and size of operation. This classification was made in order to present an accurate description of the farms in each class and in order to provide basic data for an analysis of the organization of agriculture.

The classification of farms by economic class was made on the basis of three factors; namely, total value of all farm products sold, number of days the farm operator worked off the farm, and the relationship of the income received from nonfarm sources by the operator and members of his family to the value of all farm products sold. Farms operated by institutions, experiment stations, grazing associations, and community projects were classified as abnormal, regardless of any of the three factors.

For the purpose of determining the code for economic class and type of farm, it was necessary to obtain the total value of farm products sold as well as the value of some individual products sold.

The total value of farm products sold was obtained by adding the reported or estimated values for all products sold from the farm. The value of livestock, livestock products except wool and mohair, vegetables, nursery and greenhouse products, and forest

products was obtained by the enumerator from the farm operator for each farm. The enumerator also obtained from the farm operator the quantity sold for corn, sorghums, small grains, hays, and small fruits. The value of sales for these crops was obtained by multiplying the quantity sold by State average prices.

The quantity sold was estimated for all other farm products. The entire quantity produced for wool, mohair, cotton, tobacco, sugar beets for sugar, sugarcane for sugar, broomcorn, hops, and mint for oil was estimated as sold. To obtain the value of each product sold, the quantity sold was multiplied by State average prices.

In making the classification of farms by economic class, farms were grouped into two major groups, namely, commercial farms and other farms. In general, all farms with a value of sales of farm products amounting to \$1,200 or more were classified as commercial. Farms with a value of sales of \$250 to \$1,199 were classified as commercial only if the farm operator worked off the farm less than 100 days or if the income of the farm operator and members of his family received from nonfarm sources was less than the total value of all farm products sold.

Land in farms according to use.—Land in farms was classified according to the use made of it in 1954. The classes of land are mutually exclusive, i. e., each acre of land was included only once even though it may have had more than one use during the year.

The classes referred to in this report are as follows:

Cropland harvested.—This includes land from which crops were harvested; land from which hay (including wild hay) was cut; and land in small fruits, orchards, vineyards, nurseries, and greenhouses. Land from which two or more crops were reported as harvested was to be counted only once.

Cropland used only for pasture.—In the 1954 Census, the enumerator's instructions stated that rotation pasture and all other cropland that was used only for pasture were to be included under this class. No further definition of cropland pastured was given the farm operator or enumerator. Permanent open pasture may, therefore, have been included under this item or under "other pasture," depending on whether the enumerator or farm operator considered it as cropland.

Cropland not harvested and not pastured.—This item includes idle cropland, land in soil-improvement crops only, land on which all crops failed, land seeded to crops for harvest after 1954, and cultivated summer fallow.

In the Western States, this class was subdivided to show separately the acres of cultivated summer fallow. In these States, the acreage not in cultivated summer fallow represents largely crop failure. There are very few counties in the Western States in which there is a large acreage of idle cropland or in which the growing of soil-improvement crops is an important use of the land.

In the States other than the Western States, this general class was subdivided to show separately the acres of idle cropland (not used for crops or for pasture in 1954). In these States, the incidence of crop failure is usually low. It was expected that the acreage figure that excluded idle land would reflect the acreage in soil-improvement crops. However, the 1954 crop year was one of low rainfall in many Eastern and Southern States and, therefore, in these areas the acreage of cropland not harvested and not pastured includes more land on which all crops failed than would usually be the case.

Cultivated summer fallow.—This item includes cropland that was plowed and cultivated but left unseeded for several months to control weeds and conserve moisture. No land from which crops were harvested in 1954 was to be included under this item.

Cropland, total.—This includes cropland harvested, cropland used only for pasture, and cropland not harvested and not pastured.

Land pastured, total.—This includes cropland used only for pasture, woodland pastured, and other pasture (not cropland and not woodland).

Woodland, total.—This includes woodland pastured and woodland not pastured.

Value of land and buildings.—The value to be reported was the approximate amount for which the land and the buildings on it would sell.

Off-farm work and other income.—Many farm operators receive a part of their income from sources other than the sale of farm products from their farms. The 1954 Agriculture Questionnaire included several inquiries relating to work off the farm and non-farm income. These inquiries called for the number of days worked off the farm by the farm operator; whether other members of the operator's family worked off the farm; and whether the farm operator received income from other sources, such as sale of products from land rented out, cash rent, boarders, old age assistance, pensions, veterans' allowances, unemployment compensation, interest, dividends, profits from nonfarm business, and help from other members of the operator's family. Another inquiry asked whether the income of the operator and his family from off-farm work and other sources was greater than the total value of all agricultural products sold from the farm in 1954. Off-farm work was to include work at nonfarm jobs, businesses, or professions, whether performed on the farm premises or elsewhere; also, work on someone else's farm for pay or wages. Exchange work was not to be included.

Specified facilities and equipment.—Inquiries were made in 1954 to determine the presence or absence of selected items on each place such as (1) telephone, (2) piped running water, (3) electricity, (4) television set, (5) home freezer, (6) electric pig brooder, (7) milking machine, and (8) power feed grinder. Such facilities or equipment were to be counted even though temporarily out of order. Piped running water was defined as water piped from a pressure system or by gravity flow from a natural or artificial source. The enumerator's instructions stated that pig brooders were to include those heated by an electric heating element, by an infrared or heat bulb, or by ordinary electric bulbs. They could be homemade.

The number of selected types of other farm equipment was also obtained for a sample of farms. The selected kinds of farm equipment to be reported were (1) grain combines (for harvesting and threshing grains or seeds in one operation); (2) cornpickers; (3) pickup balers (stationary ones not to be reported); (4) field forage harvesters (for field chopping of silage and forage crops); (5) motortrucks; (6) wheel tractors (other than garden); (7) garden tractors; (8) crawler tractors (tracklaying, caterpillar); (9) automobiles; and (10) artificial ponds, reservoirs, and earth tanks.

Wheel tractors were to include homemade tractors but were not to include implements having built-in power units such as self-propelled combines, powered buck rakes, etc. Pickup and truck-trailer combinations were to be reported as motortrucks. School buses were not to be reported, and jeeps and station wagons were to be included as motortrucks or automobiles, depending on whether used for hauling farm products or supplies, or as passenger vehicles.

Farm labor.—The farm-labor inquiries for 1954, called for the number of persons doing farmwork or chores on the place during a specified calendar week. Since starting dates of the 1954 enumeration varied by areas or States, the calendar week to which the farm-labor inquiries related varied also. The calendar week was September 26–October 2 or October 24–30. States with the September 26–October 2 calendar week were: Arizona, California, Colorado, Connecticut, Florida, Idaho, Kansas, Kentucky, Louisiana, Maine, Massachusetts, Michigan, Minnesota, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico,

New York, North Dakota, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Dakota, Tennessee, Texas, Utah, Vermont, Washington, Wisconsin, and Wyoming. States with the October 24-30 calendar week were: Alabama, Arkansas, Delaware, Georgia, Illinois, Indiana, Iowa, Maryland, Mississippi, Missouri, North Carolina, Ohio, South Carolina, Virginia, and West Virginia. Farmwork was to include any work, chores, or planning necessary to the operation of the farm or ranch business. Housework, contract construction work, and labor involved when equipment was hired (custom work) were not to be included.

The farm-labor information was obtained in three parts: (1) Operators working, (2) unpaid members of the operator's family working, and (3) hired persons working. Operators were considered as working if they worked 1 or more hours; unpaid members of the operator's family, if they worked 15 or more hours; and hired persons, if they worked any time during the calendar week specified. Instructions contained no specifications regarding age of the persons working.

Regular and seasonal workers.—Hired persons working on the farm during the specified week were classed as "regular" workers if the period of actual or expected employment was 150 days or more during the year, and as "seasonal" workers if the period of actual or expected employment was less than 150 days. If the period of expected employment was not reported, the period of employment was estimated for the individual farm after taking into account such items as the basis of payment, wage rate, expenditures for labor in 1954, and the type and other characteristics of the farm.

Specified farm expenditures.—The 1954 Census obtained data for selected farm expense items in addition to those for fertilizer and lime. The expenditures were to include the total specified expenditures for the place whether made by landlord, tenant, or both.

Expenditures for machine hire were to include any labor included in the cost of such machine hire. Machine hire refers to custom machine work such as tractor hire, threshing, combining, silo filling, baling, ginning, plowing, and spraying. If part of the farm products was given as pay for machine hire, the value of the products traded for this service was to be included in the amount of expenditures reported. The cost of trucking, freight, and express was not to be included.

Expenditures for hired labor were to include only cash payments. Expenditures for housework, custom work, and contract construction work were not to be included.

Expenditures for feed were to include the expenditures for pasture, salt, condiments, concentrates, and mineral supplements, as well as those for grain, hay, and mill feeds. Expenditures for grinding and mixing feeds were also to be included. Payments made by a tenant to his landlord for feed grown on the land rented by the tenant were not to be included.

Expenditures for gasoline and other petroleum fuel and oil were to include only those used for the farm business. Petroleum products used for the farmer's automobile for pleasure or used exclusively in the farm home for heating, cooking, and lighting were not to be included.

Crops harvested.—The information on crops harvested refers to the acreage and quantity harvested for the 1954 crop year. An exception was made for land in fruit orchards and planted nut trees. In this case, the acreage represents that in both bearing and nonbearing trees and vines as of October and November 1954.

Hay.—The data for hay includes all kinds of hay except soybean, cowpea, sorghum, and peanut hay.

Livestock and poultry.—The data on the number of livestock and poultry represent the number on hand on the day of enumera-

tion (October-November 1954). The data relating to livestock products and the number of livestock sold relate to the sales made during the calendar year 1954.

LABOR RESOURCES

The data for labor resources available represent estimates based largely on Census data and developed for the purpose of making comparisons among farms of various size of operations. The labor resources available are stated in terms of man-equivalents.

To obtain the man-equivalents the total number of farm operators as reported by the 1954 Census were adjusted for estimated man-years of work off the farm and for the number of farm operators 65 years old and over. The farm operator was taken to represent a full man-equivalent of labor unless he was 65 years or older or unless he worked at an off-farm job in 1954.

The man-equivalent estimated for farm operators reporting specified amounts of off-farm work were as follows:

<i>Days worked off the farm in 1954</i>	<i>Estimated man-equivalent</i>
1-99 days	0.85
100-199 days .....	.50
200 days and over .....	.15

The man-equivalent for farm operators 65 years of age and older was estimated at 0.5.

Man-equivalents of members of the farm operator's family were based upon Census data obtained in response to the question "How many members of your family did 15 or more hours of farm work on this place the week of September 26-October 2 (or, in some areas, the week of October 24-30) without receiving cash wages?" Each family worker was considered as 0.5 man-equivalent. This estimate provides allowance for the somewhat higher incidence of women, children, and elderly persons in the unpaid family labor force.

In addition, the number of unpaid family workers who were reported as working 15 or more hours in the week of September 26-October 2 was adjusted to take account of seasonal changes in farm employment. Using published and unpublished findings of the U. S. Department of Agriculture and State Agricultural Colleges, and depending largely upon knowledge and experience with the geographic areas and type of farming, each author determined the adjustment factor needed to correct the number of family workers reported for the week of September 26-October 2 to an annual average basis.

Man-equivalents of hired workers are based entirely upon the expenditure for cash wages and the average wage of permanent hired laborers as reported in the 1954 Census of Agriculture.

Value of or investment in livestock.—Numbers of specified livestock and poultry in each subregion were multiplied by a weighted average value per head. The average values were computed from data compiled for each kind of livestock for the 1954 Census of Agriculture. The total value does not include the value of goats. (For a description of the method of obtaining the value of livestock, see Chapter VI of Volume II of the reports for the 1954 Census of Agriculture.)

Value of investment in machinery and equipment.—The data on value of investment in machinery and equipment were developed for the purpose of making broad comparisons among types and economic classes of farms and by subregions. Numbers of specified machines on farms, as reported by the Census, were multiplied by estimated average value per machine. Then the total values obtained were adjusted upward to provide for the inclusion of items of equipment not included in the Census inventory of farm machinery.

The estimates for average value of specified machines and the proportion of total value of all machinery represented by the value of these machines were based largely on published and unpublished data from the "Farm Costs and Returns" surveys conducted currently by the Agricultural Research Service, U. S. Department of Agriculture.¹ Modifications were made as needed in the individual chapters on the basis of State and local studies. The total estimated value of all machinery for all types and economic classes of farms is approximately equal to the value of all machinery as estimated by the U. S. Department of Agriculture.

Value of farm products sold, or gross sales.—Data on the value of the various farm products sold were obtained for 1954 by two methods. First, the values of livestock and livestock products sold, except wool and mohair; vegetables harvested for sale; nursery and greenhouse products; and forest products were obtained by asking each farm operator the value of sales. Second, the values of all other farm products sold were computed. For the most important crops, the quantity sold or to be sold was obtained for each farm. The entire quantity harvested for cotton and cottonseed, tobacco, sugar beets for sugar, hops, mint for oil, and sugarcane for sugar was considered sold. The quantity of minor crops sold was estimated. The value of sales for each crop was computed by multiplying the quantity sold by State average prices. In the case of wool and mohair, the value of sales was computed by multiplying the quantity shorn or clipped by the State average prices.

Gross sales include the value of all kinds of farm products sold. The total does not include rental and benefit, soil conservation, price adjustment, Sugar Act, and similar payments. The total

does include the value of the landlord's share of a crop removed from a farm operated by a share tenant. In most of the tables, detailed data are presented for only the more important sources of gross sales and the total for the individual farm products or sources will not equal the total as the values for the less important sources or farm products have been omitted. (For a detailed statement regarding the reliability and method of obtaining the value of farm products sold, reference should be made to Chapter IX of Volume II of the reports for the 1954 Census of Agriculture.)

Livestock and livestock products sold.—The value of sales for livestock and livestock products includes the value of live animals sold, dairy products sold, poultry and poultry products sold, and the calculated value of wool and mohair. The value of bees, honey, fur animals, goats, and goat milk is not included.

The value of dairy products includes the value of whole milk and cream sold, but does not include the value of butter and cheese, made on the farm, and sold. The value of poultry and products includes the value of chickens, broilers, chicken eggs, turkeys, turkey eggs, ducks, geese, and other miscellaneous poultry and poultry products sold. The value does not include the value of baby chicks sold.

Crops sold.—Vegetables sold includes the value of all vegetables harvested for sale, but does not include the value of Irish potatoes and sweetpotatoes.

The value of all crops sold includes the value of all crops sold except forest products. The value of field crops sold includes the value of sales of all crops sold except vegetables, small fruits and berries, fruits, and nuts.

¹ Farm Costs and Returns, 1955 (with comparisons), Agriculture Information Bulletin No. 158, Agricultural Research Service, U. S. Department of Agriculture, June 1956.

CHAPTER VIII
PART-TIME FARMING

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PART-TIME FARMING

H. G. HALCROW

A. INTRODUCTION

Farm operators who work at other occupations simultaneously with some farming have increased substantially in terms of percentages. This is true in most areas of this country. This trend has been most pronounced in the last decade but it has been in evidence since 1930, at least. According to the Census of Agriculture of April 1930, approximately 3 out of 10 of the farm operators reported that they had worked off their farms one or more days during the preceding calendar year. In 1954, almost half were working off their farms that often.

The more noteworthy change is not that a larger proportion were working off their farms for a few days but that a larger percentage were so working at least a third of the year—100 days or more.

To be precise, in 1929 about 1 out of 10 farm operators (11.5 percent) worked off their farms 100 days or more, whereas in 1954 almost 3 out of 10 (28.5 percent) spent 100 days or more in working elsewhere than on their farms.

The increase in off-farm employment and income continued during 1949–54. In 1949, according to the 1950 Census of Agriculture, about 1 out of 4 farm operators (23.3 percent) worked off farm 100 days or more, as compared with 3 out of 10 farm operators (28.5 percent) working off farm 100 days or more in 1954. In 1949, about 1,255,000 farm operators reported working off their farm 100 days or more as compared with 1,334,000 in 1954. This was an increase of 79,000 between the two Census years during which time the total number of farm operators declined by 600,000.

One of the most significant or important shifts during 1949–54 was an increase in the number and percentage of commercial farm operators (especially Classes I to IV) working off farm 100 days or more and a marked decrease in the number of part-time (Class VII) and residential (Class VIII) farms. In 1949, only 9.1 percent of the commercial farm operators were working off farm 100 days or more as compared with 13.0 percent of the total number in 1954. Stated another way, the number of commercial farm operators working off farm 100 days or more in 1954 was 28.8 percent larger than in 1949; the number of Class I farm operators was 25.3 percent larger; Class II was 37.6 percent larger; Class III was 42.4 percent larger; Class IV was 35.1 percent larger; and Class V was 19.3 percent larger. In comparison, the number of part-time (Class VII) farm operators working off farm 100 days or more in 1954 increased by only 3.4 percent, whereas the number of residential (Class VIII) operators decreased by 5.9 percent.

The total number of farm operators reporting other income of the family that exceeded the value of farm products sold declined from 1,566,000 in 1949 to 1,424,000 in 1954, a decline of 9.1 percent. However, the number of commercial farms in Economic Classes I to V with other income of the family exceeding the value of farm sales increased from 336,000 in 1949 to 359,000 in 1954, an increase of 7.1 percent. The number of operators who had other income exceeding the value of farm sales in the part-time

and residential groups declined sharply in contrast to the substantial increases among the commercial farmers. The increases among the commercial farms ranged from 29.8 percent for Class I to 13.3 percent for Class IV and to a slight decline of 0.4 percent for Class V. In comparison, the total number of commercial farms declined by 379,000 farms—3,706,000 farms in 1949 to 3,328,000 farms in 1954—a decline of 10.2 percent.

The general pattern is that of a continuing migration of farm families out of agriculture into other occupations and an increasing participation of commercial farmers in nonagricultural employment. In some cases, off-farm earnings of the farm operator and his family appear to be a continuing supplement to receipts from farm sales, while in other cases off-farm employment is an intermediate or transitional step in moving from agriculture to nonfarm employment. Also, part-time farming is an intermediate step in moving into commercial agriculture.

There is every indication that the trends toward greater participation of farm people in nonfarm employment will continue. This raises important questions in regard to national economic policy and has significant implications concerning the relationships between agriculture and other groups. As the data will show, a larger proportion of the farm operators work off their farms in metropolitan counties than in nonmetropolitan counties, and the percentage of farms with nonfarm family income that exceeds farm income is also larger in the metropolitan counties. As the industrial sector of the national economy expands and as industry becomes increasingly interspersed into areas that were formerly rural, the farm people have increased opportunities for off-farm employment and for income from nonfarm sources. Farm operators and other members of farm families are competing more directly with nonfarm employable males and females in the non-agricultural labor market.

To what extent does this trend offer a means for “solving” the problem of underemployment and low income in agriculture? Under what types of agriculture and in what types of economic conditions have these trends been most prevalent? What is the continuing role of part-time farming in American agriculture?

Scope and purposes.—The purposes of this chapter are to identify, so far as possible, the major characteristics of part-time farms and to compare these farms with commercial farms in similar farm-size groups. Farms are classified in various regions according to economic class of farm, age of operator, tenure, years of schooling, etc., and some data are given on a national basis for sources of nonfarm income. Data are presented on location of part-time farms by county, on increases and decreases in number of farms between 1950 and 1954, and on number of farms having specified facilities, such as telephones, piped running water, and central-station electricity. The plan is to break down the data on overall sales and on income distribution in order to arrive at conclusions concerning the place of part-time farms in the American economy, to show the important trends in respect to off-farm earnings and employment, and to indicate some of the possibilities and potentials or policy alternatives.

There is little question that off-farm employment with nonfarm income is becoming more important to farm people in the adjustments that can be made within agriculture and between agriculture and the rest of the economy. Improved highways and automobiles, and other improvements in transportation and communications, have brought farm people closer to industry and other jobs, and have made them more familiar with urban life and other occupations. Expansion in industry and in the national economy has brought an increase in the kinds of services demanded and has multiplied the number and kinds of occupations.

Industry has become widely dispersed in many areas that were largely rural a few years ago. This dispersion appears to have started in the Northeastern Region of the United States and to have spread more recently into the rural parts of the South and West. The conversion of formerly largely rural areas into a more mixed type of agricultural and industrial development appears to be continuing in all of our major regions. New employment opportunities are influential in the increased off-farm employment by farm people and in the migration out of agriculture. These combine to bring an overall reduction in the number of farmers.

Information on the types of farms and sources of income on which part-time farming is conducted builds up data that are vital in learning definitely the types of adjustments that are being made within agriculture and between agriculture and the nonagricultural economy. From the standpoint of economic policy, these data are useful in showing the adjustments being made and in suggesting the changes that can be brought about through various types of programs or through national farm policy. Thus, an overall purpose of this chapter is the development of data and information on part-time farming that will provide a basis for policy.

Classification of farms.—The merging of farm and nonfarm economies has raised a problem of classification that should be clarified at the outset. Data on farm sales alone do not indicate the relative importance of farm and nonfarm enterprises, because a considerable quantity of farm produce is used on farms where grown and does not become a part of reported farm sales. Part-time farming, therefore, is relatively more important as a source of family living and as a component of the gross national product, than is suggested by data on value of farm sales. Then too, data on farm sales are inadequate to appraise the problems of the distribution of income in agriculture, since the income from off-farm jobs and businesses adds to the income from farming. Pensions, old-age assistance, and incomes from rents and other sources are important, especially for older people. The primary need in an analysis of part-time farming, therefore, is the tabulation of all sources of income. In this study, although several limitations are recognized, the attempt is made to identify the major sources of farm income and to compare farm and nonfarm income.

Part-time farms fall into a variety of classes: (1) Many farm operators, who formerly had little or no work off the farm, have obtained off-farm work but have continued to live on the farm and

to carry on some farming enterprises. In some cases, this farming has continued for many years at about the earlier level. In other cases, the farming has been reduced, either as a result of a change in family composition or as an outgrowth of increased nonfarm income and the diminished time available for farmwork. (2) Expansion of industry into agricultural areas has created work for members of farm families other than the operator. In such cases, the operator continues to farm while the earnings of other members of the family supplement the family income. (3) People who have occupations in cities or in industry have moved to rural areas where they have supplemented their work income by farm enterprises while enjoying the advantages of country living. (4) Part-time and residential farms appear in many cases as transitional types. In some areas, for example, poultry farms are started by one who has another job. As the poultry enterprise grows, a point is reached when the other job is discontinued and farming becomes the major or sole enterprise. Part-time farming also serves as a transitional phase in the migration out of agriculture; in these cases the farm enterprises are discontinued after a while.

The concept of what constitutes a part-time farm has varied considerably from time to time.¹

Generally, a part-time farm is considered to be one that offers something less than full employment to a farm family, and the family supplements the resulting income to some degree with income from other—usually nonfarm—sources. This suggests a combination of agriculture and industry. Not all definitions involve income from outside agriculture, however, as income from work on other farms is sometimes involved. Also, income from farm customwork, or from operating a roadside stand or a filling station, are sources of outside income. Maintaining lodging or boarding places to supplement the income qualifies a farm to be classified as part-time. Thus, part-time farming is thought of in terms of the amount of money received from farm sales versus the family income from other sources.

Definitions used in this study.—The definition or classification of part-time farming used in this study is somewhat broader than that generally used in Census tabulations, or in most other studies.

The usual Census procedure is to list six classes of "commercial" farms. Economic Classes I to V include all farms (other than abnormal²) with value of farm sales of \$1,200 or more.

Economic Class VI farms include those farms with value of farm sales of \$250 to \$1,199, provided the operator did not work off farm as much as 100 days and income from other nonfarm sources was less than value of farm sales. Farms outside this category are classed as "other." These include *part-time farms*, defined as those with value of farm sales of \$250 to \$1,199, provided the farm operator reported 100 or more days of work off the farm in the previous year and/or the nonfarm income received by him

¹ Cf. *Part-time Farming in the United States*, United States Census of Agriculture, United States Government Printing Office, 1937, pages 5 and 6. 'The definition used in this report designated part-time farmers as "those operators of farms who spent one or more days off their farms at work for pay or income during the calendar year immediately preceding the Census date" (p. 7). This definition was used for convenience only and with knowledge that such agreement does not exist in the generally accepted view of part-time farming. *Farms and Farm People: Population, Income and Housing Characteristics by Economic Class of Farm, A Special Cooperative Study* (U. S. Department of Agriculture, Bureau of Agricultural Economics and Bureau of Human Nutrition and Home Economics, U. S. Department of Commerce, Bureau of the Census), United States Government Printing Office, 1953. Farms with a value of sales of \$250 to \$1,199 were classed as part-time provided the operator reported (1) 100 or more days of work off the farm in 1949, or (2) the nonfarm income received by him and members of his family was greater than the value of farm products sold. For further discussion see Leonard A. Salter, Jr., *A Critical Review of Research in Land Economics*, Minneapolis: The University of Minnesota Press, 1948, pages 153-56.

² Abnormal farms include public and private institutional farms, community enterprises, experiment station farms, grazing associations, Indian reservations, etc.

and the members of his family was greater than the value of farm products sold. Farms with a total value of sales of farm products of less than \$250³ were designated in Census tabulations as *residential farms*. Some of these residential farms represent farms on which the operator worked off farm more than 100 days in 1954. Some represent farms on which the income from nonfarm sources was greater than the value of sales of agricultural products. Others represent subsistence and marginal farms of various kinds.

This study does the following: (1) It shows location, percentage distribution, and increases and decreases in all classes of farms where the operator worked off farm 100 days or more, or where income of the family from nonfarm sources exceeded the value of farm sales. (2) It compares certain operation and expenditure characteristics of the various classes of farms. (3) It presents for the first time a tabulation of Economic Class V farms, with value of farm sales of \$1,200 to \$2,499, dividing them into part-time farms (those farms where the operator worked off farm 100 or more days or other income of the family exceeded the value of farm sales) and commercial farms (those farms where the operator did not work off farm as much as 100 days and the value of farm sales exceeded the other income of the family). Detailed farm-operation characteristics of part-time and commercial farms are given, and some items that enter into the level of living—such as electricity, telephone, and piped running water—are compared between the two groups. (4) On the basis of a special restricted sample, the study lists sources of off-farm income for all classes of farms. (5) It gives the results of special survey data of farm-mortgage debt for part-time, residential, and Class V and Class VI farms.

Detailed comparisons, based on Census data for part-time farms, are largely drawn from the farms with value of farm sales of less than \$2,500 in 1954. This group of 2,679,374 farms, or 56 percent of the total number of farms tabulated in the 1954 Census of Agriculture, is classified according to Census tabulations as follows:

Table 1.—CLASSIFICATION OF FARMS HAVING LESS THAN \$2,500 VALUE OF FARM SALES, FOR THE UNITED STATES: 1954

Economic class	Gross sales	Total	Part-time	Commercial
Class V.....	\$1,200 to \$2,499.....	1,769,080	1,233,780	1,535,300
Class VI.....	\$250 to \$1,199.....	462,442	462,442	462,442
Part-time.....	\$250 to \$1,199.....	574,579	574,579	574,579
Residential.....	Less than \$250.....	879,094	590,397	288,697
Total.....		2,685,195	1,398,766	1,286,429

¹ Estimate based on a sample of approximately 1 percent of all farms. The total number of Class V farms shown by the Census was 763,000.

² For the 1954 and the 1950 Censuses of Agriculture, places of 3 or more acres were counted as farms if the annual value of agricultural products, exclusive of home-garden products, amounted to \$150 or more. The products could be either for home use or for sale. Places of less than 3 acres were counted as farms only if the value of sales of agricultural products amounted to \$150 or more. Places for which the value of agricultural products for 1954 was less than these minima because of crop failure or other unusual conditions, and places that were being operated for the first time at the time Census was taken, were counted as farms if normally they could be expected to produce these minimum quantities of agricultural products.

³ See *Farms and Farm People: Population, Income and Housing Characteristics by Economic Class of Farm*, U. S. Government Printing Office, Washington, D. C., June 1953; Louis J. Ducoff, "Classification of the Agricultural Population of the United States," *Journal of Farm Economics*, Vol. XXXVII, No. 3, August 1955, pp. 511-523.

⁴ This classification was more restrictive than the criterion of dependency on agriculture implies. The Census data do not permit separation of off-farm work into farm and non-farm work, and income from off-farm work on other farms would be classified simply as nonfarm income. The classification understates the size of the groups labeled "completely dependent on agriculture" by an estimated 200,000 farm operators in 1950. cf. Ducoff, *Ibid.*, pp. 512 and 513.

Certain inferences are drawn in respect to the Economic Class I to Class IV farms with value of farm sales of \$2,500 or more when the nonfarm income exceeds the value of farm sales, or when the operator reported 100 or more days of work off the farm in 1954 although tabulations have not been made comparing operation characteristics of these farms with the commercial farms where operators did not work off farm 100 days and other income of family did not exceed the value of farm sales. Information is given on the location of these farms and on the increases and decreases in number.

In summary, the percentages of farms that reported other income exceeding the value of farm sales in 1949 and 1954 are as follows:

Table 2.—PERCENTAGE OF FARMS REPORTING OTHER INCOME OF FAMILY EXCEEDING VALUE OF FARM SALES, FOR THE UNITED STATES: 1949 AND 1954

Economic class	1949	1954
	Percent	Percent
Class I.....	4.6	4.6
Class II.....	4.2	4.4
Class III.....	5.3	0.4
Class IV.....	11.0	12.6
Class V.....	20.7	24.3
Part-time.....	86.2	82.5
Residential.....	65.9	67.2

This study is not limited, therefore, to the part-time farms. It includes comparison among all economic classes as to farm organization and living facilities by regions. It emphasizes those comparisons that seem important in assessing the status of part-time farming and the impact of off-farm income. Part-time farms are generally regarded as those farms on which the operator works off farm 100 days or more and/or the income of the family from off-farm sources exceeds the value of farm products sold.

Comparison with other studies.—Previous studies based on data of the 1950 Census have classified farm-operator households into three groups according to their degree of dependence on agriculture: (1) Wholly dependent on agriculture, (2) partly dependent on agriculture with agriculture as the major source of family income, and (3) partly dependent on agriculture with nonagriculture as the major source of income.⁴ In 1950, out of 5,341,000 farms, about 2 million farms (2,031,000), or 38.0 percent of the total, were classed as wholly dependent on agriculture.⁵ The remainder of the farm operators—those partly dependent on agriculture—were divided between those who listed agriculture as the major source of family income (1,444,000 or 27.1 percent of the total) and those who listed nonagriculture as the major source (1,615,000 or 30.2 percent of the total). A small number (251,000 or 4.7 percent) were not classifiable.

The breakdown of these groups by economic class gives the following tabulation for 1950:⁶

Table 3.—CLASSIFICATION OF FARM OPERATORS BY ECONOMIC CLASS AND DEGREE OF DEPENDENCE ON AGRICULTURE: 1950

Economic class	Total	Wholly depend- ent on agricul- ture	Partly dependent on agriculture		Unclassi- fied
			Agricul- ture major source	Nonagri- culture major source	
	Percent	Percent	Percent	Percent	Percent
All farms.....	100.0	38.0	27.1	30.2	4.7
Commercial farms.....	100.0	50.5	34.7	9.6	5.2
Classes I and II.....	100.0	55.4	34.0	3.6	7.0
Class III.....	100.0	53.4	30.7	4.7	5.2
Class IV.....	100.0	40.1	36.2	10.6	4.1
Class V.....	100.0	41.7	32.5	21.0	4.8
Class VI.....	100.0	57.3	34.2	3.0	5.5
Other farms.....	100.0	8.0	8.6	70.8	3.6
Part-time and abnormal.....	100.0	1.2	7.4	90.0	1.4
Residential.....	100.0	12.5	9.3	73.1	5.1

The relative proportion in the Census classes did not change greatly between 1950 and 1954. Although data indicating degree of dependence on agriculture among the partly dependent groups are not available, the inference is that the most significant change is a general increase in income from nonagricultural sources.

Implications to agriculture and to the general economy.—The total number of farms listed by the Census has declined at each enumeration since 1929 (excluding 1935 when a different definition was used). Meanwhile the number of part-time (Class VII) and

residential (Class VIII) farms almost doubled in 20 years from 1929 to 1949. Between 1949 and 1954 the number of part-time farms declined, whereas the percentage of operators working off their farms 100 days or more increased and the percentage of farm families with income from off-farm sources exceeding income from farm sales also increased. The trend toward more off-farm income and employment is particularly marked in the case of the commercial farms of higher income. Suggested inferences or hypotheses are (1) that in all major regions of the United States opportunities of farm families for off-farm work and income have improved over the last 25 years, especially since 1949, (2) that a progressively smaller percentage of the "farm population" is wholly dependent, or largely dependent, on agriculture as a source of income, and (3) that further opportunities in off-farm employment and income will mean a smaller number and proportion of farm families who depend wholly on agriculture.

Table 4.—DISTRIBUTION OF FARMS BY ECONOMIC CLASS AND PERCENT CHANGE, FOR THE UNITED STATES: CENSUSES OF 1950 AND 1954

Economic class	Number of farms (000)		Percent distribu- tion		Percent change
	1950	1954	1950	1954	
United States.....	5,379	4,783	100.0	100.0	-10.2
Class I.....	103	134	1.9	2.8	+30.1
Class II.....	381	449	7.1	9.4	+17.8
Class III.....	721	707	13.4	14.8	-2.0
Class IV.....	852	812	16.4	17.0	-8.0
Class V.....	901	768	16.8	16.0	-15.4
Class VI.....	717	402	13.3	9.7	-35.6
Part-time (Class VII).....	639	575	11.9	12.0	-10.0
Residential (Class VIII).....	1,020	878	19.1	18.4	-14.8
Abnormal.....	4	3	.1	.1	-25.0

⁶ *Ibid.*, p. 515.

B. GEOGRAPHIC LOCATION AND PERCENTAGE DISTRIBUTION

Data on geographic location and percentage of distribution of farm operators, presented in maps 1 to 15, are on an economic area-unit basis. They show the percentage of farm operators whose families have other income exceeding the value of farm products sold. They also show the percentage of farm operators who worked off their farms 100 days or more in 1954. Both are shown by economic class.

Attention is invited first to the distribution of farm operators by geographic division and by economic class in Tables 5 and 6. These tables show that about 84 percent of the total number of farms are located in the four central divisions and the South Atlantic Division and that the distribution by classes varies considerably from division to division. For example, in the North, Northeast, and Pacific divisions there are relatively higher percentages of Classes I, II, and III farms than in the South. The South Atlantic and East South Central divisions contain relatively high percentages of Classes IV, V, and VI farms. These relative distributions should be kept in mind when the data in the following maps are compared.

Percentage of farm operators by economic class reporting other income of family exceeding value of farm products sold.—Maps 1 to 7, inclusive, compare the percentage of farm operators by economic class who report other income that exceeds the value of farm products sold in 1954. In maps 1 to 5, corresponding to Economic Classes I to V, the distribution changes markedly from class to class.

The highest percentages of Classes I, II, and III farms with other income exceeding value of farm sales is found in the South. Here, there are concentrations of 40 percent and more of the operators in these classes who report other income exceeding the

value of farm sales. The higher incidence of other income in the South is influenced by the tenure system. Sharecropping is prevalent in the South and proceeds to a landlord from the sale of his share of the crops or livestock on other farms may be greater than sales of products from the farm he operates himself. It will be noted, however, that the highest concentration of Classes I, II, and III reporting other income exceeding sales are in areas where cropper farms are less numerous. Conversely, very few of these farms report other income exceeding that from farm sales in areas, such as the Mississippi Delta, where sharecroppers are most numerous. Outside of the South, only a few scattered areas report more than 5 percent of Class I farms as having operators who have other income exceeding the value of farm sales. Significantly these areas are usually close to metropolitan centers, and a few are in regions where other resources, such as coal and oil, are prevalent. There are areas of concentration, for example, along the East and West coasts and around the Great Lakes. Other areas of concentration—around south-central Illinois, eastern Oklahoma, and Texas—suggest income derived from oil.

As one goes down the scale from Class I to Class IV farms, the percentage of farm operators with other income exceeding the value of farm sales generally increases. The areas of concentration first spread across the southern part of the United States and along both coasts. Finally, with Class V farms, the largest percentage concentrations are found in the West and the Northeast, whereas a relatively low percentage is found in the Great Plains, the West North Central Division, and the South. This pattern for Class V farms illustrates the chief areas of close integration of farm and urban economies in the Western parts of the country and throughout the industrial Northeast.

Table 5.—NUMBER OF FARMS BY GEOGRAPHIC DIVISION AND BY ECONOMIC CLASS: 1954

Geographic division	All farms	Commercial farms	Class I	Class II	Class III	Class IV	Class V	Class VI	Part-time	Residential	Abnormal
United States.....	4,783,021	3,327,617	134,003	448,945	706,929	811,065	763,348	462,427	574,575	878,136	2,003
New England.....	81,816	50,371	3,872	10,627	12,911	10,983	8,081	3,897	10,181	21,090	174
Middle Atlantic.....	257,109	176,754	8,348	34,235	48,104	42,043	30,070	13,864	33,139	47,030	276
East North Central.....	706,085	619,085	20,176	110,613	169,456	158,182	113,585	47,663	96,262	92,685	453
West North Central.....	906,195	781,093	26,228	143,108	236,214	200,112	119,870	56,501	57,324	66,382	396
South Atlantic.....	858,675	508,837	10,898	30,076	70,469	142,647	152,003	102,654	117,135	232,296	407
East South Central.....	789,667	490,881	4,157	13,892	33,167	105,956	181,883	146,826	115,882	182,700	20
West South Central.....	608,954	405,617	20,068	43,770	64,623	93,290	110,014	73,902	103,573	159,603	16
Mountain.....	179,871	136,439	13,229	28,202	34,156	29,536	21,654	9,572	18,007	25,063	362
Pacific.....	242,570	167,960	27,037	34,272	32,830	29,216	26,098	8,498	33,072	51,287	26

Table 6.—PERCENT OF FARMS BY GEOGRAPHIC DIVISION AND BY ECONOMIC CLASS: 1954

[Geographic division as percent of United States]

Geographic division	All farms	Commercial farms	Class I	Class II	Class III	Class IV	Class V	Class VI	Part-time	Residential	Abnormal
United States.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
New England.....	1.7	1.5	2.9	2.4	1.8	1.3	1.0	.8	1.8	2.4	6.4
Middle Atlantic.....	5.4	5.3	6.2	7.6	6.8	5.1	3.9	2.9	5.8	5.3	10.2
East North Central.....	16.7	18.6	15.0	24.6	24.0	19.4	14.9	10.3	15.0	10.6	16.8
West North Central.....	18.9	23.5	19.6	31.9	33.4	24.6	15.7	12.0	10.0	7.6	14.7
South Atlantic.....	18.0	15.3	8.1	6.7	10.0	17.0	19.9	22.1	20.3	26.4	15.1
East South Central.....	16.5	14.8	3.1	3.1	5.3	13.1	23.8	31.8	20.1	20.8	7.6
West South Central.....	14.0	12.2	15.0	9.7	9.1	11.4	14.4	16.0	18.0	18.1	5.9
Mountain.....	3.8	4.1	9.9	6.3	4.8	3.6	2.8	2.0	3.1	2.9	13.4
Pacific.....	5.1	4.7	20.1	7.6	4.6	3.6	3.4	1.8	5.8	5.8	9.

FARMERS AND FARM PRODUCTION

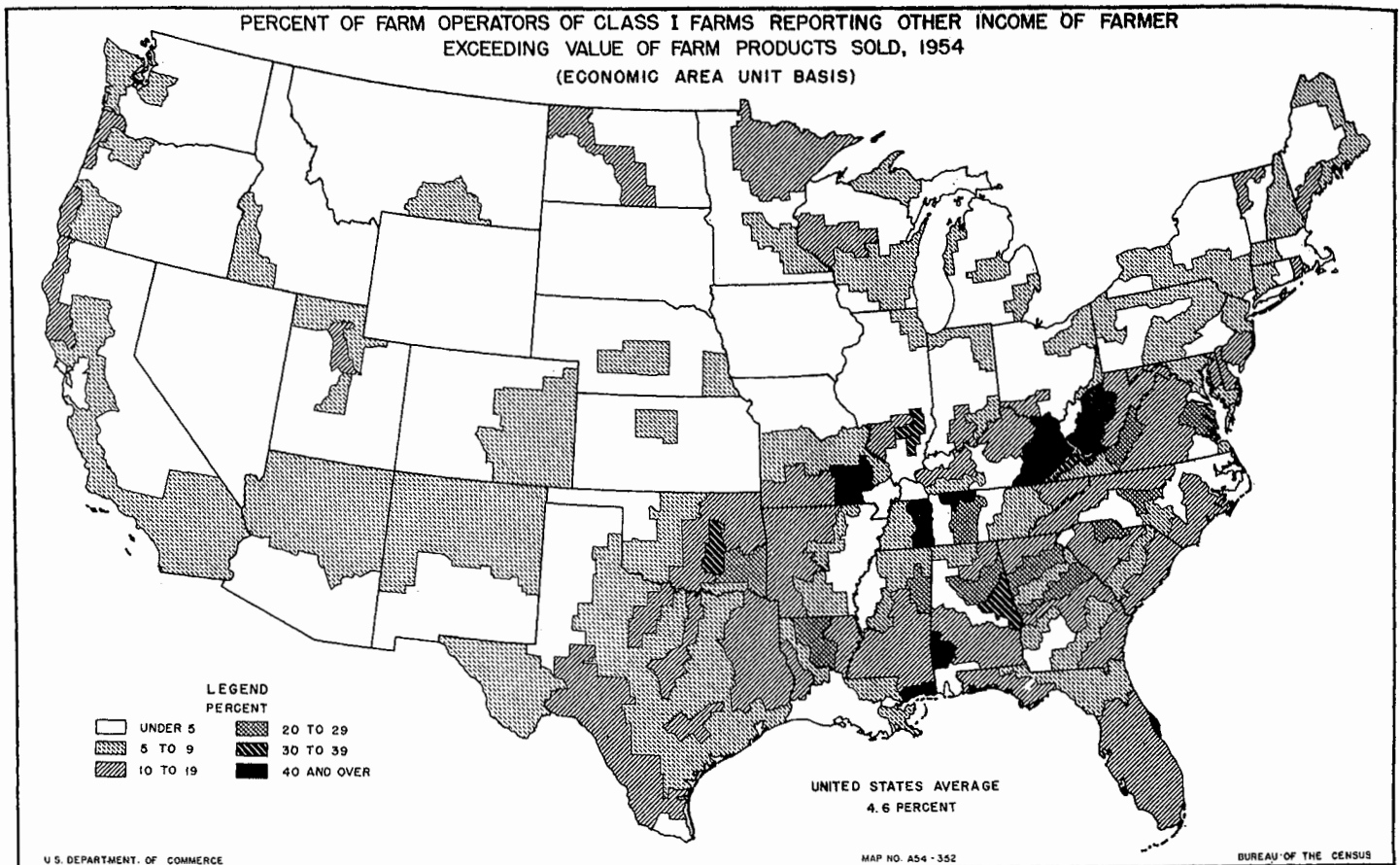


Figure 1.

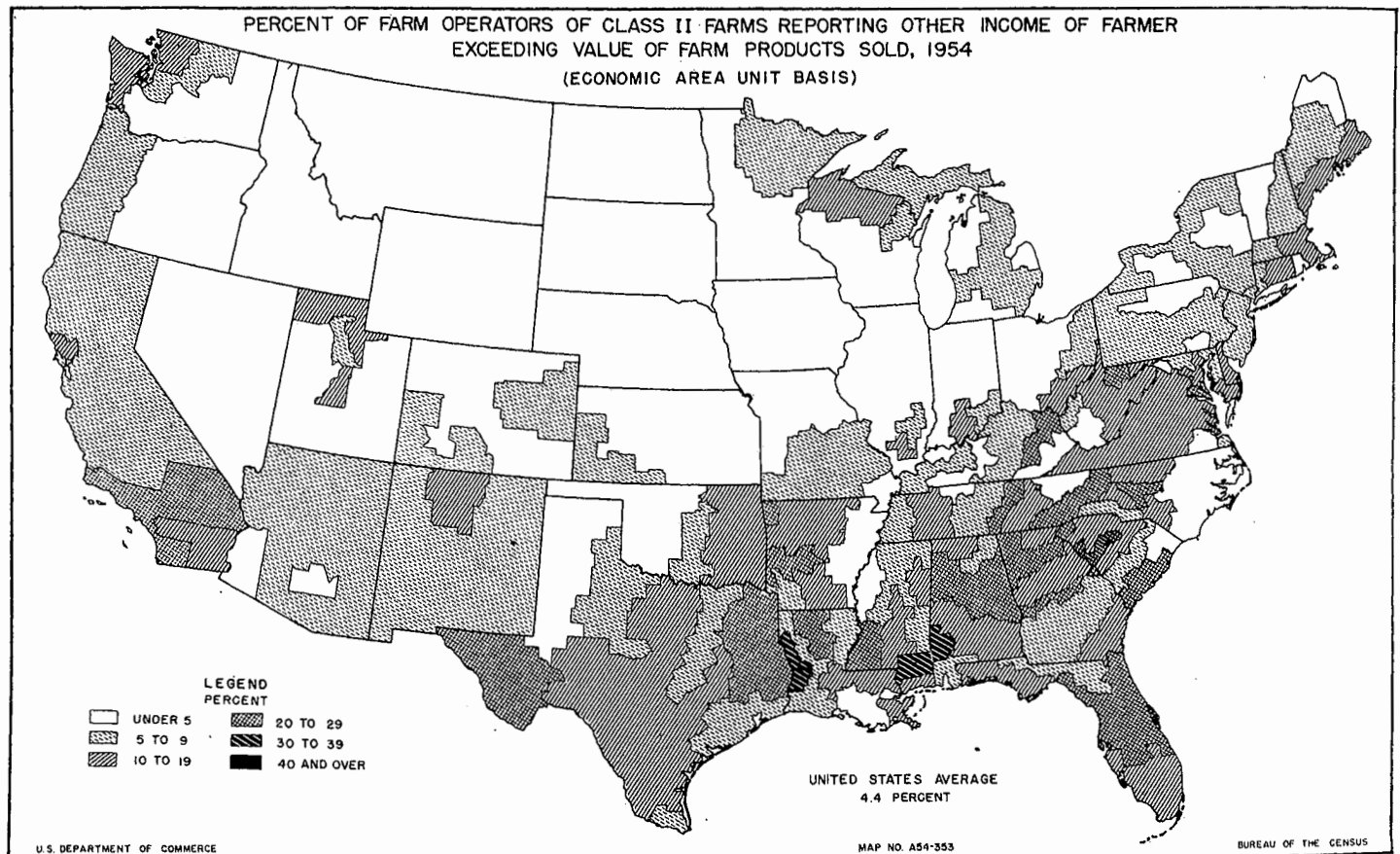


Figure 2.

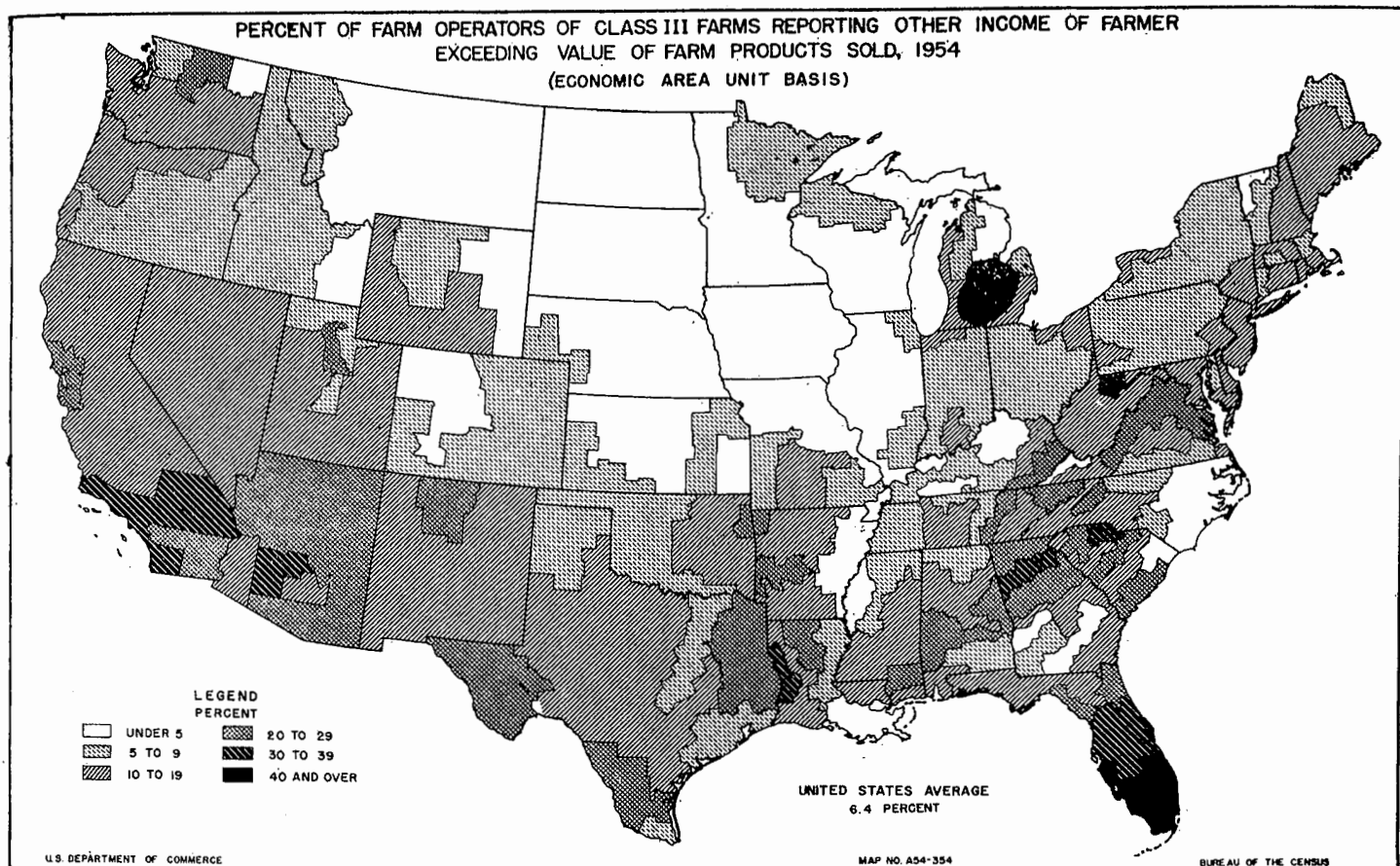


Figure 3.

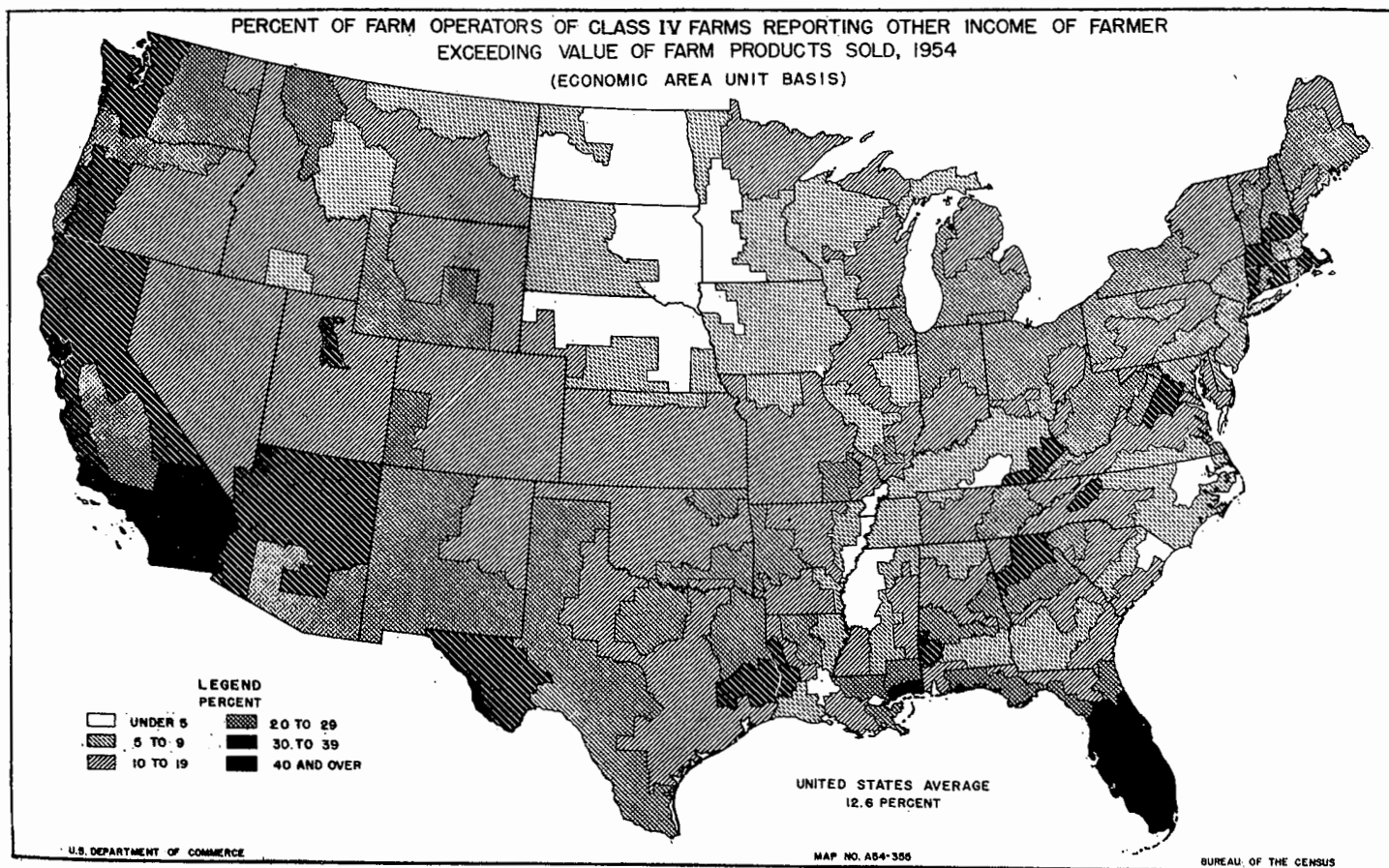


Figure 4.

FARMERS AND FARM PRODUCTION

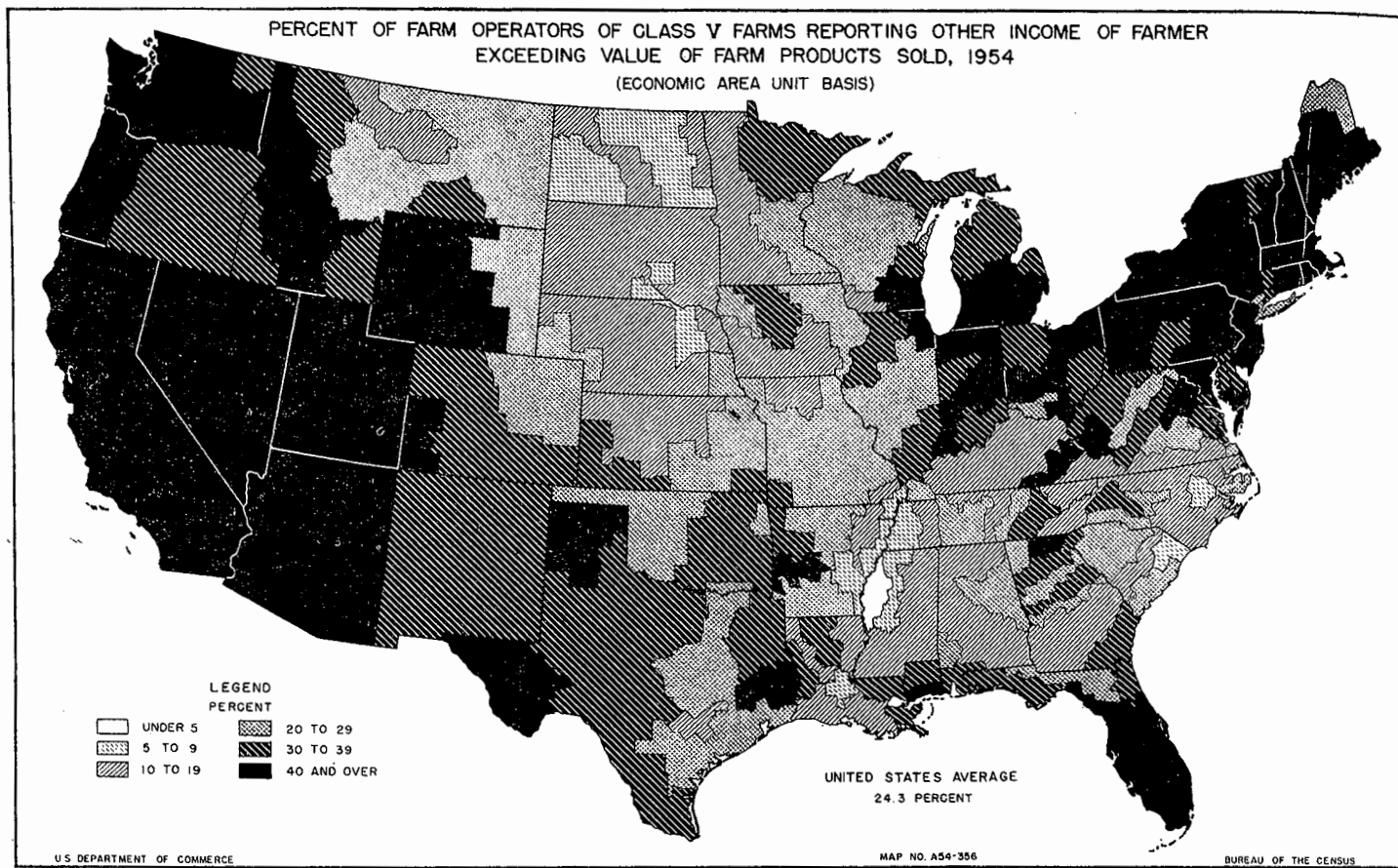


Figure 5.

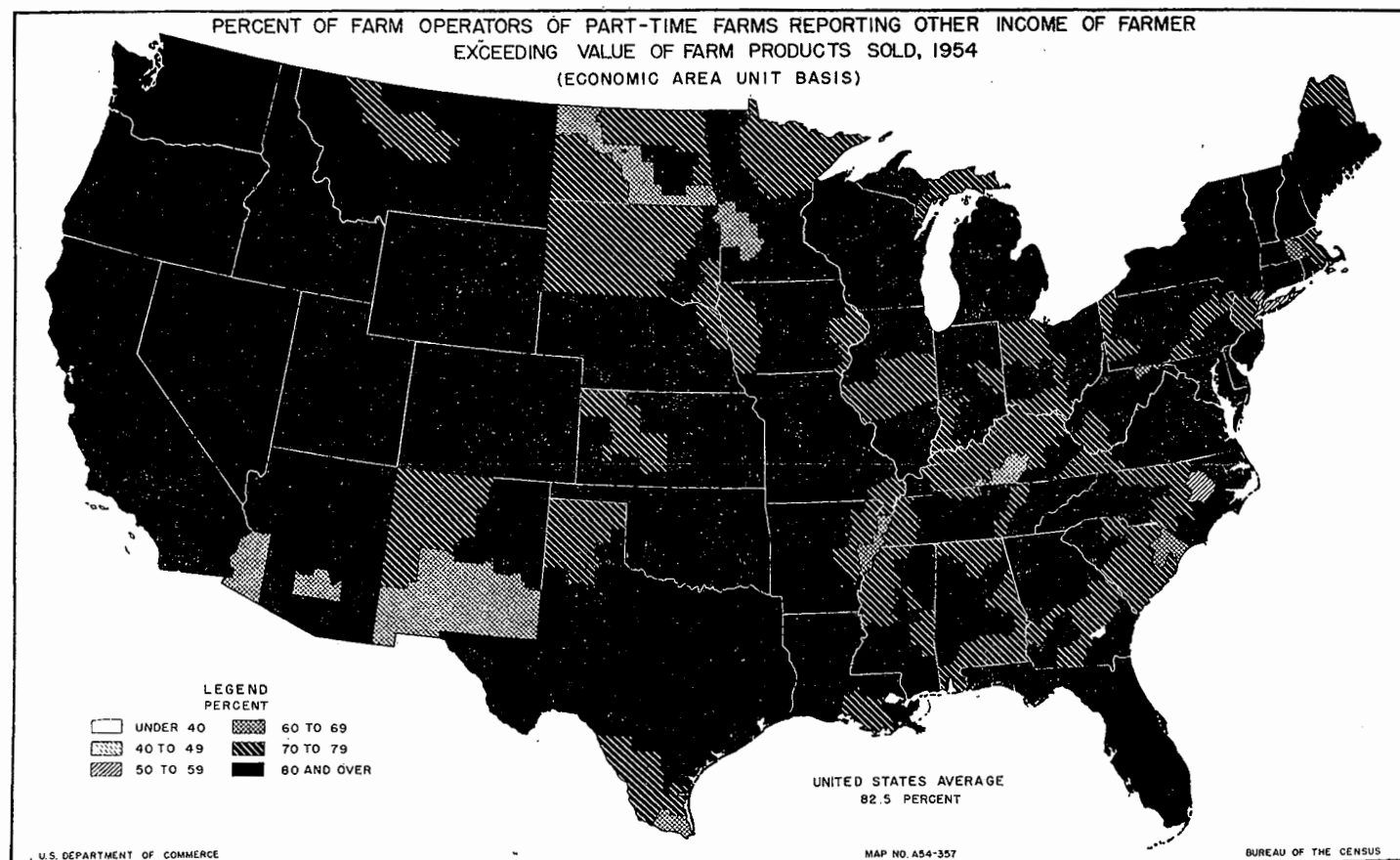


Figure 6.

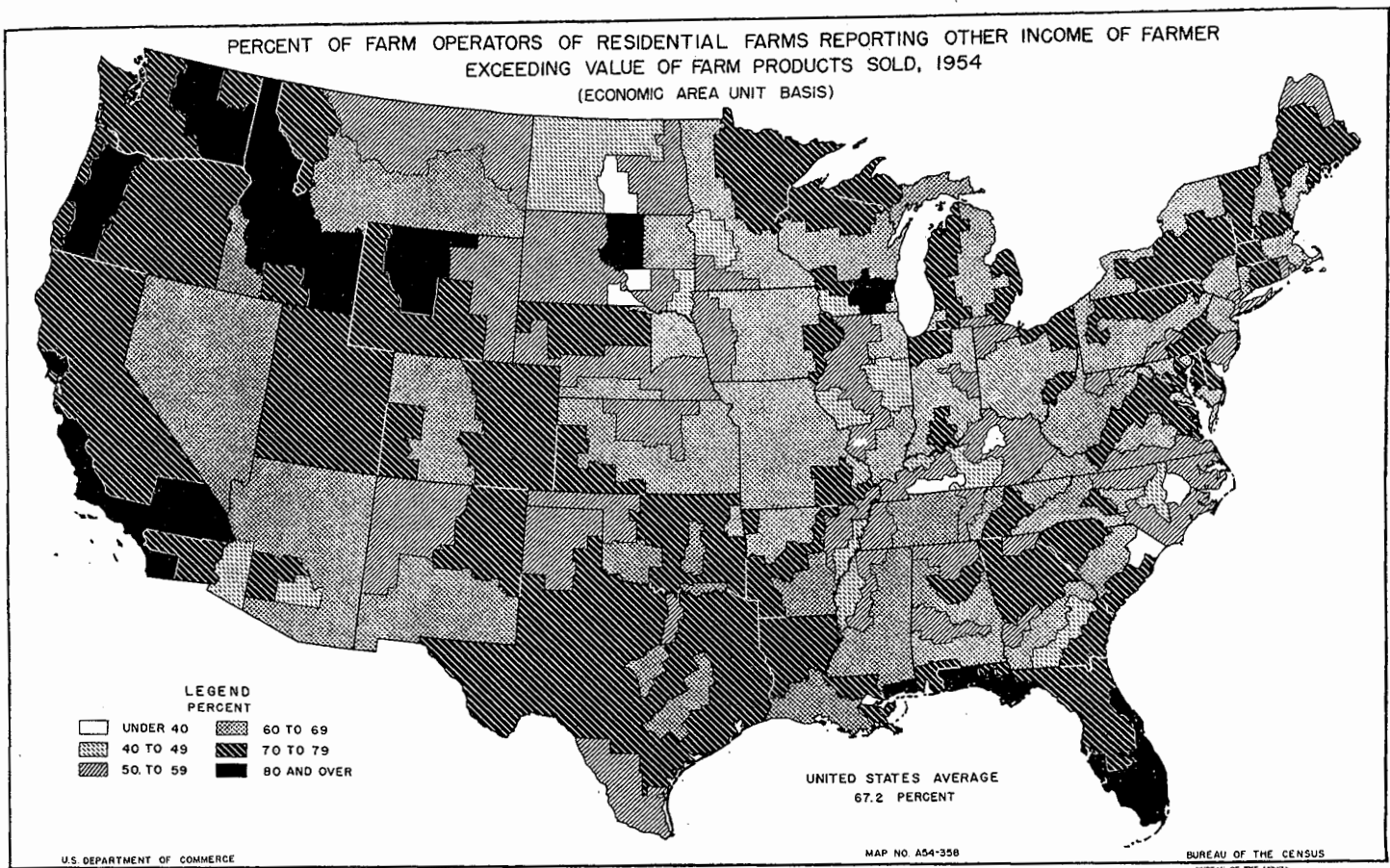


Figure 7.

Maps 6 and 7, of part-time and residential farms, Classes VII and VIII, show that the Class VII, or part-time farms, usually do have more income from off-farm sources than from farming; the pattern for residential farms is much more scattered. A careful study of map 7 reveals, however, that the residential farms in the metropolitan counties are generally receiving more income from nonfarm sources than from farm sales, whereas the nonmetropolitan counties have larger percentages that fail to get a larger income from nonfarm sources than from farm sales. Generally, in metropolitan counties more than 60 percent of the residential farm operators report other income exceeding the value of farm products sold in 1954.

Percentage of farm operators working off their farms in 1954.—Maps 8 and 9 illustrate that the percentage of farm operators working off their farms and the amount of off-farm work are relatively low in the Great Plains and in the West North Central Division, and in most areas where a high percentage of land is under cultivation, as in the nonmetropolitan counties along the Mississippi River and in the coastal plains of the Southeast. On the other hand, relatively high percentages work off farm in the more industrialized or urbanized counties, and in the cutover areas of the Great Lakes, the Appalachian Highlands, and the Rocky Mountains. These maps show that off-farm work is closely related to industrial and other opportunities.

Percentage of farm operators working off their farms, by economic class, 1954.—The pattern over the United States shows that the highest percentages working off farm 100 days or more

in each class is found under somewhat predictable circumstances. The conducive conditions are found most commonly in areas of metropolitan or urban-industrial development; in sharecropper farming areas as among Classes I, II, and III in the South; in cutover areas as in some of the Lake States in the case of Class V farms; and in areas where other resources are available, as oil developments in Texas and Oklahoma. In each area where a high percentage of farm operators work off the farm, this fact is associated with some specific type of urban or industrial resource or other source of employment that is readily available (figs. 10 to 16). The percentage of farm operators working off farm 100 days or more increases consistently from Class I through Class V.

Perhaps one of the most striking characteristics by economic classes is that off-farm employment of farm operators in Classes I to III is spread rather generally over the United States, with some concentration in the South. Among Class IV farms a new concentration is developing in the Northeast and the Pacific Region, indicating that many of these low-income farm operators have substantial off-farm sources of income. Among Class V farms this concentration in the Northeast and the West becomes more pronounced.

In the case of part-time or Class VII farms, again the Great Plains and the South are the two regions with the lowest percentages working off farm 100 days or more. This indicates a relatively poorer economic status for Class VII farms in these regions. This tendency is further emphasized in the case of residential or Class VIII farms.

FARMERS AND FARM PRODUCTION

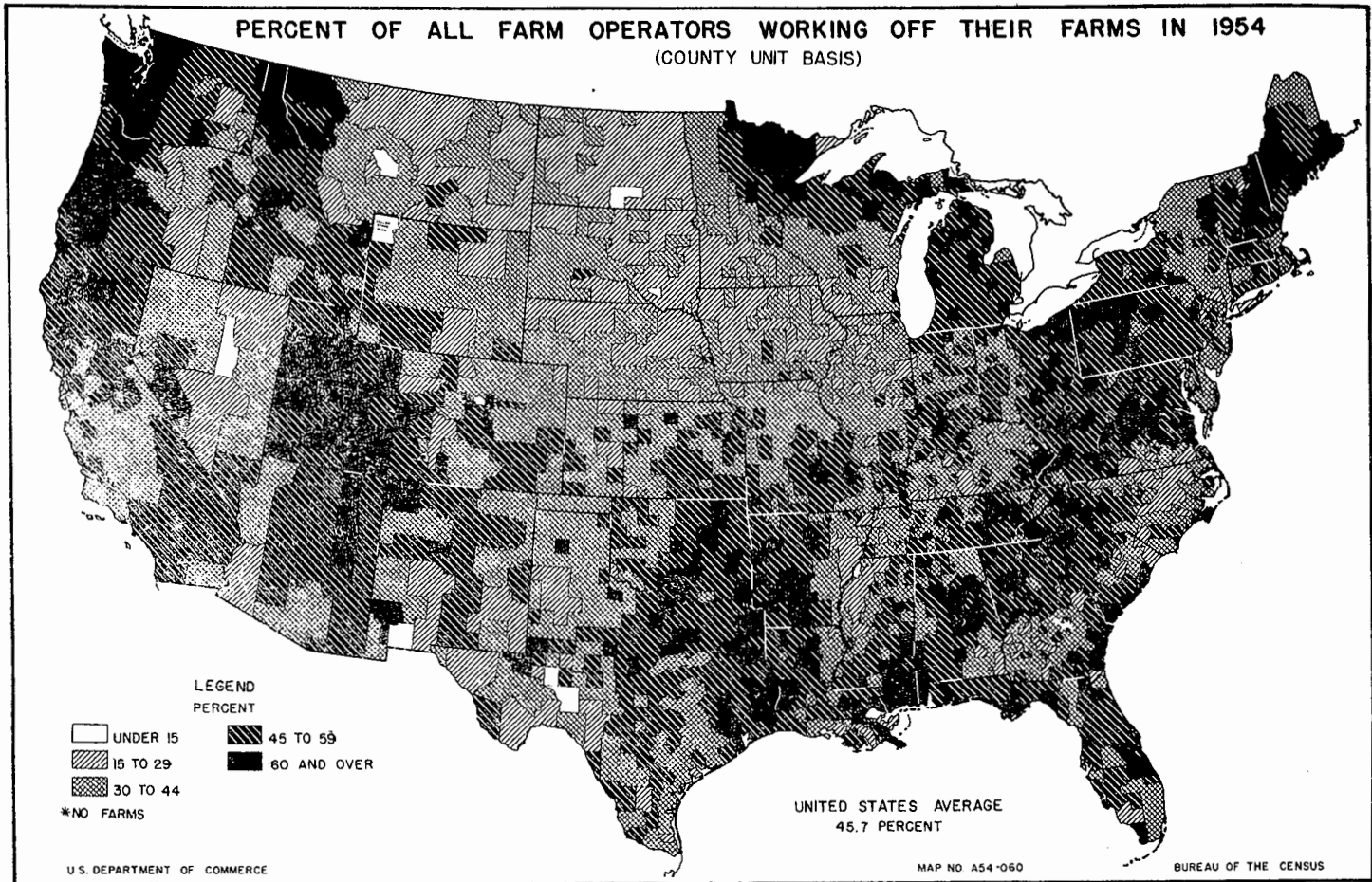


Figure 8.

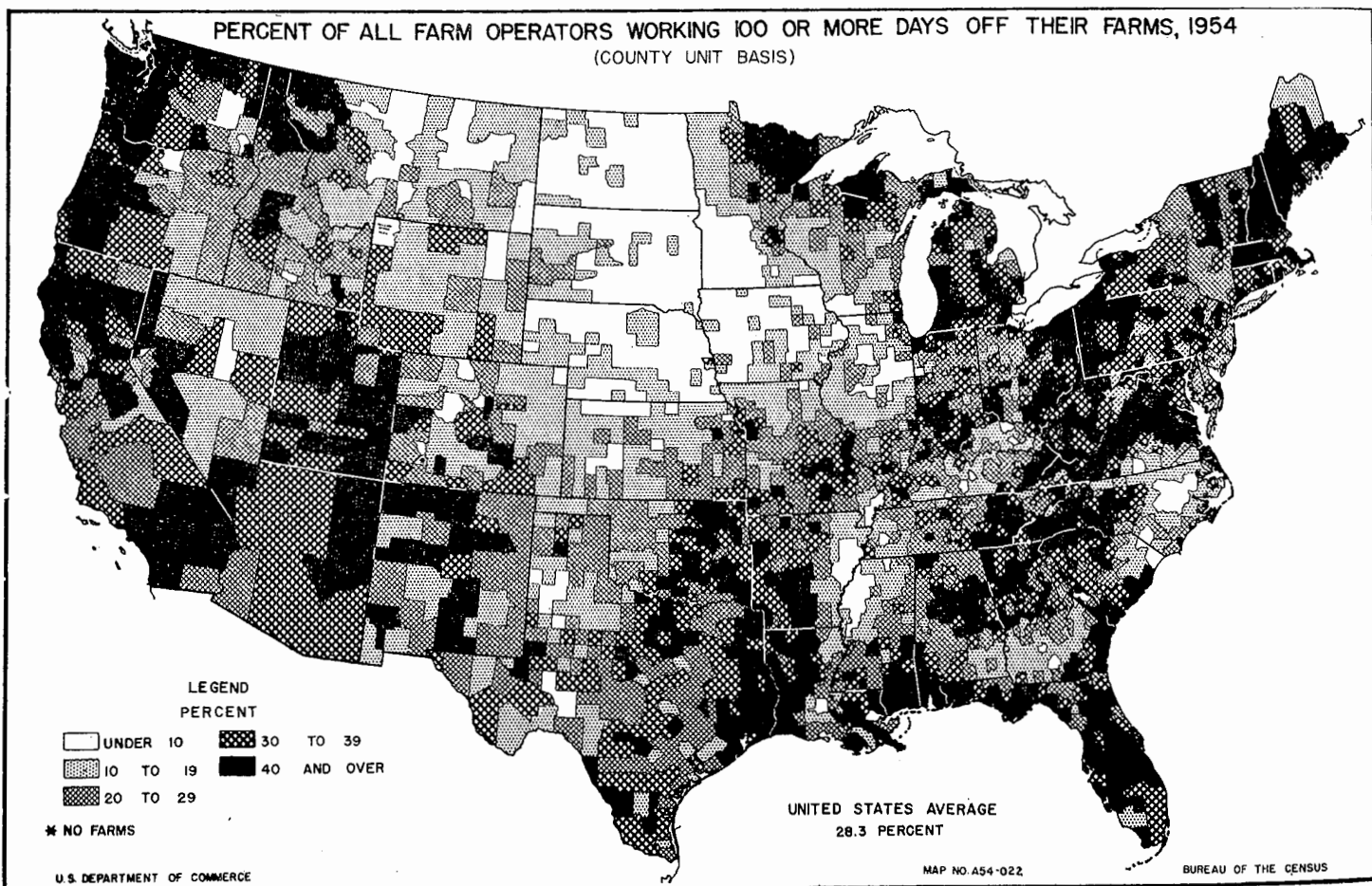


Figure 9.

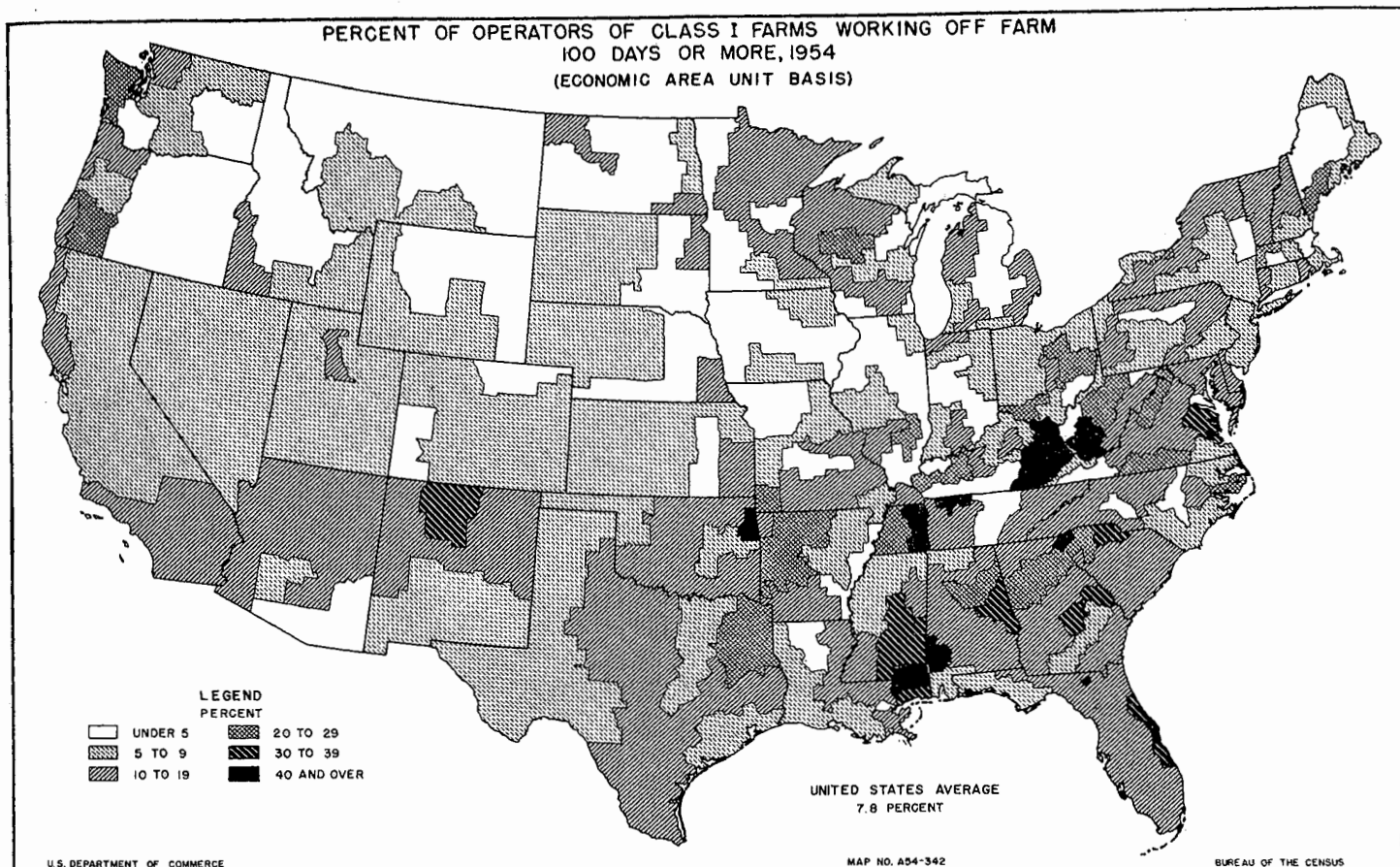


Figure 10.

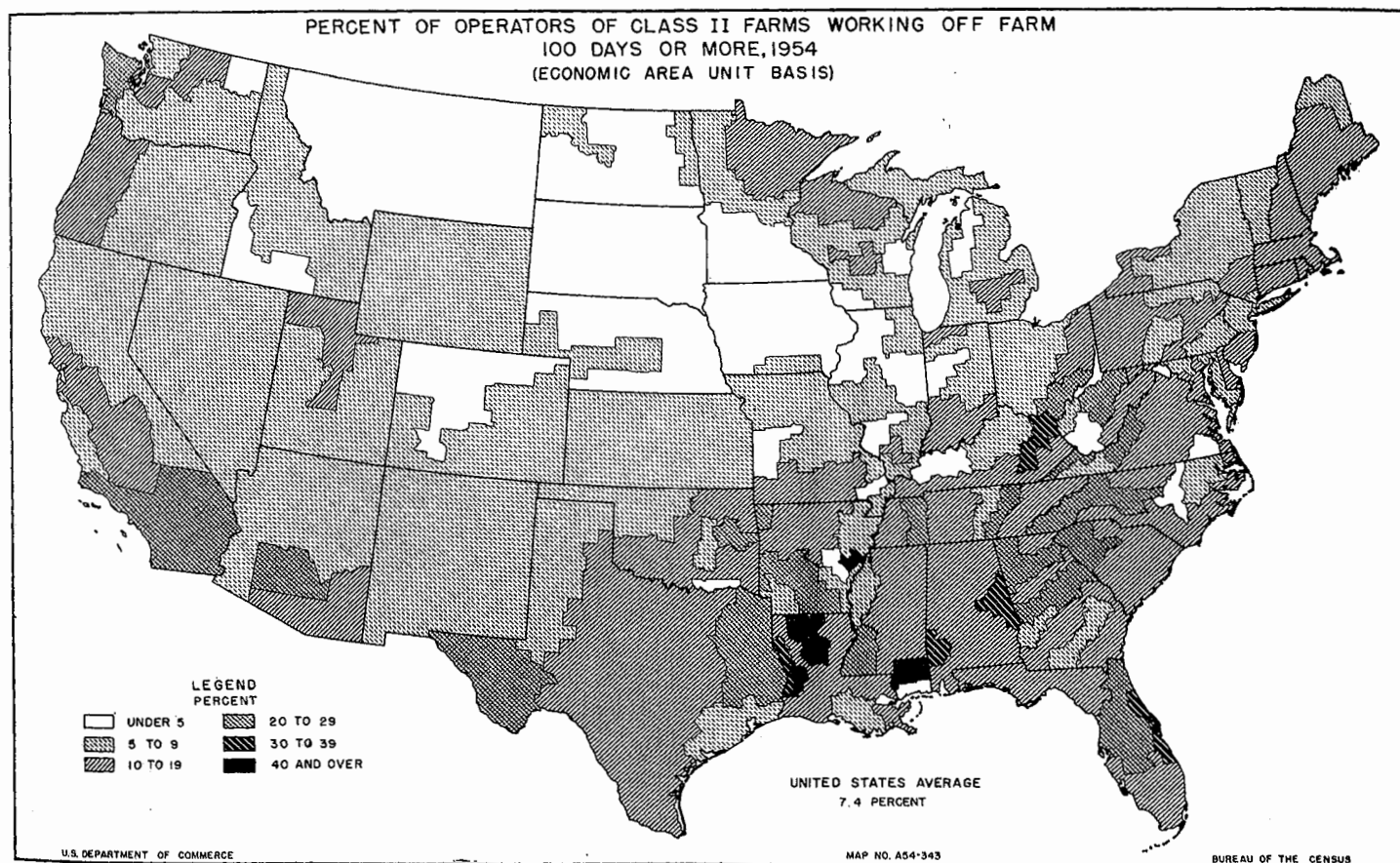


Figure 11.

FARMERS AND FARM PRODUCTION

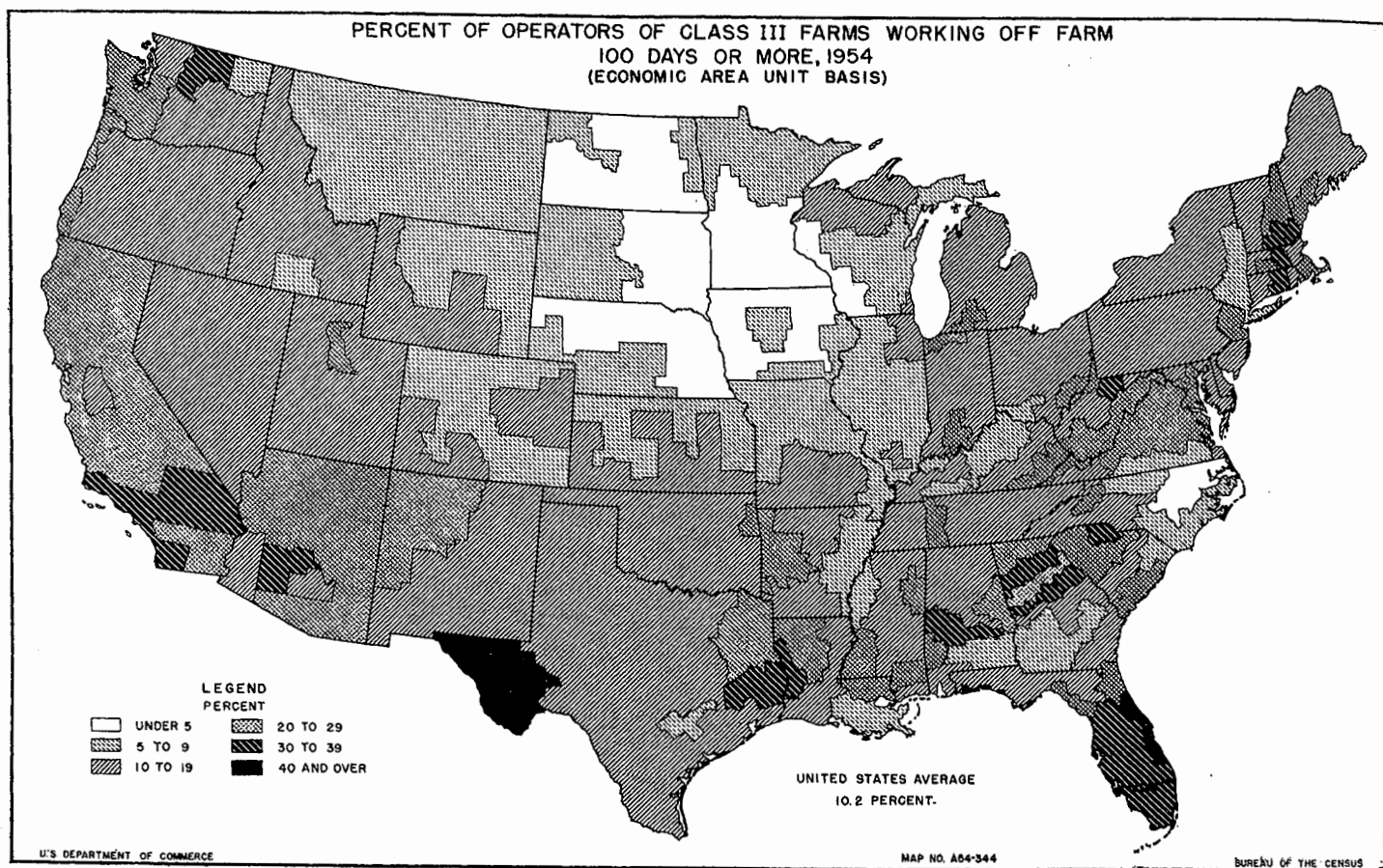


Figure 12.

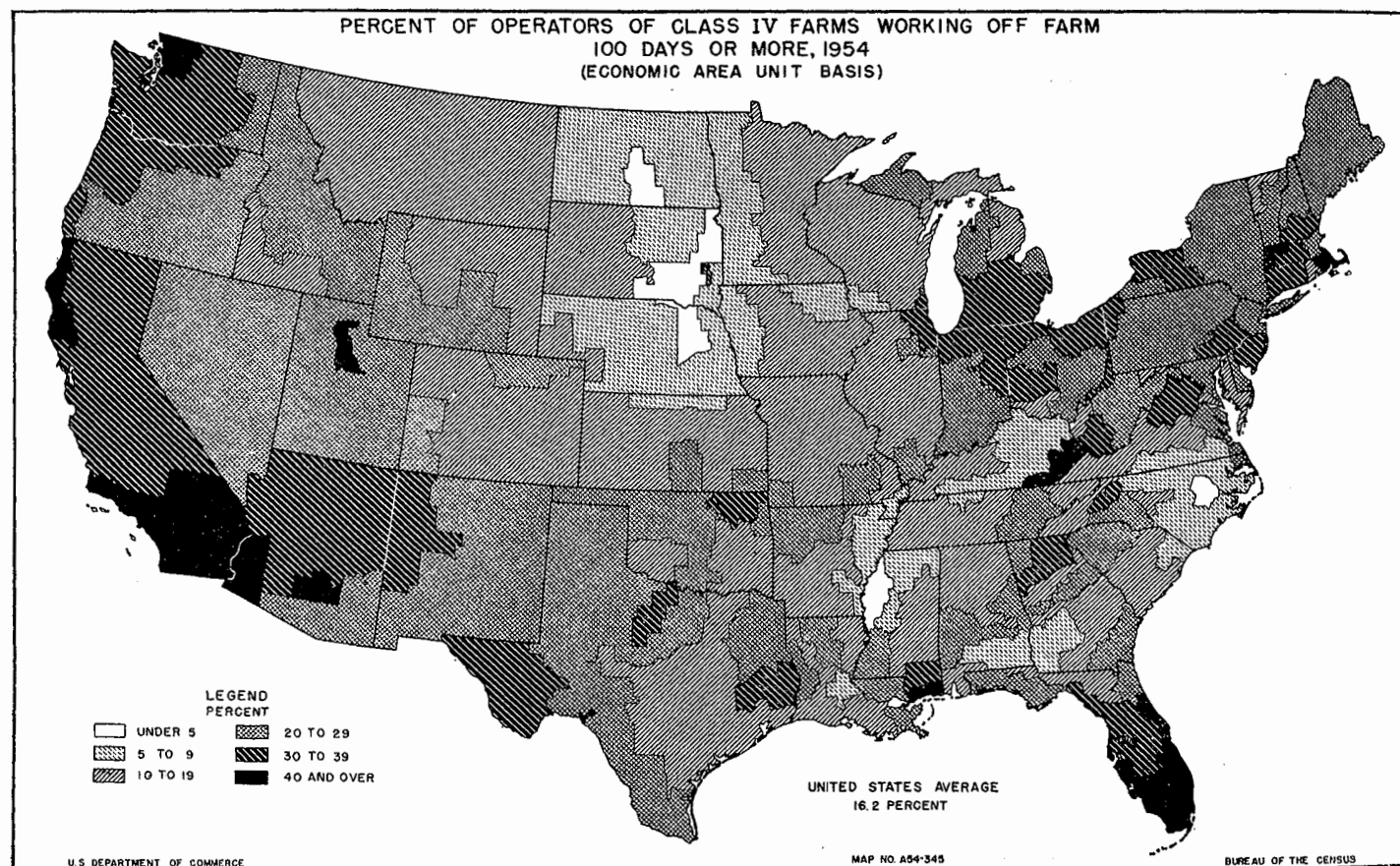


Figure 13.

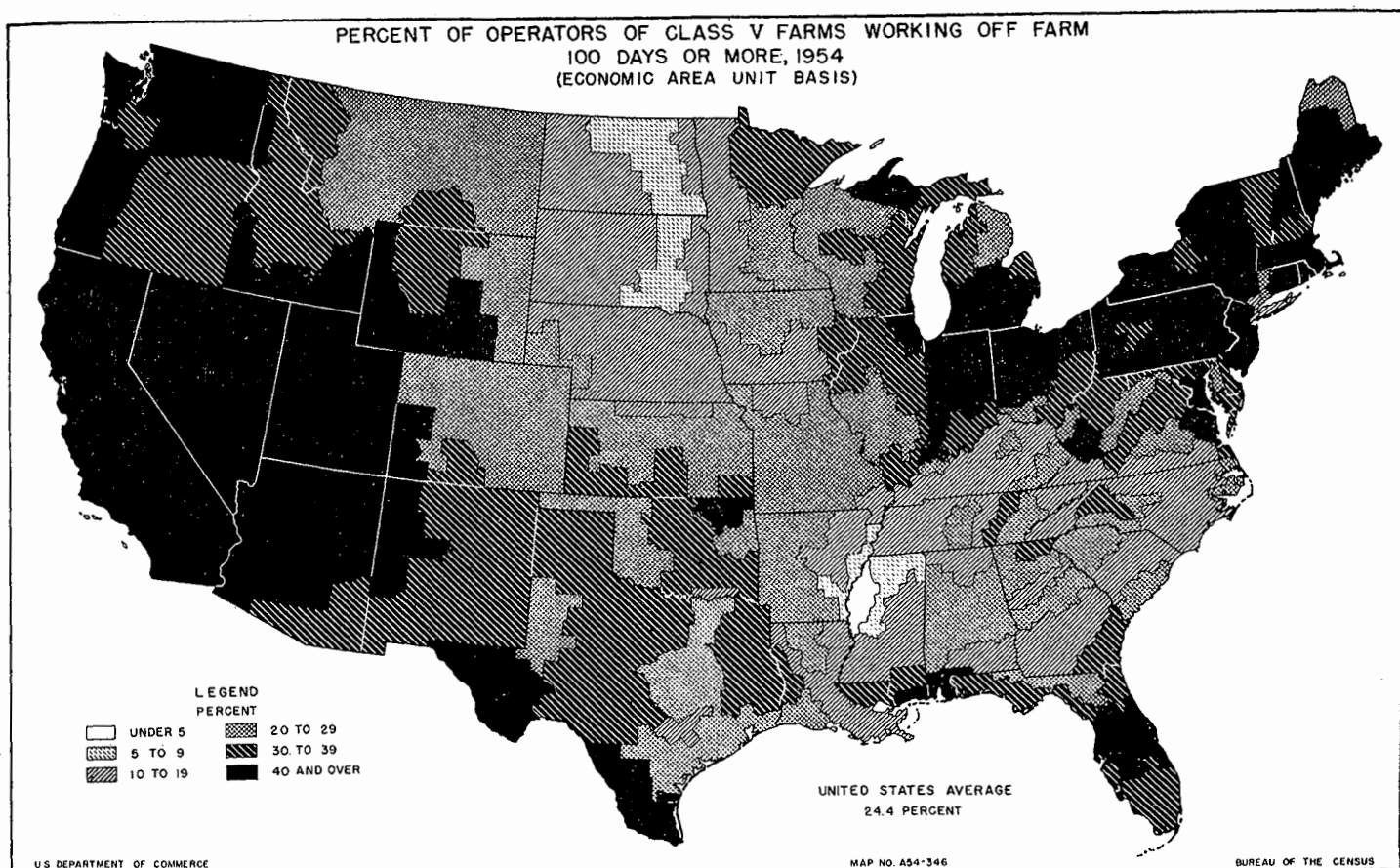


Figure 14.

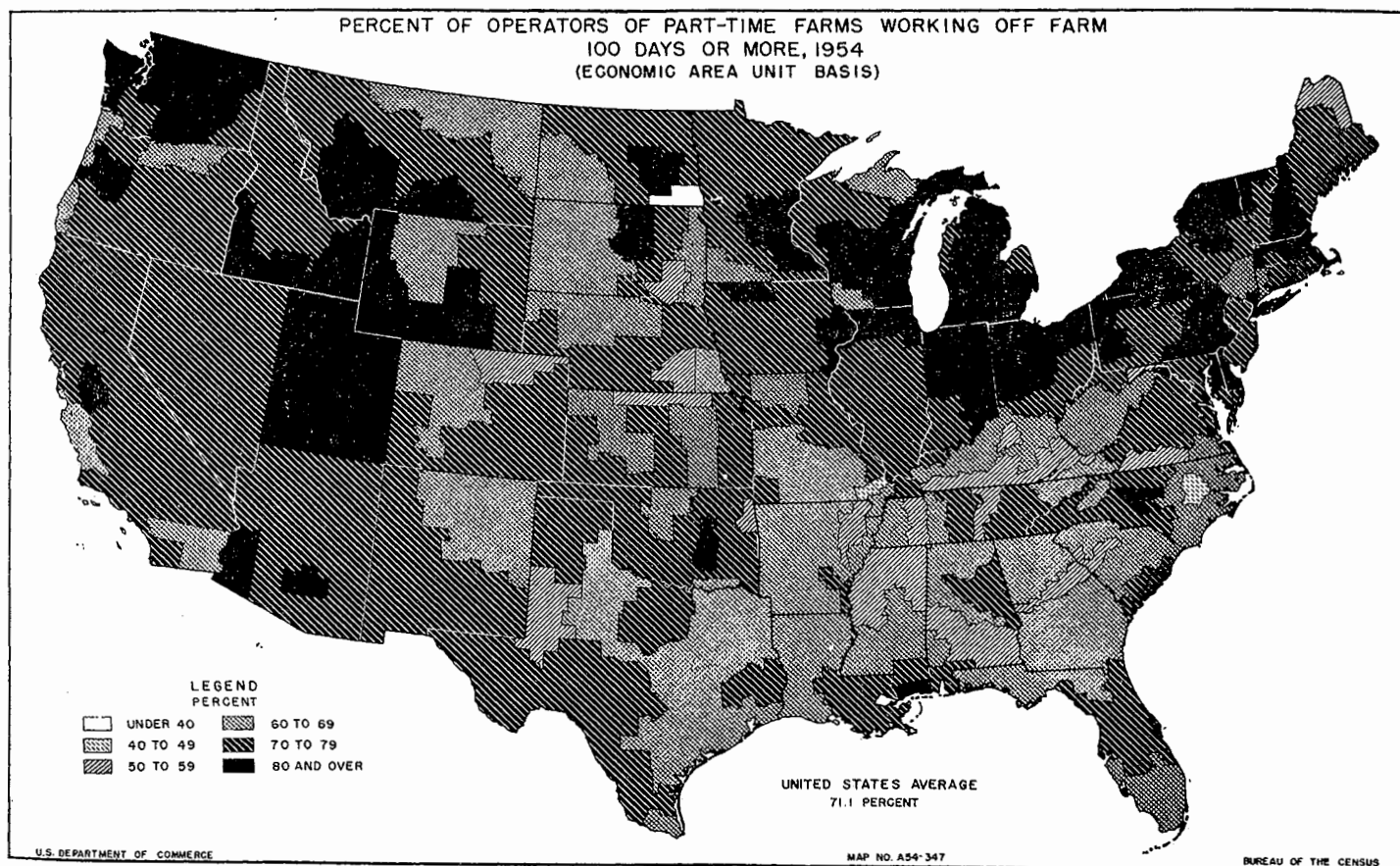


Figure 15.

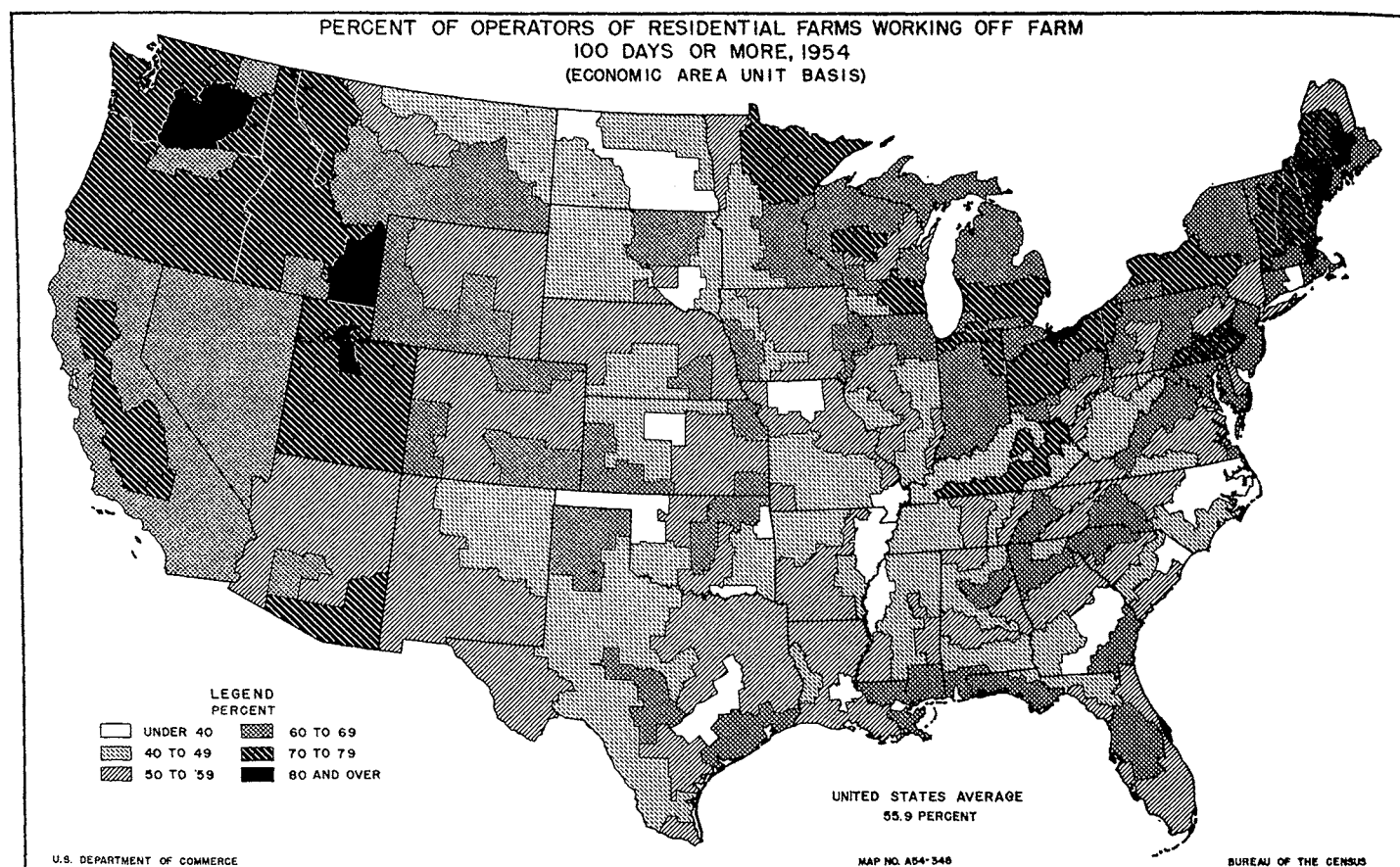


Figure 16.

Comparative distribution of Classes V, VI, VII, and VIII farm operators, 1954.—Maps 17 to 20 give the location of Classes V to VIII farm operators and provide a basis for the following generalizations: (1) In case of Class V farms the number of operators working off farm less than 100 days is mostly concentrated in the South. The number of operators working off farm 100 days or more is more generally concentrated primarily over the eastern half of the United States. (2) There is a heavy concentration of Class VI farms in the South. (3) Part-time (Class VII) farms are more generally distributed over the eastern half of the United States than are the Class VI farms. (4) Residential (Class VIII) farms exhibit heavy concentrations in eastern Kentucky and in the Appalachian area of the Carolinas, Tennessee, and Georgia.

In summary, the heaviest concentrations of part-time farming are found in the eastern half of the United States. They are in the largely metropolitan counties and in specified areas, such as the Appalachian coal and industrial areas and in the more heavily populated or industrialized areas throughout the eastern half of the United States.⁷ These concentrations make a different geographic pattern than that of low-income commercial (Class VI) farms. The low-income commercial farms are concentrated more largely in nonmetropolitan counties around the Mississippi River in Mississippi, Alabama, and Tennessee, and in the coastal plains of the Southeastern States.⁸ A larger percentage of total farms are classed as part-time and residential farms in metropolitan counties than in the nonmetropolitan counties.

Inferences about off-farm income and employment.—Several

inferences are suggested by these data. Among them are the following:

(1) The relatively low-income farm operators in Class IV and Class V, generally classed as commercial farm operators, actually differ substantially in economic status when broad areas of the country are compared. Throughout the South, in the Great Plains, and in scattered other areas, a large proportion are actually low-income families that have virtually a subsistence status and have only minor sources of off-farm income. On the other hand, in the Northeast, in the nine or ten most westerly States of the country, and in parts of Texas, Oklahoma, and Florida, the so-called low-income commercial farm operators have more readily available sources of off-farm work and they have substantially larger incomes.

(2) A smaller percentage of Classes I to III farm operators work off farm than is the case of Classes IV and V operators. Apparently off-farm employment—although as readily available—has a higher opportunity cost for them and does not attract as many operators.

(3) Among the Classes VII and VIII farms, the evidence suggests that off-farm income is more substantial outside the South and outside the Great Plains.

(4) Throughout the economic classes the importance of urban-industrial development in providing off-farm income and employment is evident. This probably indicates that urban-industrial development is an influential factor in providing extra income in areas of low farm income.

⁷ Cf. Otis Dudley Duncan, "Note on Farm Tenancy and Urbanization," *Journal of Farm Economics*, November 1956.

⁸ Cf. Vernon W. Ruttan, "The Impact of Urban Industrial Development on Agriculture in the Tennessee Valley and the Southeast," *Journal of Farm Economics*, Vol. XXXVII, No. 1, February 1955, pp. 38-56. The data for the 1950 Census of Population indicated that, "in both the Tennessee Valley region, the Southeast, and the Nation as a whole, the (median) income level achieved rural-farm families (from farm and nonfarm sources) does bear a direct and positive relationship to the relative level of urban-industrial development in the same general area." Pp. 40, 42.

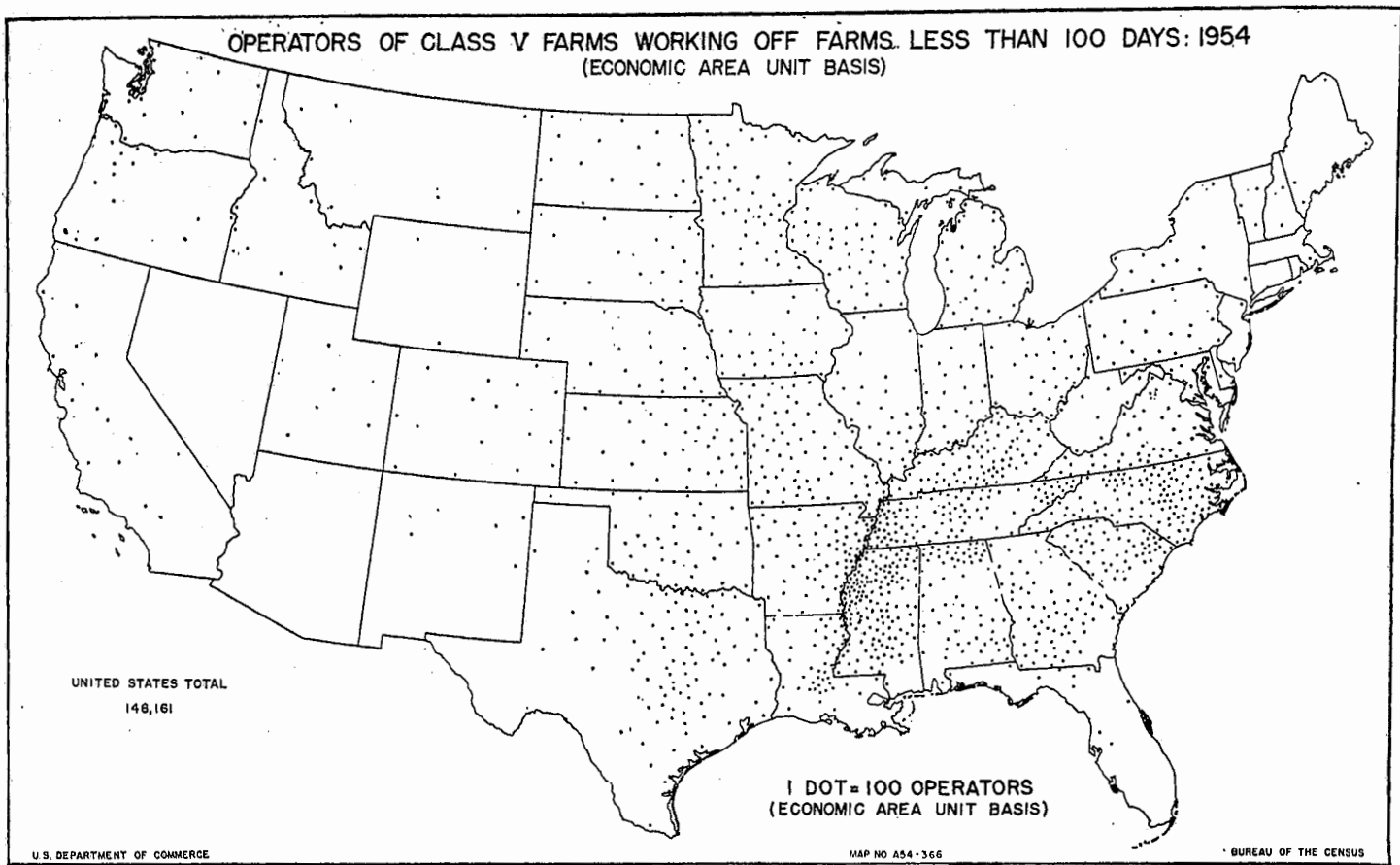


Figure 17.

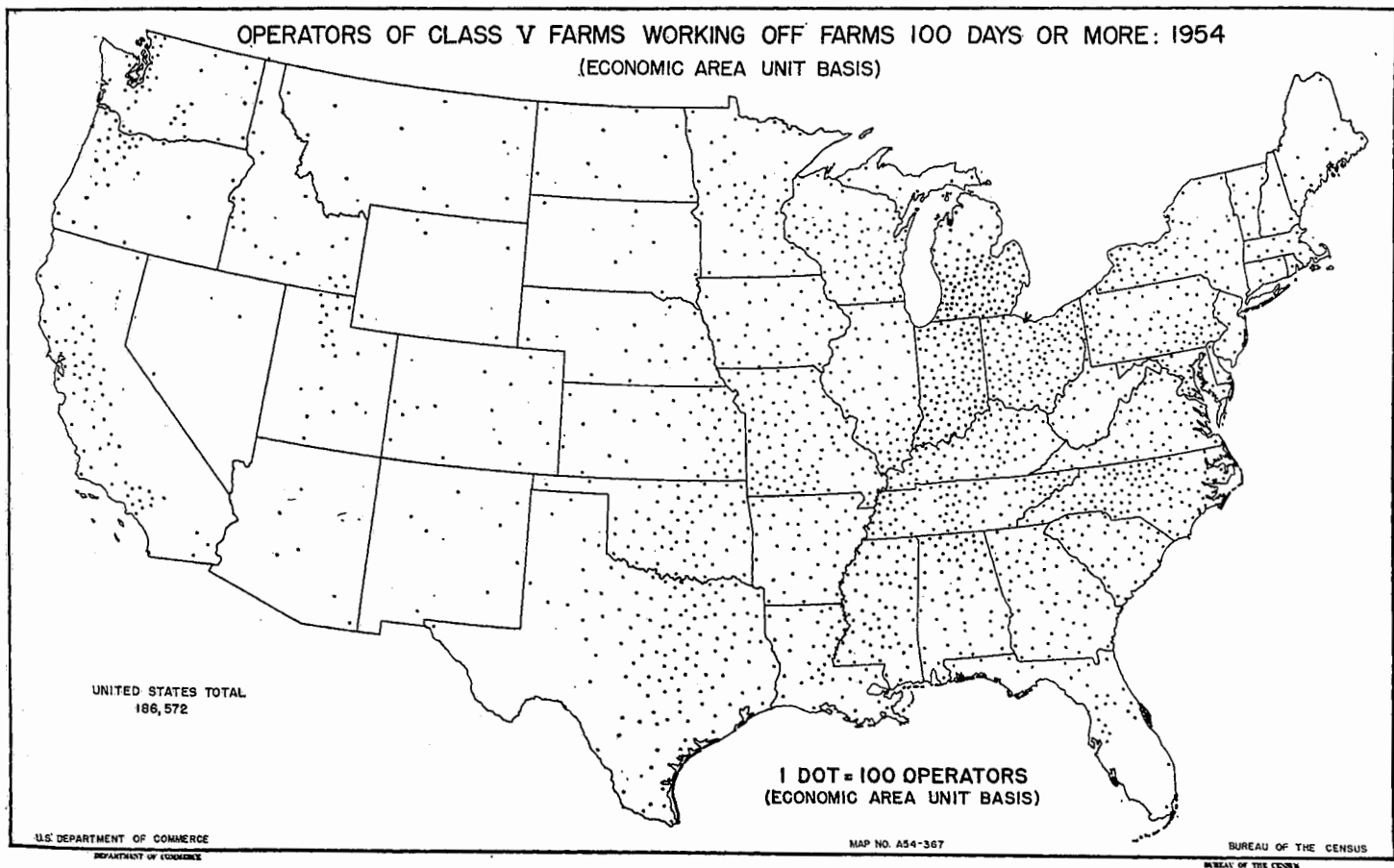


Figure 18.

FARMERS AND FARM PRODUCTION

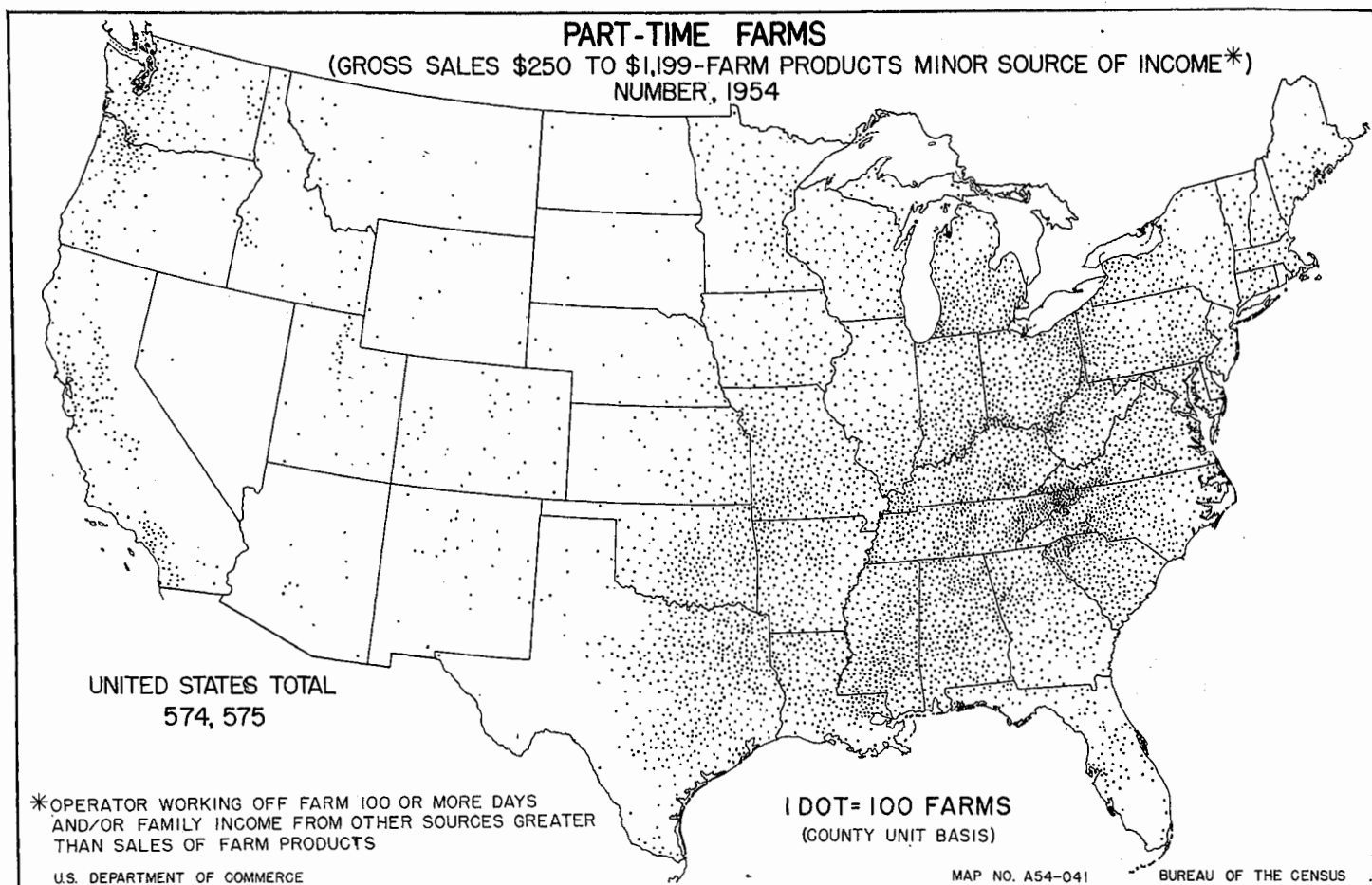


Figure 19.

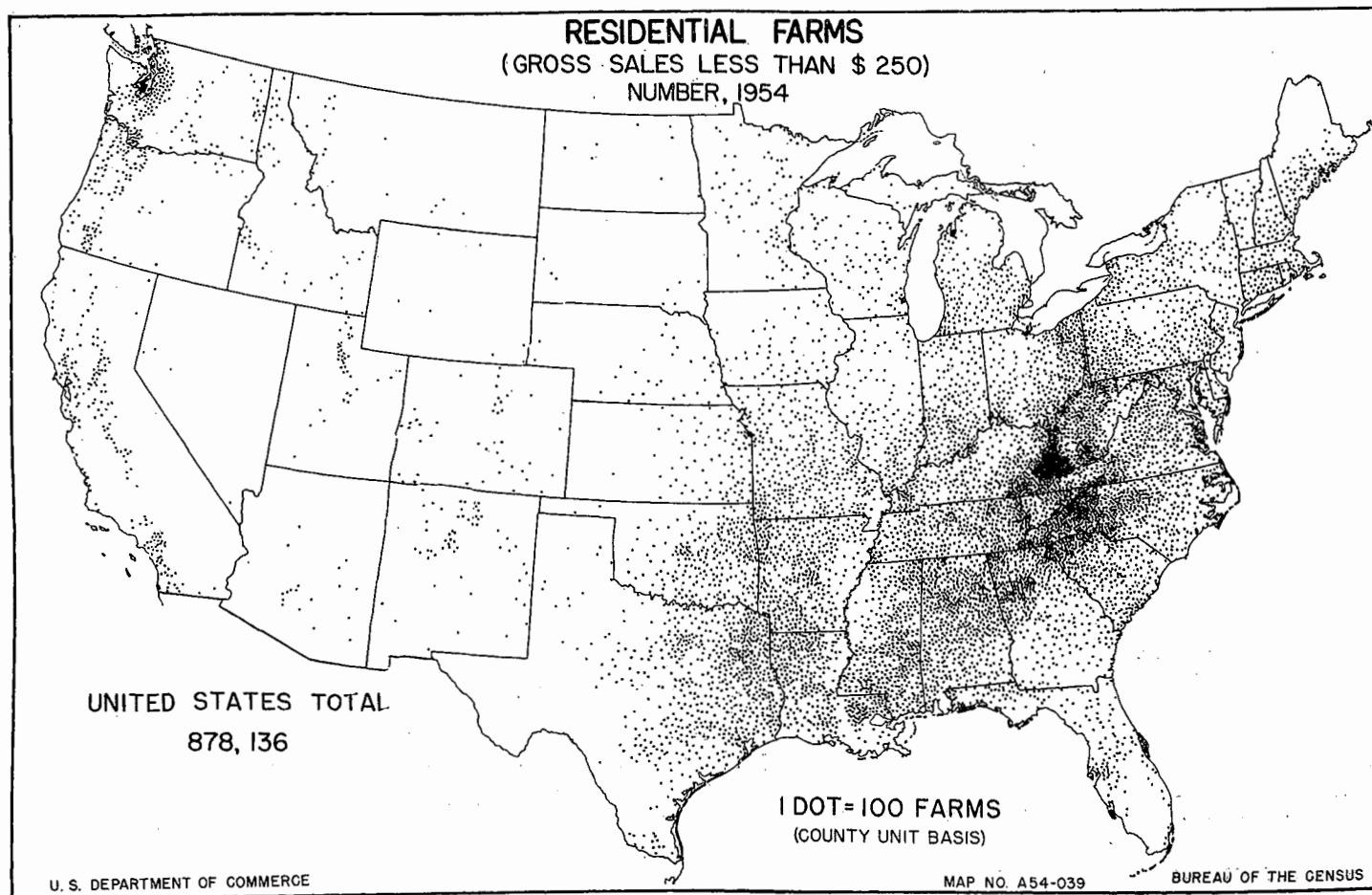


Figure 20.

C. INCREASES AND DECREASES IN NUMBER

Farm operators working off farm, 1930, 1940, 1945, 1950, 1954.—Data tabulated for the Census dates of 1930, 1940, 1945, 1950, and 1954, presented in Figure 21, show that the number of farm operators working off farm in the United States declined from 1930 to 1945, increased sharply from 1945 to 1950, and increased again from 1950 to 1954. As shown in Figure 21, the total number working off farm was about 1,900,000 in 1930, a little more than 1,500,000 in 1945, and almost 2,200,000 in 1954. The largest percentage increases in number working off farm between 1945 and 1954 occurred in the broad belt of States that runs from the Northern Plains and Lake States through to the Southeast Region. Relatively little increase occurred in the Pacific Region or in the Northeast.

In the Northeast, the total number working off farm remained remarkably steady from 1930 through 1954. The aggregate number of farms in the region continued to decline, of course, and therefore the percentage of farm operators working off farms continued to increase. Evidently, increased mechanization and improved highways and transportation facilities made it possible for more farmers to enter the nonfarm labor market; this compensated for those who were discontinuing farming or migrating out of agriculture.

The general additional inference is that in other regions the number of farm operators working off farm will reach a maximum level as the farm economies reach a certain level of development. When this level will be reached in the several regions is of course a matter of conjecture. It depends on the economies made in

the use of labor, on the pace of mechanization, and on the relative terms of trade between farm and nonfarm employment.

Farm operators working off farm 100 days or more, 1930, 1940, 1945, 1950, 1954.—Striking evidence of the impact of technology—farm and nonfarm—on the off-farm labor market is found in the Census figures. The number of farm operators who worked off farm 100 days or more has increased steadily. There were about 700,000 in 1930, a little more than 1,000,000 in 1945, and 1,334,000 in 1954. Not only has mechanization and related development paved the way for a pronounced migration out of agriculture, but in the short space of 25 years there has been almost a doubling of the number of farm operators who work off farm 100 days or more. In parts of the United States, past trends have been so strong as to suggest that this development has considerable distance yet to go. This is true particularly in the Lake States, in the Corn Belt, in the Appalachian Region, and the Southeast.

Increases in off-farm work have been general in each of the major regions with the notable exception of the Northeast. The trend has been only slight in the Mountain Region. In the Northeast the number of farm operators working off farm 100 days or more actually declined from 1945 to 1954. Table 7, however, shows that between 1949 and 1954 the number of commercial farm operators so working increased substantially and the net decline in numbers between these two dates was due entirely to the decline in the number of part-time (Class VII) and residential (Class VIII) farms. This suggests decided differences in trends among economic classes.

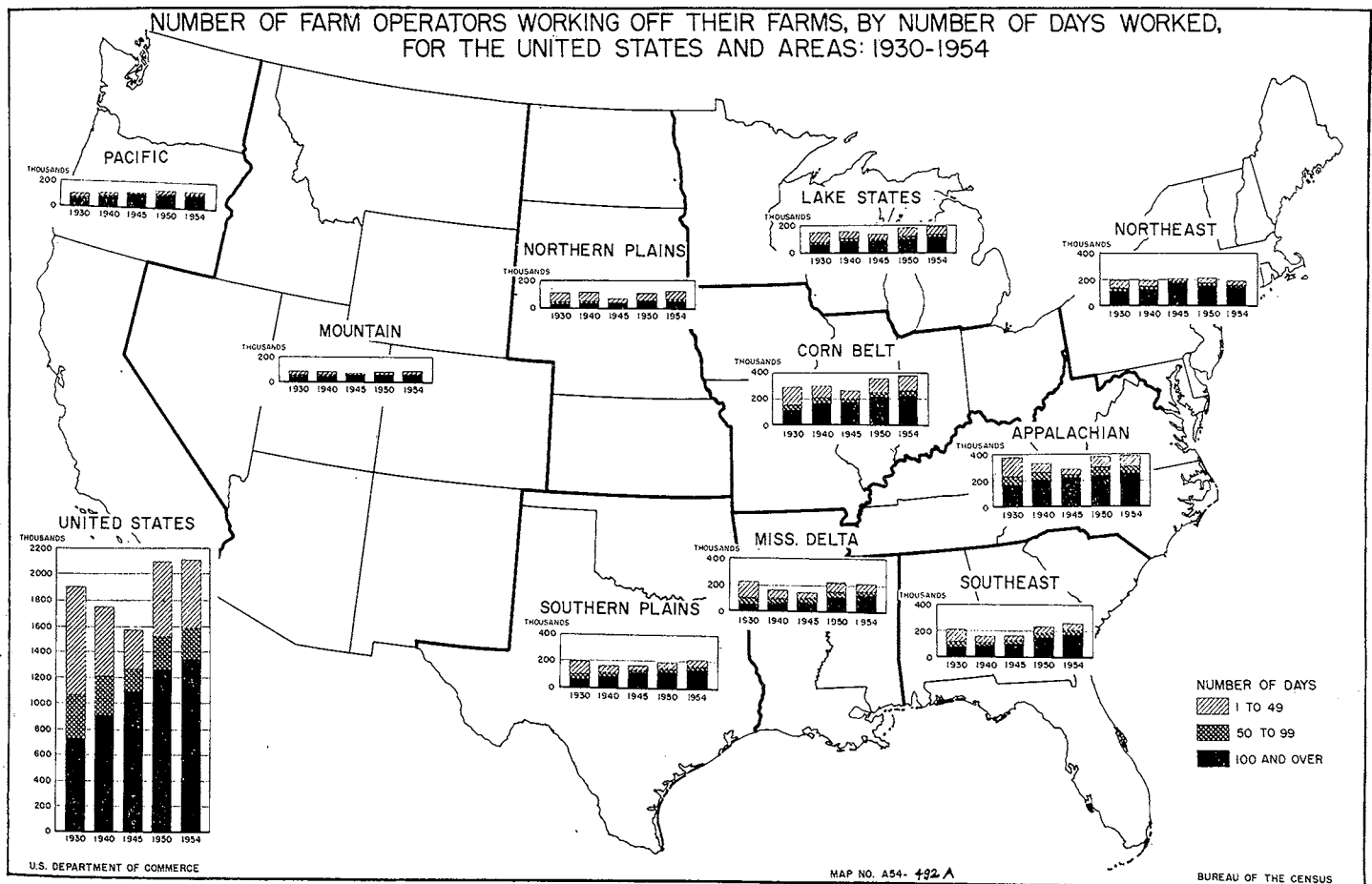


Figure 21.

Changes in number of farm operators working off farm 100 days or more, by geographic division, by economic class, 1949 to 1954.—Between 1949 and 1954, farm operators working off farm 100 days or more increased from 1,254,610 to 1,333,725, or about 6.3 percent (Table 7). Increases occurred in each geographic division except in the Middle Atlantic and New England divisions.

The pattern differed sharply, however, by economic class of farm. Increases occurred in each region among the commercial farm classes as a group, accompanied by net declines in most regions for part-time (Class VII) and the residential (Class VIII) farms. Substantial increases occurred among Class I farms in

all divisions except the Mountain Division. Among Classes II, III, and IV, increases occurred in all regions. The changes for Class V farms were more mixed, with substantial increases in number in the East North Central, West North Central, South Atlantic, and East South Central divisions. Also the pattern for part-time farms (Class VII) and residential farms (Class VIII) was mixed. Substantial declines occurred among part-time farms in the New England, Middle Atlantic, East North Central, and Pacific divisions. In contrast, substantial increases took place in the South Atlantic, East South Central, and West South Central divisions. For residential farms large decreases occurred in the New England, Middle Atlantic, East North Central, South Atlantic, and East South Central divisions.

Table 7.—NUMBER OF FARM OPERATORS WORKING OFF FARM 100 DAYS OR MORE, BY GEOGRAPHIC DIVISION, BY ECONOMIC CLASS: 1954 AND 1949

Geographic division and year	All farms	Commercial farms	Class I	Class II	Class III	Class IV	Class V	Part-time	Residential	Abnormal
United States.....1954..	1,333,725	433,746	10,478	33,183	72,263	131,250	186,572	408,690	490,979	310
.....1949..	1,254,610	336,796	8,365	24,120	50,742	97,763	156,406	395,029	521,962	823
New England.....1954..	33,252	10,719	383	1,374	2,377	3,080	3,505	7,860	14,654	19
.....1949..	38,811	9,672	272	1,011	1,817	2,940	3,632	10,301	18,822	16
Middle Atlantic.....1954..	93,134	35,461	737	3,197	6,655	11,488	13,384	26,534	31,115	24
.....1949..	98,857	28,820	557	2,153	5,192	8,941	11,986	30,990	38,950	88
East North Central.....1954..	235,187	105,393	1,208	6,337	18,042	36,095	43,711	66,990	59,762	42
.....1949..	220,304	74,160	800	3,473	10,531	23,620	35,736	75,151	70,991	92
West North Central.....1954..	139,958	64,011	1,276	5,118	11,951	20,771	24,895	40,075	34,919	53
.....1949..	125,486	49,407	1,204	3,884	8,623	14,607	21,089	41,059	34,885	135
South Atlantic.....1954..	270,656	62,402	1,722	4,581	8,816	17,209	20,984	79,805	128,418	31
.....1949..	252,276	45,988	1,121	3,134	5,428	12,645	23,060	71,713	134,447	128
East South Central.....1954..	204,175	44,181	554	1,818	4,319	11,224	26,266	73,898	86,065	31
.....1949..	192,643	31,809	384	1,413	3,080	7,649	19,283	67,575	93,179	80
West South Central.....1954..	209,647	55,448	1,717	5,031	9,031	15,062	24,607	70,887	83,295	17
.....1949..	184,233	47,689	1,647	4,360	7,446	12,474	21,762	57,130	79,343	71
Mountain.....1954..	50,472	20,851	826	1,670	3,868	6,404	8,083	13,738	15,843	40
.....1949..	46,394	17,608	885	1,656	3,125	5,306	6,696	13,795	14,850	81
Pacific.....1954..	97,244	35,280	2,055	4,057	7,204	9,827	12,137	25,003	36,908	53
.....1949..	95,516	31,574	1,495	3,036	5,500	8,981	12,562	27,315	36,495	132

When the data are arranged to show percentage of farm operators working off farm 100 days or more, by geographic division, by economic class, as in Table 8, the relatively greater increase in the percentage of commercial farmers (Classes I to V) working off farm is clearly evident. For the United States the percentage of commercial farm operators working off farm 100 days or more rose from 9.1 percent to 13.0 percent. This was an increase from 1949 to 1954 (Table 9) of 28.8 percent in total number.

By economic class, the percentage of Class I farmers working off farm 100 days or more did not increase although there was an increase of 25.3 percent in total number. At the other end of the scale, neither the percentage of part-time and residential farm operators (Table 8), nor the number working off farm 100 days or more, increased substantially between 1949 and 1954 (Table 9).

Changes in number of farm operators working off farm 100 days or more by economic class are closely related to the stage of

agricultural and industrial development of the division involved. Although the data given here are not conclusive, the following inferences are suggested relative to farm operators who work off farm 100 days or more.

(1) Among Class I operators the numbers increased substantially in two different situations, (a) among the more industrially advanced divisions—New England, Middle Atlantic, East North Central, and Pacific divisions and (b) among the less developed divisions, namely the South Atlantic and the East South Central divisions. Increases were smaller in the West North Central and West South Central divisions. In the Mountain division the numbers decreased slightly.

(2) In general, the increases among Classes II, III, and IV operators were relatively consistent among divisions with those of Class I, except that no division had a net decrease. The largest percentage increases among Class II farms occurred in the New England, Middle Atlantic, East North Central, South Atlantic, and Pacific divisions.

PART-TIME FARMING

25

Table 8.—PERCENT OF FARM OPERATORS WORKING OFF FARM 100 DAYS OR MORE, BY GEOGRAPHIC DIVISION, BY ECONOMIC CLASS: 1954 AND 1949

Geographic division and year	All farms	Commercial farms	Class I	Class II	Class III	Class IV	Class V	Part-time	Residential	Abnormal
United States.....1954.....	27.9	13.0	7.8	7.4	10.2	16.2	24.4	71.1	55.9	11.5
.....1949.....	23.3	9.1	8.1	6.3	7.0	11.0	17.4	61.8	50.7	19.5
New England.....1954.....	40.6	21.3	9.9	12.9	18.4	28.0	43.4	77.2	69.5	10.9
.....1949.....	37.0	15.3	7.7	9.2	12.4	21.4	34.4	72.1	63.8	6.6
Middle Atlantic.....1954.....	36.2	20.1	8.8	9.3	13.8	27.3	44.5	80.1	66.2	8.7
.....1949.....	33.4	13.7	8.5	7.1	9.9	18.1	32.9	75.1	64.7	19.4
East North Central.....1954.....	29.4	17.0	6.0	5.7	10.6	22.8	38.5	81.1	64.5	9.3
.....1949.....	25.8	9.7	6.4	4.2	5.9	12.3	20.1	75.5	62.4	15.3
West North Central.....1954.....	15.5	8.2	4.9	3.6	5.1	10.4	20.8	71.5	52.6	13.4
.....1949.....	12.8	5.2	5.7	3.2	3.4	6.3	14.3	64.5	49.2	20.7
South Atlantic.....1954.....	31.5	12.3	15.8	15.2	12.5	12.1	19.7	68.1	55.3	7.6
.....1949.....	26.3	9.6	14.8	14.9	10.9	9.3	12.7	57.1	49.6	22.5
East South Central.....1954.....	25.9	9.0	13.3	13.1	11.3	10.6	14.4	63.8	47.1	15.2
.....1949.....	21.1	7.5	11.9	12.2	10.4	9.3	10.6	51.3	40.1	22.9
West South Central.....1954.....	31.3	13.7	8.6	11.5	14.0	16.1	22.4	68.4	52.2	10.6
.....1949.....	23.6	9.7	9.5	9.5	10.4	11.8	15.4	54.4	46.3	19.3
Mountain.....1954.....	28.1	15.3	6.2	5.9	11.3	21.7	37.3	76.3	63.2	11.0
.....1949.....	23.8	10.2	7.4	6.0	8.3	15.1	26.3	70.2	59.4	15.9
Pacific.....1954.....	40.1	22.3	7.6	11.8	21.9	33.6	46.5	75.6	72.0	20.4
.....1949.....	35.8	18.1	7.7	9.8	14.9	24.4	36.6	71.1	66.6	28.1

Table 9.—NUMBER OF FARM OPERATORS WORKING OFF FARM 100 DAYS OR MORE, BY GEOGRAPHIC DIVISION, BY ECONOMIC CLASS: 1954 AS PERCENT OF 1949

Geographic division	All farms	Commercial farms	Class I	Class II	Class III	Class IV	Class V	Part-time	Residential	Abnormal
United States.....	106.3	128.8	125.3	137.6	142.4	135.1	119.3	103.4	94.1	37.7
New England.....	85.7	110.8	140.8	135.9	130.8	104.8	96.5	76.3	77.8	118.8
Middle Atlantic.....	94.2	123.0	132.3	148.5	128.2	128.5	111.7	85.6	79.9	27.3
East North Central.....	106.7	142.1	151.0	182.5	171.3	152.8	122.3	93.1	84.2	45.6
West North Central.....	111.5	129.6	106.0	131.8	138.6	142.2	118.0	99.8	100.1	39.2
South Atlantic.....	107.3	135.7	153.6	146.2	162.4	136.8	126.7	111.3	95.5	24.2
East South Central.....	106.0	133.9	144.3	128.7	140.2	146.7	136.2	109.4	92.4	38.8
West South Central.....	113.8	116.3	104.2	115.4	121.3	120.7	113.1	124.1	105.0	23.9
Mountain.....	108.8	118.0	93.3	100.8	123.8	120.7	120.7	99.6	106.7	49.4
Pacific.....	101.8	111.7	137.4	133.6	131.0	109.4	96.6	91.5	101.1	40.2

Changes by geographic division: Number of farm operators reporting other income of family exceeding value of farm products sold, 1949 to 1954.—The number of farm operators in the United States reporting other income of the family exceeding the value of farm products sold has declined in recent years in every major geographic division (Tables 10 and 11). Numbers decreased from 1,566,000 in 1949 to 1,424,000 in 1954, or 9.1 percent. The relatively largest declines occurred in the eastern part of the United States in the New England and in the Middle Atlantic and the East South Central divisions. The relative declines were, respectively, 26.0 percent, 15.2 percent, and 17.5 percent (Table 11). The South Atlantic Division had a decline of 8.3 percent. The Pacific Division's decline was 7.3 percent. The Midwest and Western divisions had relatively small declines ranging from 5.7 percent in the East North Central to 3.1 percent in the West South Central.

These declines were generally greatest in areas of rapid population growth and in places where industrialization is also rapid. This suggests that part-time farming is often a transitional stage; the part-time farmers discontinue farming as industrial or other nonfarm work becomes available.

Changes by economic class of farm: Number of farm operators reporting other income of family exceeding value of farm products sold, 1949 to 1954.—An important change by economic class of farm took place between 1949 and 1954. There was a considerable increase in number of Classes I, II, III, and IV farm operators who had other income in the family that exceeded the value of farm products sold and this was accompanied by little change in the number of Class V farm operators in this category, and by substantial declines in the number of part-time and residential farmers who had other income exceeding the value of farm sales (Tables 10 and 11).

In other words, between 1949 and 1954, there was (1) a movement of the farm operators, who had other income exceeding the value of farm sales, from a lower economic class to a higher class, which would be accomplished by expanding farm operations and increasing the value of farm sales, and/or (2) an increase in the off-farm earnings of a number of farmers within the higher economic classes.

The inferences to be drawn from these two possibilities are quite different in respect to the economic status of agriculture and the welfare of farm people. They merit careful appraisal.

FARMERS AND FARM PRODUCTION

Table 10.—TOTAL NUMBER OF FARM OPERATORS REPORTING OTHER INCOME OF FAMILY EXCEEDING VALUE OF FARM PRODUCTS SOLD, BY ECONOMIC CLASS OF FARM, BY GEOGRAPHIC DIVISION: 1954 AND 1949

Geographic division and year	All farms	Commercial farms	Class I	Class II	Class III	Class IV	Class V	Part-time	Residential	Abnormal
United States.....1954..	1,424,233	350,356	6,104	19,799	45,578	102,295	185,400	474,145	590,397	335
.....1949..	1,566,154	335,547	4,773	15,855	38,377	90,249	186,293	550,872	678,736	900
New England.....1954..	31,820	8,703	243	785	1,355	2,460	3,860	8,321	14,780	16
.....1949..	42,704	9,060	168	672	1,563	2,616	4,061	12,251	21,457	26
Middle Atlantic.....1954..	87,983	28,518	381	1,776	4,075	8,837	13,440	27,316	32,137	12
.....1949..	103,802	26,577	335	1,474	4,250	7,792	12,726	35,338	41,790	97
East North Central.....1954..	213,258	80,048	535	2,008	9,553	28,042	41,010	71,336	61,842	32
.....1949..	226,254	65,034	413	1,895	6,074	19,698	36,354	84,507	76,587	196
West North Central.....1954..	138,827	48,007	660	2,350	5,585	14,541	24,862	47,662	43,000	68
.....1949..	143,253	44,302	581	2,267	5,802	12,485	23,167	53,845	44,970	136
South Atlantic.....1954..	307,889	58,780	1,286	3,764	7,655	15,409	30,656	95,503	153,552	54
.....1949..	335,638	53,722	715	2,439	5,271	13,905	31,392	107,467	174,294	155
East South Central.....1954..	243,806	38,463	410	1,183	3,025	8,592	25,253	91,787	113,522	34
.....1949..	295,433	41,174	260	1,114	2,736	8,533	28,531	113,608	140,552	99
West South Central.....1954..	250,793	48,868	1,130	3,337	6,502	12,600	25,290	88,002	113,899	24
.....1949..	258,946	49,049	929	2,620	5,298	12,209	27,903	91,548	118,238	111
Mountain.....1954..	48,583	16,154	418	955	2,368	4,595	7,818	15,114	17,282	33
.....1949..	50,836	15,257	490	1,128	2,131	4,210	7,289	17,344	18,128	107
Pacific.....1954..	101,274	31,815	1,131	2,732	5,450	9,219	13,283	29,104	40,293	62
.....1949..	109,198	31,372	883	2,246	4,662	8,711	14,870	34,964	42,740	122

Table 11.—NUMBER OF FARM OPERATORS REPORTING OTHER INCOME OF FAMILY EXCEEDING VALUE OF FARM PRODUCTS SOLD, BY GEOGRAPHIC DIVISION, BY ECONOMIC CLASS: 1954 AS PERCENT OF 1949

Geographic division	All farms	Commercial farms	Class I	Class II	Class III	Class IV	Class V	Part-time	Residential	Abnormal
United States.....	90.9	107.1	129.8	124.9	118.8	113.3	99.6	80.1	87.0	33.5
New England.....	74.0	96.0	153.8	116.8	87.3	94.0	95.1	67.9	68.9	61.5
Middle Atlantic.....	84.8	107.3	113.7	120.5	95.9	113.4	105.7	77.3	78.9	12.4
East North Central.....	94.3	123.1	129.5	153.5	143.1	132.2	112.8	84.4	80.8	16.3
West North Central.....	96.9	108.4	113.6	104.1	96.3	116.5	107.3	88.5	95.8	50.0
South Atlantic.....	91.7	109.4	179.9	154.3	145.4	110.8	97.7	88.9	88.1	34.8
East South Central.....	82.5	93.4	157.7	106.2	110.6	100.7	88.5	80.8	80.8	34.3
West South Central.....	96.9	99.6	121.6	127.4	122.7	102.4	90.7	96.1	96.3	21.6
Mountain.....	95.6	105.9	83.8	84.7	111.1	109.1	107.3	87.1	95.3	30.8
Pacific.....	92.7	101.4	128.1	121.6	116.9	105.8	89.3	83.2	94.3	50.8

In respect to Class I and Class II farm operators, the percentages of the total number that had other income exceeding the value of farm sales were almost the same in 1954 as in 1949 although there had been substantial increases in the numbers of farmers in these classes (Table 12). In other words, the increase in the number of these operators who had other income of the family exceeding the value of farm sales was almost directly proportional to the increase in total number. At the same time relatively small increases in the number of Class III and Class IV farm operators with other income exceeding the value of farm sales is contrasted with the larger percentages these operators comprise of farms in each class. In the case of Class V farms, the total number of such farmers remained about the same and the percentage increased decidedly.

The logical explanation of these changes seems to be that there was a general movement up the economic class scale as farm operators increased their size of business and at the same time there was a general shift toward more off-farm employment and income among all of the Classes from I to V. The sharp declines in the number of part-time (Class VII) and in residential (Class VIII) farm operators suggest that a few of these operators moved into higher economic classes by increases in size of farm operations,

while in general their off-farm earnings remained large enough to be in excess of the value of farm sales. The decline in the percentage of part-time operators who had other income of the family exceeding the value of farm products sold suggests that the more aggressive in this group (those with the largest off-farm income) were moving out of this class faster or in greater relative numbers than those whose off-farm income did not exceed the value of farm products sold.

Changes by geographic divisions: Part-time and residential farm operators, 1949 to 1954.—A sharp downward shift has occurred in recent years in the number of part-time and residential farm operators in the New England and Middle Atlantic divisions (Tables 10 and 11). These are the two divisions of the United States where industrial employment is most easily or readily available to farmers. The number of part-time (Class VII) farm operators dropped by almost one-third (32.1 percent) in New England and by almost one-fourth (22.7 percent) in the Middle Atlantic Division. The number of residential (Class VIII) farmers also dropped by almost one-third (31.1 percent) in New England and by almost one-fourth (23.1 percent) in the Middle Atlantic States.

Table 12.—PERCENT OF FARM OPERATORS REPORTING OTHER INCOME OF FAMILY EXCEEDING VALUE OF FARM PRODUCTS SOLD, BY GEOGRAPHIC DIVISION, BY ECONOMIC CLASS: 1954 AND 1949

Geographic division and year	All farms	Commercial farms	Class I	Class II	Class III	Class IV	Class V	Part-time	Residential	Abnormal
United States.....1954..	31.9	10.8	4.6	4.4	6.4	12.6	24.3	82.5	67.2	12.4
.....1949..	29.1	7.6	4.6	4.2	5.3	10.2	20.7	86.2	65.9	23.7
New England.....1954..	38.9	17.3	6.3	7.4	10.5	22.4	47.8	81.7	70.1	9.2
.....1949..	41.5	14.0	4.5	6.1	10.6	19.1	38.4	85.7	72.8	10.6
Middle Atlantic.....1954..	34.2	16.1	4.6	5.2	8.5	21.0	44.7	82.4	68.3	4.3
.....1949..	35.0	12.4	5.1	4.9	8.1	15.8	34.9	85.6	69.4	21.4
East North Central.....1954..	26.7	12.9	2.7	2.6	5.6	16.5	36.1	82.7	66.7	7.1
.....1949..	20.5	8.8	3.3	2.3	3.7	10.3	20.6	84.9	67.3	24.3
West North Central.....1954..	15.3	6.1	2.5	1.6	2.4	7.3	20.7	83.1	64.9	17.2
.....1949..	14.6	4.8	2.7	1.9	2.3	5.4	15.7	84.6	63.4	20.9
South Atlantic.....1954..	35.9	11.6	11.8	12.5	10.9	10.8	20.2	81.5	66.1	13.3
.....1949..	35.0	7.5	9.5	11.6	10.6	10.2	16.8	85.5	64.3	27.3
East South Central.....1954..	30.9	7.8	9.9	8.5	7.9	8.1	13.9	79.2	62.1	16.7
.....1949..	32.4	5.2	8.1	9.6	9.2	10.4	15.7	86.2	60.4	28.3
West South Central.....1954..	37.5	12.0	5.6	7.6	10.1	13.5	23.0	85.0	71.4	14.9
.....1949..	33.2	7.9	5.3	5.7	7.4	11.6	19.7	87.2	68.9	30.2
Mountain.....1954..	27.0	11.8	3.2	3.4	6.9	15.6	36.1	83.9	69.0	9.1
.....1949..	26.1	9.4	4.2	4.1	5.7	12.0	28.6	88.3	72.5	20.9
Pacific.....1954..	41.7	20.1	4.2	8.0	16.6	31.6	50.9	88.0	78.6	23.8
.....1949..	41.0	16.7	4.6	7.2	12.6	23.7	43.4	91.0	78.0	26.0

The next largest relative declines among part-time and residential farms were in the East South Central, East North Central, and Pacific divisions. The two latter divisions generally are regarded as coming next after New England and the Middle Atlantic States in regard to off-farm opportunities for farm people. In contrast to these declines, there were relatively large increases in numbers among the Classes I and II farm operators in some of these divisions, although the increases were not all consistent with the declines.

Enough evidence is available to suggest the hypothesis that in areas where off-farm employment opportunities are most readily available sharp declines will occur in the number of part-time and residential farms, and farm operators in the higher economic classes will take advantage of these opportunities to the extent of increasing the percentage of farmers in these classes who have off-farm income exceeding the value of farm products sold. This also suggests that many part-time farmers engage in farming activities primarily for the additional income rather than as a "way of life." Those in the lower economic classes—such as from Class V through

Class VIII—discontinue farming when off-farm employment and income reach a certain level.

Those in the higher income classes—especially those in Classes I and II—take advantage of off-farm employment to a greater extent when it becomes available. The evidence suggests that these men continue to farm, and at least in some cases the off-farm earnings of the family are used to help expand the earning capacity of the farm. This inference derives from the fact that the number of farm operators in the higher income classes with off-farm income exceeding the value of farm products sold increased relatively more in the more industrialized regions, which implies either of two things: (1) Members of the farm-operator family in these classes were seeking outside employment in greater numbers in 1954 than in 1949, and finding it most readily in the industrialized areas, or (2) the earnings of the members of the farm-operator family were being used in such a way as to move the classification of a number of farms, on which off-farm income exceeded the value of farm products sold, from a lower economic class into a higher one.

D. OPERATING CHARACTERISTICS AND FACILITIES BY CLASS OF FARM, 1949 AND 1954

Discussion in this section centers around several comparisons. They include comparisons of farms by economic class and by region. Phases considered are acreage and land use, machinery and other operating facilities, farm expenditures for such items as feed and tractor fuel, days work off farm, and specified home and living facilities. These comparisons provide valuable information on use of resources and on levels of living both by economic class and by region. They also form the basis for additional inferences as to trends in commercial and part-time farming.

Land Use and Farm Values

In general, the trends between 1949 and 1954, discussed in this section, show that farms have been upgraded (moved upward from one economic class to another), that values per farm and per acre have increased, that size of farm has continued to increase, and that the extent of cultivated or harvested acreage required to establish a farm in a given economic class has declined. This decline is attributed to the increase in yields that took place between 1949 and 1954. Values per acre increased substantially more for farms in Class I and Class II than for those in Classes III, IV, V, and VI. Although this may reflect a growing advantage on the part of Classes I and II farms in taking advantage of new capital and innovations, it indicates the increasing numbers in these classes of such farms as fruit-and-nut and cash-grain. These farms characteristically have high values per acre. Residential

farm values increased more per acre than did the values of the lower commercial classes, thus reflecting the effects of suburban expansion and population growth in the country as a whole.

Part-time and residential farms, as defined in the 1949 and 1954 Censuses, seem to be declining in relative importance in the total agricultural picture. The number of part-time and residential farms decreased sharply between 1950 and 1954. The evidence suggests that many of the operators who moved out of these classes have discontinued farming, others have reduced their farming operations. At the same time, a large number of commercial farmers are working off the farm 100 days or more. Inferences that part-time and residential farms have moved into higher economic classes do not appear to be well-grounded.

Average acreage per farm.—Acreage figures suggest two interesting trends. (1) Farms in general have continued to grow larger, according to acreage per unit, and (2) farms have moved up from one economic class to a higher one. Between 1950 and 1954, the average of all land in farms increased from 215.6 acres to 242.5 acres, an average increase of about 12.5 percent per farm in that 4-year period. This trend was in the same direction in each of the three regions given in Tables 13 and 14. The change in the North was from an average of 194.6 acres per farm to 213.2 acres, or 9.6 percent; in the South, from 148.7 acres to 167.0 acres, or 12.3 percent; and in the West, from 703.0 acres to 798.9 acres, or 13.6 percent.

Table 13.—AVERAGE LAND IN FARMS, CROPLAND HARVESTED PER FARM, AND VALUE OF FARMS (LAND AND BUILDINGS) PER FARM AND PER ACRE, BY ECONOMIC CLASS, FOR THE UNITED STATES AND REGIONS: 1954 AND 1950

Region and economic class	All land in farms, average per farm		Cropland harvested per farm		Value of farms (land and buildings)			
					Average per farm		Average per acre	
	1954	1950	1954	1949	1954	1950	1954	1950
UNITED STATES								
All farms.....	Acres 242.5	Acres 215.6	Acres 81.1	Acres 72.8	Dollars 19,761	Dollars 13,911	Dollars 84.82	Dollars 66.75
Class I.....	1,939.1	2,421.7	397.6	442.2	134,169	110,008	73.30	45.65
Class II.....	537.8	566.8	201.1	209.6	51,510	41,318	97.03	74.85
Class III.....	311.9	298.2	128.8	131.0	27,992	22,918	89.87	77.68
Class IV.....	201.0	191.2	75.6	77.8	15,860	13,162	79.23	68.90
Class V.....	134.3	122.8	41.0	42.4	9,829	7,829	73.89	63.57
Class VI.....	97.1	84.9	23.2	24.9	6,096	4,648	62.48	54.79
Part-time.....	81.1	75.6	17.8	19.5	7,781	6,117	86.86	80.90
Residential.....	47.7	50.0	7.3	9.2	5,784	4,075	127.34	95.36
Abnormal.....	14,502.4	9,178.9	290.1	250.5	160,601	105,795	30.22	25.91
THE NORTH								
All farms.....	213.2	194.6	113.4	101.5	23,647	17,152	107.76	86.94
Class I.....	773.6	909.8	347.5	368.9	92,787	75,352	120.37	81.41
Class II.....	369.6	383.8	209.5	212.7	49,356	39,674	131.73	103.66
Class III.....	263.9	252.7	143.7	141.1	27,966	22,908	104.88	90.38
Class IV.....	200.7	188.5	97.5	94.7	17,293	14,177	84.42	74.37
Class V.....	142.4	134.6	58.8	58.0	11,577	9,331	78.66	68.02
Class VI.....	99.5	98.7	34.0	35.6	7,883	6,300	72.33	62.56
Part-time.....	67.6	68.6	22.0	23.0	8,149	6,812	117.04	98.08
Residential.....	42.5	46.2	9.1	10.7	6,788	5,780	155.53	123.09
Abnormal.....	857.2	857.5	283.3	226.5	112,139	77,540	161.70	102.83
THE SOUTH								
All farms.....	167.0	148.7	44.6	42.0	11,972	8,495	74.97	58.39
Class I.....	2,286.3	2,910.8	444.1	515.6	161,009	126,448	66.73	42.09
Class II.....	691.7	706.5	187.8	207.2	51,685	41,713	74.62	60.76
Class III.....	311.2	314.0	95.1	105.1	24,544	20,435	80.50	66.63
Class IV.....	162.0	162.0	50.0	54.1	12,308	10,367	78.93	64.63
Class V.....	112.6	103.4	30.3	32.8	7,631	6,046	70.62	59.05
Class VI.....	87.4	75.2	19.0	21.6	4,960	3,749	58.33	50.22
Part-time.....	86.4	77.4	15.8	18.1	6,587	4,932	78.13	63.93
Residential.....	49.3	51.4	6.7	8.7	4,618	3,678	93.67	71.56
Abnormal.....	1,325.5	1,694.9	298.1	268.1	119,885	101,743	90.45	60.03
THE WEST								
All farms.....	798.9	703.0	115.0	105.6	41,791	28,807	62.46	46.51
Class I.....	3,333.3	4,096.9	434.6	484.8	180,765	145,191	59.82	36.17
Class II.....	1,125.3	1,144.2	176.8	199.0	61,239	47,709	58.47	43.85
Class III.....	648.7	567.9	107.3	114.1	35,986	27,901	57.69	50.99
Class IV.....	429.1	341.9	69.5	69.6	25,175	18,685	62.25	56.28
Class V.....	289.9	223.1	42.3	41.9	19,606	14,630	71.49	66.07
Class VI.....	256.0	184.6	32.2	29.3	15,339	11,520	61.63	64.60
Part-time.....	96.0	90.3	15.5	15.2	13,888	10,922	161.76	123.86
Residential.....	51.1	50.7	6.0	7.4	11,243	9,346	252.01	190.49
Abnormal.....	59,353.9	35,523.3	296.0	287.8	356,421	175,648	14.28	11.55

Table 14.—AVERAGE LAND IN FARMS, CROPLAND HARVESTED PER FARM, AND VALUE OF FARMS (LAND AND BUILDINGS) PER FARM AND PER ACRE, BY ECONOMIC CLASS, FOR THE UNITED STATES AND REGIONS: PERCENT CHANGE 1950 TO 1954

Region and economic class	All land in farms, average per farm	Cropland harvested per farm	Value of farms (land and buildings)	
			Average per farm	Average per acre
	1950 to 1954	1949 to 1954	1950 to 1954	1950 to 1954
UNITED STATES				
All farms.....	Percent +12.5	Percent +11.4	Percent +42.1	Percent +27.1
Class I.....	-19.9	-10.1	-22.0	-60.6
Class II.....	-5.1	-4.1	-24.7	-29.6
Class III.....	+4.6	-1.7	-22.1	+15.7
Class IV.....	+5.1	-2.8	-20.6	+15.0
Class V.....	+9.4	-3.3	-25.5	+16.2
Class VI.....	+14.4	-6.8	-31.2	+14.0
Part-time.....	+7.3	-8.7	-27.2	+19.7
Residential.....	-4.6	-20.7	-23.7	+32.2
Abnormal.....	+58.0	+16.0	+51.8	+16.6
THE NORTH				
All farms.....	+9.6	+11.7	+37.9	+23.9
Class I.....	-15.0	-5.8	+23.1	+47.9
Class II.....	-3.7	-1.5	+24.4	+27.1
Class III.....	+4.4	+1.8	+22.2	+11.6
Class IV.....	+6.5	+3.0	+22.0	+13.5
Class V.....	+5.8	+1.4	+24.1	+15.6
Class VI.....	+8	-2.0	+23.4	+15.6
Part-time.....	-1.5	-4.3	+19.6	+19.3
Residential.....	-8.0	-15.0	+17.4	+26.4
Abnormal.....		+25.1	+44.6	+57.2
THE SOUTH				
All farms.....	+12.3	+6.1	+40.9	+28.6
Class I.....	-11.4	-13.9	+19.4	+58.5
Class II.....	-2.1	-9.4	+23.9	+22.8
Class III.....	-9	-9.5	+20.1	+20.8
Class IV.....	+1	-7.6	+19.6	+21.6
Class V.....	+8.9	-7.6	+26.2	+19.6
Class VI.....	+16.2	-12.0	+32.3	+16.1
Part-time.....	+11.6	-12.7	+33.6	+22.2
Residential.....	-4.1	-23.0	+25.6	+30.9
Abnormal.....	-21.8	+11.2	+17.8	+30.9
THE WEST				
All farms.....	+13.6	+8.9	+45.1	+34.3
Class I.....	-18.6	-10.4	+24.5	+65.4
Class II.....	-1.7	-11.2	+28.4	+33.3
Class III.....	+14.2	-6.0	+29.0	+13.1
Class IV.....	+25.5	-1	+34.7	+10.6
Class V.....	+29.9	+9	+34.0	+8.2
Class VI.....	+38.7	+9.9	+33.2	-4.6
Part-time.....	+6.3	+2.0	+27.2	+22.5
Residential.....	+8	-18.9	+20.3	+32.3
Abnormal.....	+67.1	+2.8	+102.3	+28.6

The smaller relative increase in the North in comparison with the South and the West suggests that consolidations are taking place more slowly in the more industrialized North. The expansion in average size of farm in the South suggests a continuation of the trend toward reorganization within management units and a continuation of the trend toward more mechanized farming. This also implies a decrease in the number of cropper units and a continuation of the shift toward types of farming requiring less labor per unit of product. The larger increase in the West is associated with trends toward fewer operating units rather than with development of more land for agricultural uses. As seen below, the increase in the West was associated with increases in grazing land per unit, with relatively little change in cropland.

The trends by economic class are more mixed. In general, the average size of Classes I and II farms decreased. This reflects increased yields and movement from lower classes into Classes I and II. For Classes III to VII, average size increased slightly for the country at large; but the changes varied from relatively

little in the South to sharp increases in the West. Outside of the West, this increase in size of unit was largely offset by a shift upward from one economic class to another, while the increase in size in the West appeared to be largely the result of increases of pasture or range land in the unit between 1949 and 1954. Average size of part-time (Class VII) farms, which increased from 75.6 acres to 81.1 acres for the United States, was due to increases in the South and the West.

Cropland harvested.—Cropland harvested increased from an average of 72.8 acres per farm for all farms in 1949 to 81.1 acres per farm in 1954, an increase of more than 11 percent. However, in each of the economic classes in the country as a whole, cropland harvested per farm decreased during these same years, as shown in Tables 13 and 14. This is further evidence of the shift of farms from a given economic class into a higher economic class.

Thus, a two-way shift is in progress: (1) Individual farms are increasing in total acreage of cropland harvested through consolidation of land and additional units into a given farm unit. (2) Farms moving up from one economic class to another have fewer acres of cropland harvested than the farms already in the higher class. So, although the individual farm exhibits an increase in crop acres harvested as well as in total acres, the advance in intensity of cultivation and the improvements in farm operations in general are such that the crop acreage required to support a farm in a given economic class was generally less in 1954 than in 1949.

Value per farm and per acre.—Increases in value per farm of all farms, averaging 42.1 percent between 1949 and 1954, were substantially larger than the average of the increases by economic class. Class I farms increased in value by 22.0 percent, for example, as compared with an increase of 24.7 percent for Class II, 22.1 for Class III, 20.6 for Class IV, 25.5 for Class V, 31.2 for Class VI, and 27.2 for part-time (Class VII), and 23.7 for residential (Class VIII) farms; or an unweighted average for all eight classes of 24.6 percent. This is further evidence of the shift upward of farms from one economic class to another.

The substantially higher values placed on part-time (Class VII) farms, as compared with Class VI commercial farms, suggest some advantages in location, buildings, etc., for part-time farmers (Class VII) as compared with the commercial operators in Class VI. This suggestion applies particularly in the South. The reverse appears evident in the West.

Increases in value per acre were uniform among regions between 1950 and 1954, but rather remarkable differences are shown in respect to changes in value per acre by class of farm. Increases were more general and greater for the farms in the higher economic classes, such as Classes I and II than for the lower classes, such as Classes III to VI. Part-time (Class VII) and residential (Class VIII) farms showed a greater increase in value per acre. This suggests that urban expansion and the demand for land arising out of residential and industrial expansion, were affecting the values for these farms more than the values of other farms in Classes III to VI.⁹

The sharp increases in value per acre among the higher class commercial farms suggests two developments. They are (1) a more rapid rate of capital accumulation per farm and per acre resulting in a relatively greater capital investment in the higher economic classes than in the lower and (2) a more rapid shift upward in economic class of those farms that are relatively more valuable per acre. The relatively slight increases in value per acre among farms in Classes III, IV, and V in the West and the decline in Class VI, as compared with increases in value per acre in part-time and residential farms, suggest that part-time and residential farms did not shift into the other commercial classes in large numbers during 1950-54.

⁹ The assumption underlying this statement is based on the fact that in metropolitan counties, the percentage of part-time and residential farms is higher than in nonmetropolitan counties and that the growing demand for farmland for residential or industrial use affected land prices more strongly during 1949-54 in the metropolitan counties than in the nonmetropolitan counties.

Specified Machinery and Equipment, 1950 and 1954

Data on number of farms reporting specified machinery and equipment in 1950 and 1954 attest to the increasing mechanization of commercial agriculture in all classes. The data also point to the fact that relatively few part-time (Class VII) and residential (Class VIII) farms have the machines reported. Generally, a smaller proportion of Classes V and VI farms have the machines than is the case among Classes I to IV.

Grain combines, corn pickers, and pick-up balers.—The percentage of farmers reporting grain combines, corn pickers, and pick-up balers, increased substantially between 1950 and 1954 (Table 15). The increases were from 12.4 percent reporting grain combines in 1950 to 19.3 percent in 1954; from 8.3 percent reporting corn pickers in 1950 to 14.1 percent in 1954; and from 3.6 percent reporting pick-up balers in 1950 to 9.3 percent in 1954.

Percentage changes were similar in direction in each of the three major regions.

For the United States, since the number of Class I and Class II farms increased between 1950 and 1954, the increase in number of Classes I and II farms having this machinery is greater than the percentage changes alone would suggest. Conversely the percentage changes—which were relatively larger for the lower commercial classes than for the higher classes—were less meaningful for the lower economic classes, because of the decline in total numbers among these classes. Substantial increases in percentages occurred among all economic classes; but the weighted average of the increases by classes is less than the percentage increase for all farms, since many farms moved from a given economic class to a higher one and the percentage having this machinery is closely correlated by class.

Table 15.—PERCENT OF FARMS REPORTING SPECIFIED MACHINERY AND EQUIPMENT, MOTORTRUCKS, AND AUTOMOBILES, BY ECONOMIC CLASS, FOR THE UNITED STATES AND REGIONS: CENSUSES OF 1954 AND 1950

[Data are based on reports for only a sample of farms. See text]

Region and economic class	Grain combines		Corn pickers		Pick-up balers		Motortrucks				Automobiles			
							Farms reporting		Number per farm reporting		Farms reporting		Number per farm reporting	
	1954 (percent)	1950 (percent)	1954 (percent)	1950 (percent)	1954 (percent)	1950 (percent)	1954 (percent)	1950 (percent)	1954 (number)	1950 (number)	1954 (percent)	1950 (percent)	1954 (number)	1950 (number)
UNITED STATES														
All farms.....	19.3	12.4	14.1	8.3	9.3	3.6	46.3	34.2	1.2	1.2	70.9	63.0	1.3	1.2
Class I.....	50.1	40.9	30.4	22.5	29.4	18.2	89.5	84.4	2.4	2.3	94.1	89.2	2.4	2.2
Class II.....	55.7	44.0	44.0	33.8	28.6	14.1	77.9	70.2	1.4	1.3	92.9	89.1	1.4	1.4
Class III.....	42.0	31.1	33.7	24.5	19.6	7.8	63.9	52.5	1.2	1.2	87.4	84.8	1.3	1.3
Class IV.....	23.0	16.1	16.2	9.7	9.7	3.8	50.4	39.0	1.1	1.1	76.1	74.3	1.2	1.2
Class V.....	10.1	6.3	6.1	2.6	4.4	1.8	40.3	29.7	1.1	1.1	63.9	58.9	1.1	1.1
Class VI.....	3.9	2.2	1.9	.7	1.8	.8	29.5	19.4	1.1	1.1	46.0	39.3	1.1	1.1
Part-time.....	3.5	1.8	1.7	.5	1.9	.7	37.3	27.0	1.1	1.1	68.8	60.0	1.2	1.2
Residential.....	.8	.5	.3	.1	.4	.2	25.3	17.6	1.1	1.1	58.6	47.9	1.1	1.2
Abnormal.....	26.4	16.7	16.0	6.7	33.1	16.8	71.1	56.6	5.6	3.0	69.4	55.4	4.9	3.4
THE NORTH														
All farms.....	33.9	20.9	30.0	18.6	15.5	5.4	50.4	38.4	1.2	1.2	86.1	80.8	1.3	1.3
Class I.....	63.8	50.2	59.7	46.8	38.5	22.5	86.3	80.1	1.9	1.9	96.3	91.2	2.1	2.0
Class II.....	65.9	50.6	61.4	50.0	33.3	15.9	74.5	66.4	1.3	1.3	95.7	92.3	1.4	1.4
Class III.....	51.8	35.8	47.3	34.3	23.4	8.5	61.2	49.3	1.1	1.1	92.5	89.6	1.3	1.3
Class IV.....	34.4	21.3	28.5	16.5	13.4	4.3	50.1	37.5	1.1	1.1	87.4	84.8	1.2	1.2
Class V.....	18.7	10.0	14.6	6.2	6.8	2.1	40.4	30.2	1.1	1.1	81.8	77.4	1.2	1.2
Class VI.....	7.9	4.2	5.6	2.5	3.0	.9	28.2	21.2	1.1	1.1	67.5	62.9	1.1	1.1
Part-time.....	6.0	2.5	4.4	1.3	2.7	.8	34.3	26.1	1.1	1.1	82.0	75.6	1.2	1.2
Residential.....	1.4	.7	1.0	.3	.7	.3	24.8	19.1	1.1	1.1	73.5	65.4	1.2	1.2
Abnormal.....	30.5	18.6	26.3	10.8	41.3	18.3	58.9	63.2	1.3	2.6	76.1	58.9	4.3	3.4
THE SOUTH														
All farms.....	6.7	4.8	2.5	.8	3.7	1.9	38.8	26.9	1.2	1.2	55.3	45.4	1.2	1.2
Class I.....	45.6	38.9	14.0	7.9	23.5	10.3	89.9	85.2	2.4	2.3	90.4	85.1	2.6	2.2
Class II.....	36.8	32.9	14.7	7.0	19.5	12.2	82.5	72.9	1.4	1.4	83.9	80.1	1.5	1.4
Class III.....	21.3	19.2	9.3	3.9	11.1	6.8	65.2	54.4	1.2	1.2	73.6	70.1	1.2	1.2
Class IV.....	9.8	8.4	3.9	1.4	5.3	3.2	47.1	36.9	1.1	1.1	61.6	58.2	1.1	1.1
Class V.....	4.6	3.6	1.4	.5	2.7	1.6	38.0	27.0	1.2	1.1	51.5	45.2	1.1	1.1
Class VI.....	2.1	1.3	.6	.1	1.3	.7	28.6	17.7	1.0	1.0	36.9	30.5	1.1	1.1
Part-time.....	2.0	1.3	.5	.1	1.4	.6	37.0	25.9	1.1	1.1	59.5	48.3	1.1	1.1
Residential.....	.5	.4	.1	(Z)	.3	.2	23.4	15.5	1.0	1.1	50.2	38.2	1.1	1.1
Abnormal.....	26.4	18.4	10.4	5.1	32.6	19.4	75.4	47.9	3.7	3.3	68.8	51.7	4.2	3.1
THE WEST														
All farms.....	17.8	14.1	1.1	.7	9.0	3.0	67.3	55.8	1.6	1.4	83.5	76.7	1.4	1.4
Class I.....	34.0	29.5	2.1	1.4	21.2	14.0	93.8	89.6	2.0	2.6	94.4	90.2	2.7	2.5
Class II.....	33.2	31.2	1.8	1.7	10.0	8.8	87.5	82.5	1.7	1.5	92.3	87.4	1.5	1.5
Class III.....	26.0	23.0	2.0	1.3	9.8	5.5	79.1	69.7	1.4	1.3	87.8	82.4	1.3	1.3
Class IV.....	20.6	15.6	1.2	.8	4.8	3.2	71.3	58.6	1.2	1.2	81.8	76.4	1.2	1.2
Class V.....	12.5	8.5	.6	.4	6.4	2.1	62.1	49.4	1.2	1.2	77.8	73.0	1.2	1.2
Class VI.....	9.5	5.1	.6	.1	3.7	1.0	54.1	41.6	1.1	1.1	65.0	59.3	1.2	1.2
Part-time.....	3.7	2.2	(Z)	(Z)	2.4	.8	50.5	37.7	1.1	1.1	81.8	74.3	1.3	1.3
Residential.....	1.4	.7	(Z)	(Z)	.5	.3	41.0	29.9	1.1	1.1	77.2	69.2	1.3	1.3
Abnormal.....	17.8	10.7	1.8	.9	16.6	10.6	59.0	54.9	16.5	3.6	58.4	53.2	7.6	4.1

Z Less than 0.05 percent.

Motortrucks, 1950 and 1954.—In contrast to the situation above, a considerable proportion of the part-time farms had motortrucks. All classes in each major region showed an increase in the percentage having motortrucks between 1950 and 1954 and more than one-third (37.3 percent) of the part-time (Class VII) farm operators had motortrucks by 1954. Of some significance is the fact that considerably more of the part-time (Class VII) operators had motortrucks than was the case with Class VI farm operators, who had equal returns from farm sales.

Automobiles, 1950 and 1954.—A substantially higher percentage of part-time (Class VII) farm operators had automobiles than did the Class VI commercial operators. This gives evidence of a higher income and a higher level of living among the part-time farmers than among the commercial farmers who have equal returns from farm sales. A high percentage of each class of farm operators had automobiles and the percentage increased for each

class. Also the percentage was correlated with economic class.

Specified Farm Expenditures, 1949 and 1954

Practically all farms reported certain specified farm expenditures in 1954. But these expenditures varied widely by economic class in respect to such items or categories as machine hire, hired labor, and feed for livestock and poultry (Table 16).

Machine hire, 1949 and 1954.—The percentage of farms reporting machine hire increased from 39.7 percent in 1949 to 45.3 percent in 1954 for part-time farms, and from 19.2 percent to 23.9 percent for residential farms. In contrast, the percentage of Classes I, II, III, and IV farms reporting machine hire declined somewhat for each class. For most of the Classes I through VIII the amount expended for machine hire was slightly higher in 1954 than in 1949 per farm reporting.

Table 16.—SPECIFIED FARM EXPENDITURES, PERCENT OF FARMS REPORTING, AND AMOUNT PER FARM, BY ECONOMIC CLASS OF FARM, FOR THE UNITED STATES AND REGIONS: CENSUSES OF 1954 AND 1950

[Data are based on reports for only a sample of farms. See text]

Region and economic class	Machine hire				Hired labor				Feed for livestock and poultry				Gasoline and other petroleum fuel and oil			
	Percent of all farms		Average amount expended per farm reporting		Percent of all farms		Average amount expended per farm reporting		Percent of all farms		Average amount expended per farm reporting		Percent of all farms		Average amount expended per farm reporting	
	1954 (per-cent)	1949 (per-cent)	1954 (dollars)	1949 (dollars)	1954 (per-cent)	1949 (per-cent)	1954 (dollars)	1949 (dollars)	1954 (per-cent)	1949 (per-cent)	1954 (dollars)	1949 (dollars)	1954 (per-cent)	1949 (per-cent)	1954 (dollars)	1949 (dollars)
UNITED STATES																
All farms.....	53.2	51.3	251	222	46.4	40.6	1,026	906	76.4	72.0	1,069	780	68.3	55.5	418	380
Class I.....	61.7	62.9	1,676	1,496	93.2	93.4	8,972	10,065	74.7	78.0	10,883	8,707	96.0	93.3	2,005	1,836
Class II.....	66.6	73.1	455	460	78.2	88.0	1,401	1,781	85.5	87.5	2,802	2,243	95.6	94.4	814	755
Class III.....	68.5	75.5	289	276	65.7	79.7	642	703	84.8	88.2	1,332	1,065	94.0	92.6	514	460
Class IV.....	65.5	69.2	202	189	58.4	68.0	366	374	76.4	81.3	706	566	85.6	81.0	327	292
Class V.....	59.7	57.3	138	127	48.9	52.5	217	228	69.1	70.3	401	333	69.7	67.6	201	187
Class VI.....	47.8	40.4	82	78	33.9	32.9	126	139	69.2	59.5	220	173	47.2	30.4	134	134
Part-time.....	45.3	39.7	80	80	30.7	32.6	149	163	74.5	69.3	266	235	54.4	37.2	108	108
Residential.....	23.9	19.2	52	59	11.1	14.0	121	153	76.4	58.5	131	135	32.5	16.3	59	85
Abnormal.....	35.0	29.5	893	505	66.8	53.5	13,948	11,583	72.6	57.4	10,454	8,950	75.3	57.7	1,551	1,269
THE NORTH																
All farms.....	60.9	63.4	223	206	45.4	55.3	813	701	84.4	82.6	1,304	960	84.2	74.9	446	388
Class I.....	62.3	68.2	607	682	90.0	92.2	5,298	6,254	86.2	85.8	9,730	8,187	96.7	93.8	1,442	1,387
Class II.....	68.6	78.2	339	345	74.1	87.3	1,093	1,243	90.8	92.4	2,602	2,212	96.9	96.1	777	721
Class III.....	71.1	80.6	254	244	59.3	78.6	470	515	90.2	92.7	1,307	1,069	96.5	95.5	524	464
Class IV.....	70.5	76.5	190	180	47.5	65.4	177	285	86.1	88.9	787	628	93.4	90.0	360	307
Class V.....	65.2	65.3	150	130	35.8	48.3	107	201	80.7	82.2	505	420	84.8	75.1	227	201
Class VI.....	47.3	43.5	101	92	21.6	27.7	155	159	78.1	71.0	304	255	63.1	48.1	149	143
Part-time.....	49.1	43.4	94	83	21.0	26.2	159	179	75.7	73.1	314	287	67.9	49.6	110	105
Residential.....	24.6	21.6	53	54	7.9	10.0	174	218	74.9	59.6	154	162	45.8	25.7	57	68
Abnormal.....	38.7	36.6	486	318	72.4	58.6	14,295	12,292	77.0	64.6	10,995	9,900	80.6	65.6	1,412	1,096
THE SOUTH																
All farms.....	47.0	41.1	209	192	46.0	43.6	753	735	70.6	63.6	632	420	52.6	36.4	317	307
Class I.....	63.3	60.3	2,215	2,132	94.9	93.9	9,712	11,067	71.0	75.6	10,597	7,151	94.4	92.4	2,605	2,216
Class II.....	64.5	66.3	713	750	87.0	90.2	2,160	2,782	79.5	81.7	3,488	2,219	91.9	90.8	927	811
Class III.....	64.7	65.9	345	354	80.5	83.5	865	1,077	75.5	80.1	1,341	944	87.5	84.7	471	426
Class IV.....	61.3	60.7	190	186	71.6	72.0	395	439	65.7	72.1	539	403	75.8	67.2	270	251
Class V.....	57.2	52.7	121	117	57.2	55.2	209	218	62.1	62.9	205	230	59.2	44.5	171	164
Class VI.....	48.3	39.4	72	60	38.6	34.5	110	122	65.9	55.7	174	129	40.0	23.2	116	123
Part-time.....	43.3	37.0	80	71	36.2	36.4	135	141	74.4	67.3	225	182	45.7	27.3	102	106
Residential.....	23.0	17.1	47	54	12.3	15.6	91	116	77.6	58.0	116	115	25.9	10.9	56	97
Abnormal.....	32.3	23.0	505	469	68.8	51.7	12,551	11,717	79.1	57.2	8,204	7,175	76.6	52.5	1,753	1,648
THE WEST																
All farms.....	49.9	50.1	626	450	53.8	56.6	3,181	2,646	69.4	68.5	2,127	1,633	77.7	69.8	648	481
Class I.....	59.5	57.7	2,805	2,243	96.3	94.5	3,333	4,371	61.2	69.3	13,534	11,138	96.5	93.5	2,315	2,129
Class II.....	59.9	60.9	698	652	85.7	88.4	2,182	2,628	68.7	74.9	2,953	2,436	94.8	92.2	839	825
Class III.....	60.0	60.7	421	392	71.9	79.3	984	1,138	71.3	74.5	1,522	1,296	93.2	89.4	539	497
Class IV.....	55.7	58.5	305	276	58.4	67.6	599	644	69.7	71.3	922	777	88.5	83.2	374	336
Class V.....	51.2	52.5	225	194	46.3	52.7	401	462	68.1	67.6	604	558	80.7	72.2	253	230
Class VI.....	40.6	40.8	161	155	33.3	35.0	325	363	68.0	60.4	374	352	70.0	56.0	221	178
Part-time.....	44.2	42.7	128	117	29.7	32.8	229	263	70.7	67.9	365	358	62.0	52.3	128	123
Residential.....	28.9	28.7	80	95	11.7	14.6	248	331	72.5	59.4	186	205	42.5	29.6	81	98
Abnormal.....	30.7	24.0	2,348	1,117	52.6	45.8	15,218	9,582	55.3	43.2	12,879	9,207	62.7	48.6	1,620	1,198

Several inferences are suggested: (1) The increasing mechanization of agriculture in this country makes machine hire less and less necessary and/or profitable among the larger commercial farms. (2) On part-time and residential farms increasing employment off farm makes it increasingly necessary and/or profitable to hire machines to do work that the farmer or members of his family did formerly. This suggests that as off-farm opportunities for earning increase, part-time and residential farming will continue to decline in importance.

Hired labor, 1949 and 1954.—The percentage of farms reporting hired labor decreased for each economic class between 1949 and 1954. Then there was an increase in the average amount expended per farm; but in more cases than not there was a decline by class of farm from 1949 to 1954. The chief inferences suggested are (1) that farm wage rates were increasing, (2) that mechanization—both hired and owned—was displacing hired help, and (3) that the decline in use of hired help on part-time and residential farms was part of the general trend in farms in other classes. In the North, especially, the downward trend in percentage of part-time and residential farms (as well as other farms) that employed hired labor suggests that growing industrial employment has had an increasingly strong influence.

The percentage of part-time and residential farms employing hired labor appears to be significantly smaller in the North than in the South or West (Table 17).

Table 17.—PERCENTAGE OF PART-TIME AND RESIDENTIAL FARMS REPORTING HIRED LABOR: 1954 AND 1949

Region	Part-time		Residential	
	1954	1949	1954	1949
United States.....	30.7	32.6	11.1	14.0
The North.....	21.0	26.2	7.9	10.0
The South.....	36.2	36.4	12.3	15.6
The West.....	29.7	32.8	11.7	14.6

The lower percentage in the North, together with the declines in percentages between 1949 and 1954, suggests that hiring labor for part-time farms has become less and less profitable as chances for off-farm industrial work increase. The percentage of farms employing hired labor and the average amount expended per farm reporting are strongly correlated with class of farm (Table 16). Both increase significantly from class to class beginning with residential farms in Class VIII and moving upward to Class I.

The percentage of Class I farms reporting hired labor stayed about the same between 1949 and 1954. The percentage for Classes II, III, and IV dropped sharply. For Class V, the percentage dropped somewhat less, and that for Class VI farms increased.

What can be inferred from these data, assuming the shifts are significant? One postulate is that increasing mechanization

among the farms in the middle classes (Classes II, III, and IV) has reduced the need for hired labor. Among Class V and VI farms, on the other hand, mechanization has not proceeded as rapidly, so the percentage that hires labor has not fallen during recent years. Among Class I farms, although the percentage employing hired labor held about steady between 1949 and 1954, the average amount expended per farm reporting declined by a significant amount in each of the major regions listed in Table 16. This suggests substantial increases in mechanization for Class I farms, plus the effects of the upgrading of Class II and III farms into Class I.

Feed, gas, and oil, 1949 and 1954.—A remarkable uniformity from class to class is found in the percentage of farms buying feed for livestock and poultry. The amounts expended per farm reporting, however, vary widely by class as is the case with expenditures on hired labor and machine hire (Table 16). In nearly all cases the amounts expended increased from 1949 to 1954, both for all farms and for farms by economic class. The percentage of farms reporting purchases also generally increased.

Nearly three-fourths of the part-time and residential farms bought feed in 1954. The amounts expended averaged slightly over \$200 per farm.

These data support the inference that, between 1949 and 1954, farms generally became more specialized—more “commercialized” in the sense that by economic class larger quantities of feed were bought per farm reporting in 1954 than in 1949.

The amount expended for gasoline and oil per farm reporting increased relatively more among the farms in the higher economic classes than among the part-time or residential farms, or the commercial farms in Class VI (Table 16).

Fertilizer and lime, 1954.—The percentage of farms reporting commercial fertilizer purchases in 1954 is correlated with economic class but the differences are not great, ranging from 71.7 percent for Class I farms to 55.8 percent for part-time (Class VII) farms and to 34.1 percent for residential (Class VIII) farms. A much greater difference occurs among farms in amount expended per farm reporting, in tons bought per farm, and in acres on which used (Table 18).

In the South the acreage fertilized on part-time farms was equal to more than half the cropland harvested acreage. In the West it amounted to only about one-tenth the cropland harvested acreage on part-time farms. In the North it was about one-fourth. Similar variations exist on residential farms but a lower percentage of the acreage was fertilized.

When the data are arranged according to average acreage per farm by economic class on which commercial fertilizer is used (Table 19), a distinct correlation by size of farm for Classes I through VI emerges for both the North and the West. Percentage of total land on which commercial fertilizer is used, and total acres fertilized as a percent of the acreage of cropland harvested are positively correlated with size of farm or economic class. No such correlation emerges in the case of the South. There, these percentages are correlated inversely with size of farm.

Table 18.—SPECIFIED FARM EXPENDITURES, PERCENT OF FARMS REPORTING, AND AMOUNT PER FARM, BY ECONOMIC CLASS OF FARM, FOR THE UNITED STATES AND REGIONS: 1954

[Data are based on reports for only a sample of farms. See text]

Region and economic class	Specified farm expenditures other than for fertilizer and lime: percent of all farms	Machine hire and/or hired labor: percent of all farms	Commercial fertilizer and fertilizing materials					Lime and liming materials				
			Percent of all farms	Amount expended per farm reporting	Tons purchased per farm reporting	Acres on which used per farm reporting	Pounds per acre	Percent of all farms	Amount expended per farm reporting	Tons purchased per farm reporting	Acres on which used per farm reporting	Pounds per acre
UNITED STATES												
All farms.....	98.2	68.7	61.0	370	6.5	42	309	10.9	326	33.2	20	3,290
Class I.....	99.0	96.2	71.7	2,637	41.0	227	361	18.3	433	96.2	64	3,021
Class II.....	99.9	90.0	72.6	769	12.9	93	276	21.6	198	50.2	28	3,528
Class III.....	99.9	86.0	69.1	436	7.6	56	273	18.2	134	34.6	20	3,478
Class IV.....	99.8	83.0	68.2	297	5.6	35	315	13.1	99	25.5	15	3,314
Class V.....	99.3	76.9	69.1	200	3.9	23	336	9.0	84	21.1	14	3,042
Class VI.....	98.2	62.5	65.4	122	2.5	15	334	5.6	69	17.1	12	2,824
Part-time.....	98.7	57.7	55.8	111	2.3	13	342	7.1	68	15.5	11	2,781
Residential.....	93.0	29.7	34.1	53	1.1	6	349	3.2	48	10.7	8	2,731
Abnormal.....	93.2	73.9	67.0	1,928	37.8	201	376	24.4	469	100.9	72	2,820
THE NORTH												
All farms.....	99.2	72.6	58.3	405	6.6	54	246	17.6	135	36.5	19	3,784
Class I.....	99.9	94.9	79.5	1,758	28.4	175	325	30.6	333	87.9	47	3,717
Class II.....	100.0	89.1	78.3	709	11.4	93	245	27.0	189	51.4	27	3,870
Class III.....	100.0	84.7	70.1	389	6.3	57	222	22.2	131	35.9	19	3,843
Class IV.....	99.9	80.6	61.3	249	4.2	38	222	17.7	100	27.4	14	3,790
Class V.....	99.8	73.4	54.1	175	3.1	26	238	14.2	86	23.1	13	3,643
Class VI.....	99.1	54.4	38.4	115	2.1	17	241	8.9	75	19.9	12	3,448
Part-time.....	99.2	55.6	46.0	107	2.0	14	282	11.4	69	16.4	10	3,426
Residential.....	94.4	28.5	23.0	57	1.1	7	304	5.6	55	12.5	7	3,353
Abnormal.....	95.3	79.8	72.4	1,789	34.8	181	383	35.0	467	102.0	66	3,086
THE SOUTH												
All farms.....	97.3	65.0	68.3	300	6.0	30	397	6.7	125	25.5	22	2,302
Class I.....	99.9	96.7	68.6	3,666	66.9	302	443	16.0	691	117.1	116	2,025
Class II.....	99.9	92.3	67.9	1,087	21.5	112	384	17.1	238	45.3	39	2,304
Class III.....	99.8	90.3	76.3	578	11.7	58	401	13.9	145	29.8	25	2,343
Class IV.....	99.6	86.0	82.6	345	7.0	27	409	9.6	98	21.6	18	2,469
Class V.....	99.0	79.9	82.9	211	4.3	23	382	6.7	81	18.6	15	2,408
Class VI.....	97.9	65.9	78.1	124	2.6	15	355	4.6	64	15.1	13	2,413
Part-time.....	98.4	59.1	66.5	115	2.5	13	368	5.7	67	14.7	13	2,264
Residential.....	92.3	29.6	41.6	52	1.1	6	362	2.6	43	9.4	8	2,267
Abnormal.....	98.4	76.3	83.0	2,318	49.4	252	392	24.6	436	98.2	83	2,362
THE WEST												
All farms.....	98.7	70.4	33.6	854	10.5	73	289	1.3	273	37.3	23	3,253
Class I.....	100.0	97.5	63.0	3,274	39.5	252	314	2.4	776	127.4	65	3,903
Class II.....	99.9	91.5	62.1	620	7.8	63	246	1.9	284	31.4	20	3,095
Class III.....	99.9	84.7	43.7	328	4.3	35	247	1.6	169	18.8	14	2,624
Class IV.....	99.8	77.0	33.6	220	2.9	23	256	1.1	102	11.0	13	1,633
Class V.....	99.7	69.3	26.9	140	1.9	15	256	1.0	107	10.3	9	2,235
Class VI.....	98.8	55.7	17.6	125	1.7	14	239	1.0	71	7.0	7	1,972
Part-time.....	99.1	56.6	21.0	80	1.1	8	278	1.1	90	9.1	8	2,199
Residential.....	94.3	34.4	10.2	60	1.0	6	290	.5	37	3.8	4	1,857
Abnormal.....	82.5	58.8	35.9	1,390	17.2	136	252	1.9	1,067	103.1	97	2,133

Table 19.—ACREAGE ON WHICH COMMERCIAL FERTILIZER WAS USED, PERCENT OF TOTAL ACREAGE AND PERCENT OF CROPLAND HARVESTED ON WHICH USED, BY ECONOMIC CLASS OF FARM, FOR THE UNITED STATES AND REGIONS: 1954

Region and economic class	Total acres per farm	Acres on which com-mercial fertilizer used per farm	Percent of total acreage on which used	Acres of cropland harvested per farm	Acres on which com-mercial fertilizer used per farm	Percent acreage on which fertilizer was used is of cropland harvested	Region and economic class	Total acres per farm	Acres on which com-mercial fertilizer used per farm	Percent of total acreage on which used	Acres of cropland harvested per farm	Acres on which com-mercial fertilizer used per farm	Percent acreage on which fertilizer was used is of cropland harvested
UNITED STATES							THE SOUTH						
All farms.....	242.5	25.6	10.6	81.1	25.6	31.6	All farms.....	167.0	20.5	12.3	44.6	20.5	46.0
Class I.....	1,939.1	162.8	8.4	397.6	162.8	40.9	Class I.....	2,286.3	207.2	19.1	444.1	207.2	46.7
Class II.....	537.8	67.5	12.6	201.1	67.5	33.6	Class II.....	691.7	76.0	11.0	187.8	76.0	40.5
Class III.....	311.9	38.7	12.4	128.8	38.7	30.0	Class III.....	311.2	44.3	14.2	95.1	44.3	46.6
Class IV.....	201.0	23.9	11.8	75.6	23.9	31.6	Class IV.....	162.2	22.3	13.7	50.0	22.3	44.6
Class V.....	134.3	15.9	11.8	41.0	15.9	38.8	Class V.....	112.6	19.1	17.0	30.3	19.1	63.0
Class VI.....	97.1	9.8	10.1	23.2	9.8	42.2	Class VI.....	87.4	11.7	13.4	19.0	11.7	61.6
Part-time.....	81.1	7.3	9.0	17.8	7.3	41.0	Part-time.....	86.4	8.6	10.0	15.8	8.6	54.4
Residential.....	47.7	2.0	4.2	7.3	2.0	27.4	Residential.....	49.3	2.5	5.1	6.7	2.5	37.3
Abnormal.....	14,502.4	134.7	.9	290.1	134.7	46.4	Abnormal.....	1,325.5	209.2	15.8	298.1	209.2	70.2
THE NORTH							THE WEST						
All farms.....	213.2	31.5	14.8	113.4	31.5	27.8	All farms.....	798.9	24.5	3.1	115.0	24.5	21.3
Class I.....	773.6	139.1	18.0	347.5	139.1	40.0	Class I.....	3,333.3	158.8	4.8	434.6	158.8	36.5
Class II.....	369.5	72.8	19.7	209.5	72.8	34.7	Class II.....	1,125.3	32.8	2.9	176.8	32.8	18.6
Class III.....	263.9	40.0	15.2	143.7	40.0	27.8	Class III.....	648.7	15.3	2.3	107.3	15.3	14.3
Class IV.....	200.7	23.3	11.6	97.5	23.3	23.9	Class IV.....	429.1	7.7	1.8	69.5	7.7	11.1
Class V.....	142.4	14.1	9.9	58.8	14.1	24.0	Class V.....	289.9	4.0	1.4	42.3	4.0	9.5
Class VI.....	99.5	6.5	6.5	34.9	6.5	18.6	Class VI.....	256.0	2.5	1.0	32.2	2.5	7.8
Part-time.....	67.6	6.4	9.5	22.0	6.4	29.1	Part-time.....	96.0	1.7	1.8	15.5	1.7	11.0
Residential.....	42.5	1.6	3.8	9.1	1.6	17.6	Residential.....	51.1	.6	1.2	6.0	.6	10.0
Abnormal.....	857.2	131.0	15.3	283.3	131.0	46.2	Abnormal.....	59,353.9	.5	-----	296.0	.5	.2

Work Power, Equipment, and Other Specified Expenditures, 1954

This section summarizes additional data on work power and other equipment and specified expenditures in 1954, by economic class of farm, by major regions.

Farms by class of work power, 1954.—A sharp difference is found among the economic classes in facilities for work power (Table 20). This is to be expected. About one-third of the part-time (Class VII) farm operators did not have tractors, horses, or mules, in 1954. These percentages were remarkably consistent in each of the three major regions. An additional 11.3 percent of the part-time farmers and 16.5 percent of the residential (Class VIII) farmers had only one horse or mule each. Only 12.7 percent of the part-time farmers and 5.0 percent of the residential farmers had a tractor and horses and/or mules. However, 41.9 percent of the part-time and 18.8 percent of the residential farms had a tractor in contrast to 90.9 percent of the Class I farms and 92.3

percent of those in Class II. As was shown in Table 16, however, almost one-half of the part-time farms (45.3 percent) and almost one-quarter of the residential farms (23.9 percent) reported machine hire in 1954. The amounts expended per farm were relatively small—\$89 per farm for part-time farms and \$52 for residential farms.

Many part-time and residential farmers were apparently limited to small plots of cultivated land, to a few head of livestock such as two or three cows, or to a flock of poultry. On the other hand, 6.8 percent of the Class I farms and 5.5 of Class II did not have a tractor, or horses, or mules. Sales of farm products in excess of \$10,000, under these conditions, would suggest either hiring of tractors and machines on a custom basis and/or pre-dominance of such an enterprise as a commercial poultry operation, a highly mechanized dairy farm, or a feeding operation in which all or nearly all feed is purchased and there is little field work.

Table 20.—FARMS BY CLASS OF WORK POWER AND SPECIFIED FARM EQUIPMENT, BY ECONOMIC CLASS OF FARM, FOR THE UNITED STATES AND REGIONS: 1954

Region and economic class	Percent of farms reporting—									
	Class of work power					Specified farm equipment				
	No tractor, horses, or mules	No tractor and only 1 horse or mule	No tractor and 2 or more horses and/or mules	Tractor and horses and/or mules	Tractor and no horses or mules	Electric pig brooder	Power feed grinder	Milking machine	Field forage harvester	Artificial ponds, reservoirs, and earth tanks
UNITED STATES										
All farms.....	24.7	7.2	10.1	20.4	37.6	2.4	14.8	14.9	4.1	19.0
Class I.....	6.8	.6	1.7	36.4	54.5	7.4	35.7	18.1	19.7	27.4
Class II.....	5.5	.6	1.5	29.5	62.8	8.4	37.5	34.7	15.7	22.0
Class III.....	6.7	1.0	3.1	30.0	59.3	4.9	30.2	35.7	8.7	21.9
Class IV.....	13.2	2.6	8.2	28.9	47.1	2.1	18.1	21.7	3.2	21.1
Class V.....	22.7	5.6	15.4	21.9	34.4	1.0	9.4	8.7	1.0	20.0
Class VI.....	29.2	13.3	25.1	13.6	18.8	.5	4.4	2.4	.4	17.6
Part-time.....	34.4	11.3	12.3	12.7	29.2	.7	4.5	3.1	.4	19.1
Residential.....	55.3	16.5	9.4	5.0	13.8	.4	1.3	.8	.1	10.9
Abnormal.....	18.3	1.6	6.2	40.4	33.6	11.7	35.7	37.8	22.7	30.1
THE NORTH										
All farms.....	15.4	1.5	4.0	21.3	57.8	4.7	24.5	27.7	7.6	18.2
Class I.....	5.8	.3	.6	29.6	63.7	14.0	49.0	23.8	30.2	24.7
Class II.....	4.0	.2	.6	24.5	70.7	11.6	43.8	41.6	19.4	19.4
Class III.....	4.0	.3	1.2	26.0	68.6	6.6	35.9	44.9	11.3	18.9
Class IV.....	6.4	.5	2.9	26.9	63.2	3.3	25.3	35.4	5.0	19.1
Class V.....	13.4	1.5	6.6	22.2	56.4	1.8	15.8	18.5	1.7	19.6
Class VI.....	30.3	3.6	14.7	15.0	36.4	.8	8.1	6.0	.8	17.9
Part-time.....	31.2	3.1	5.6	11.4	48.7	1.2	6.4	5.8	.4	16.2
Residential.....	53.9	5.6	6.7	5.8	28.0	.5	2.0	1.5	.2	11.3
Abnormal.....	15.0	.8	3.9	38.6	41.7	16.0	41.6	50.0	30.5	29.3
THE SOUTH										
All farms.....	32.6	13.1	16.4	18.8	19.2	.6	6.6	3.4	1.0	20.3
Class I.....	7.6	1.1	2.5	46.1	42.6	2.5	30.9	12.4	12.0	33.1
Class II.....	8.2	1.9	3.7	41.9	44.3	2.2	28.4	19.4	8.0	30.0
Class III.....	11.7	2.7	8.2	39.4	37.9	1.5	18.9	13.6	3.0	31.6
Class IV.....	20.9	5.2	15.1	30.9	28.0	.7	9.8	5.0	1.0	24.4
Class V.....	28.1	8.4	21.8	21.6	20.2	.5	5.4	1.9	.4	21.0
Class VI.....	28.6	17.5	29.7	12.8	11.5	.3	2.9	.8	.3	17.8
Part-time.....	35.2	16.9	16.8	13.3	17.9	.5	3.4	.9	.3	22.1
Residential.....	55.5	22.1	10.5	4.4	7.5	.3	.9	.4	.1	11.3
Abnormal.....	11.3	3.4	7.0	53.9	24.5	7.9	38.6	32.0	19.3	35.8
THE WEST										
All farms.....	26.0	2.8	5.7	25.1	40.4	1.3	12.8	16.0	4.1	15.3
Class I.....	7.5	.6	2.4	38.0	51.5	1.9	20.5	14.9	11.3	26.5
Class II.....	9.4	.6	2.2	36.4	51.4	2.0	20.3	23.5	8.6	21.3
Class III.....	11.8	1.1	2.9	34.0	50.2	1.9	19.8	28.7	5.7	17.7
Class IV.....	16.8	1.5	4.8	31.1	45.8	1.5	16.0	23.4	3.1	16.3
Class V.....	24.8	2.9	7.2	23.4	41.6	1.0	11.1	15.4	1.8	13.7
Class VI.....	32.2	3.7	12.9	18.6	32.6	.9	8.0	7.8	1.5	13.4
Part-time.....	41.3	4.7	7.7	13.9	32.3	1.0	4.5	7.2	.6	10.2
Residential.....	57.8	6.6	9.5	6.7	19.3	.4	1.6	1.9	.2	6.4
Abnormal.....	33.8	1.0	10.1	27.3	27.8	7.2	19.8	19.3	11.4	24.9

Other equipment, 1954.—Relatively few of the part-time and residential farms have such equipment as an electric pig brooder, power feed grinder, milking machine, or field forage harvester (Table 20). This generalization applies in each of the major regions where, in most cases, close correlations are found between the percentage of farm operators having such equipment and the economic class of farm.

Workers on farms, specified week, 1954.—Relatively small percentages of the part-time and residential farms had hired workers. Only 6 percent of the part-time farms reported any hired workers at the time of the Census in 1954. Less than 2 percent of the residential farms reported hired workers.

In general, the picture in respect to workers on farms is one of a relatively heavy concentration of hired workers among the larger farms contrasted with a relatively even distribution of family workers per farm by economic class (Table 21). The percentage of farms using hired laborers is closely and positively correlated with size of farm, or with economic class. Except for Class I, the number of regular workers per farm reporting does not vary widely although the number of seasonal workers per farm reporting is again closely correlated with size or economic class. This contrasts with the distribution of family laborers in agriculture which does not vary widely per farm by economic class.

Table 21.—WORKERS ON FARMS, SPECIFIED WEEK,¹ BY ECONOMIC CLASS, FOR THE UNITED STATES AND REGIONS: 1954

[Data are based on reports for only a sample of farms. See text]

Region and economic class	Family and/or hired workers			Family worker (operator and/or unpaid members of his family)					Hired workers							
	Percent of all farms	Number of persons per farm reporting	Percent distribution	Percent of all farms	Number of persons per farm reporting	Percent of operators working 1 or more hours	Unpaid members of operator's family working 15 or more hours		All hired workers			Regular workers (to be employed 150 or more days)		Seasonal workers (to be employed less than 150 days)		
							Percent of farms reporting	Number of persons per farm reporting	Percent of all farms	Number of persons per farm reporting	Percent distribution	Percent of all farms	Number of persons per farm reporting	Percent of all farms	Number of persons per farm reporting	
UNITED STATES																
All farms.....	89.8	2.2	100.0	88.7	1.6	86.6	30.3	1.6	15.7	3.6	100.0	7.0	2.1	10.5	4.0	
Class I.....	98.0	8.1	11.1	91.3	1.6	90.1	32.9	1.6	75.5	8.6	31.8	62.3	4.0	36.0	11.1	
Class II.....	97.1	3.1	13.9	94.8	1.7	93.4	44.2	1.6	42.5	3.2	22.1	26.2	1.5	23.0	4.1	
Class III.....	96.2	2.5	17.6	94.9	1.8	93.4	47.4	1.6	24.2	2.8	17.6	10.1	1.3	16.1	3.4	
Class IV.....	94.5	2.3	18.4	93.4	1.8	91.8	46.7	1.7	15.9	2.9	14.0	4.2	1.3	12.6	3.3	
Class V.....	92.0	2.0	14.8	91.1	1.7	89.2	41.9	1.6	10.5	2.8	8.2	1.8	1.3	9.0	3.0	
Class VI.....	89.3	1.6	7.0	88.9	1.5	87.2	31.4	1.4	5.3	2.4	2.2	.6	1.3	4.7	2.5	
Part-time.....	85.7	1.6	8.1	84.6	1.5	81.4	29.2	1.4	6.3	2.1	2.7	1.0	1.2	5.5	2.1	
Residential.....	76.6	1.3	9.0	76.2	1.2	73.3	17.0	1.3	1.8	1.6	.9	.3	1.2	1.5	1.7	
Abnormal.....	84.0	7.0	.2	69.7	1.6	67.9	9.6	4.8	58.2	8.2	.5	53.2	7.2	14.8	6.4	
THE NORTH																
All farms.....	93.3	2.0	100.0	92.4	1.6	90.6	39.7	1.5	16.7	2.4	100.0	8.4	1.6	10.0	2.6	
Class I.....	98.7	5.4	8.1	94.5	1.7	93.2	42.8	1.6	71.0	5.3	26.9	57.9	2.8	32.0	6.6	
Class II.....	97.8	2.6	19.6	96.4	1.7	94.9	47.2	1.6	38.3	2.2	31.2	23.6	1.3	19.8	2.7	
Class III.....	96.9	2.1	24.9	96.1	1.7	94.6	48.6	1.5	20.4	1.8	21.4	9.1	1.2	12.6	2.1	
Class IV.....	95.3	1.9	19.6	94.6	1.7	92.9	46.0	1.5	12.6	1.8	11.7	4.0	1.2	9.1	2.0	
Class V.....	92.9	1.7	11.2	92.3	1.6	90.4	39.0	1.4	7.8	1.8	4.7	1.7	1.2	6.3	1.9	
Class VI.....	90.0	1.4	4.0	89.7	1.4	88.1	27.0	1.3	3.6	1.7	.9	.7	1.2	3.0	1.8	
Part-time.....	88.0	1.5	6.4	87.4	1.4	84.7	29.6	1.4	4.4	1.7	1.7	.7	1.2	3.8	1.7	
Residential.....	81.2	1.3	6.0	80.9	1.2	78.4	15.9	1.3	1.4	1.6	.6	.3	1.3	1.1	1.6	
Abnormal.....	88.5	7.1	.2	74.6	1.6	72.6	10.5	4.6	65.9	7.8	.8	61.4	6.9	15.6	5.7	
THE SOUTH																
All farms.....	86.6	2.3	100.0	85.4	1.6	83.1	33.8	1.7	13.3	4.5	100.0	4.5	2.5	10.1	4.7	
Class I.....	96.7	11.5	8.4	87.3	1.4	86.1	24.8	1.6	79.0	12.4	25.1	65.3	5.4	39.8	15.8	
Class II.....	95.2	4.4	8.0	91.0	1.6	89.6	35.0	1.7	54.0	5.1	17.5	34.5	2.0	31.1	6.5	
Class III.....	94.8	3.4	12.1	92.5	2.0	90.8	45.9	2.0	33.6	4.2	17.9	13.1	1.6	24.4	5.0	
Class IV.....	93.7	2.8	19.3	92.4	2.0	90.8	48.8	2.0	19.7	3.8	18.4	4.2	1.4	16.5	4.1	
Class V.....	91.6	2.2	19.6	90.7	1.8	88.9	44.4	1.7	11.9	3.2	12.2	1.8	1.3	10.5	3.3	
Class VI.....	89.1	1.7	10.7	88.6	1.5	87.0	33.2	1.5	5.7	2.6	3.6	.5	1.3	5.3	2.7	
Part-time.....	84.1	1.6	10.0	82.8	1.5	79.4	28.7	1.5	7.3	2.1	3.8	1.0	1.2	6.4	2.2	
Residential.....	74.1	1.3	11.8	73.7	1.2	70.6	16.4	1.3	1.8	1.6	1.2	.2	1.2	1.6	1.7	
Abnormal.....	89.5	7.6	.1	72.3	1.6	69.6	10.0	4.4	61.4	9.2	.3	54.9	7.9	16.7	7.7	
THE WEST																
All farms.....	91.1	2.9	100.0	88.7	1.5	86.4	34.2	1.5	24.5	5.3	100.0	13.3	2.8	15.3	6.1	
Class I.....	98.1	9.2	32.2	90.3	1.5	89.0	30.6	1.6	79.2	9.6	55.8	66.3	4.2	38.6	12.4	
Class II.....	96.2	3.5	18.5	92.9	1.7	91.4	41.3	1.5	46.5	3.8	20.2	26.9	1.4	27.2	5.1	
Class III.....	95.2	2.6	14.9	93.1	1.7	91.4	42.9	1.5	26.9	3.5	11.4	10.1	1.3	19.1	4.2	
Class IV.....	93.1	2.2	10.6	91.0	1.6	89.1	39.5	1.4	18.0	3.1	6.1	5.0	1.3	14.0	3.6	
Class V.....	90.5	1.9	7.3	88.6	1.5	86.2	34.8	1.4	12.9	2.8	3.2	2.8	1.2	10.5	3.1	
Class VI.....	87.6	1.6	2.3	86.9	1.4	84.8	28.6	1.3	7.8	2.4	.6	1.9	1.4	6.3	2.5	
Part-time.....	87.3	1.6	6.5	86.0	1.4	82.6	30.6	1.3	7.5	2.5	1.7	1.3	1.2	6.4	2.7	
Residential.....	82.1	1.4	7.6	81.5	1.3	78.0	22.0	1.3	2.9	1.6	.6	.7	1.2	2.3	1.7	
Abnormal.....	67.8	6.0	.2	56.1	1.8	55.9	7.2	6.2	38.3	7.9	.3	34.1	6.9	10.9	6.1	

¹ Sept. 28-Oct. 2, or Oct. 24-30.

FARMERS AND FARM PRODUCTION

Table 22.—PERCENT OF FARMS REPORTING ELECTRICITY, TELEPHONE, AND PIPED RUNNING WATER, BY ECONOMIC CLASS OF FARM, FOR THE UNITED STATES AND REGIONS: 1954

Region and economic class	Percent of farms										
	Electricity and telephone		Electricity and no telephone		Telephone and no electricity		No electricity, no telephone, and piped running water	Not reporting	Electricity	Telephone	Piped running water
	Piped running water	No piped running water	Piped running water	No piped running water	Piped running water	No piped running water					
UNITED STATES											
All farms.....	39.5	8.0	18.7	25.5	0.1	0.4	0.4	7.4	91.7	48.0	58.7
Class I.....	81.6	1.8	11.4	1.5	.1	.1	.3	3.2	96.3	83.6	93.4
Class II.....	73.3	6.1	14.1	3.8	.1	.1	.3	2.2	97.3	79.6	87.8
Class III.....	56.6	10.5	17.5	11.3	.1	.3	.5	3.2	95.9	67.5	74.7
Class IV.....	37.2	10.6	20.3	25.1	.1	.5	.4	5.8	93.2	48.4	58.0
Class V.....	26.5	8.5	19.0	36.1	.1	.4	.4	9.0	90.1	35.5	46.0
Class VI.....	15.1	6.7	17.6	43.8	(Z)	.5	.5	15.8	83.2	22.3	33.2
Part-time.....	35.8	7.2	20.5	27.7	.1	.3	.2	8.2	91.2	43.4	56.6
Residential.....	30.5	6.4	20.6	32.0	.1	.3	.3	9.8	89.5	37.3	51.5
Abnormal.....	88.1	.7				.7		10.5	88.8	89.5	88.1
EASTERN REGION											
All farms.....	45.1	6.7	15.6	25.1	.1	.4	.4	6.6	92.5	52.3	61.1
Class I.....	93.0	1.2	3.5	.3				2.0	98.0	94.2	96.5
Class II.....	85.1	2.7	8.3	2.1			.6	1.2	98.2	87.8	94.0
Class III.....	70.7	5.2	14.3	6.4	.1	.1	.4	2.8	96.6	76.1	85.5
Class IV.....	50.8	8.2	17.1	19.1	.1	.3	.2	4.2	95.2	59.4	68.2
Class V.....	34.7	8.4	16.1	33.1	.1	.3	.3	7.0	92.3	43.5	51.2
Class VI.....	18.5	6.9	16.1	42.5		.9	.4	14.7	84.0	26.3	35.0
Part-time.....	41.2	7.2	18.4	25.2	.2	.5	.4	6.9	92.0	49.1	60.2
Residential.....	30.9	7.2	16.7	35.5		.5	.3	8.9	90.3	38.6	47.9
Abnormal.....	100.0								100.0	100.0	100.0
SOUTHERN REGION											
All farms.....	16.7	3.0	24.8	44.5		.1	.3	10.6	89.0	19.8	41.7
Class I.....	68.0	.1	22.5	3.5	.1	.2		5.6	94.1	68.4	90.6
Class II.....	46.0	1.4	39.1	8.9	.3		.3	4.0	95.4	47.7	85.7
Class III.....	23.9	1.2	37.9	33.0			.2	3.8	96.0	25.1	62.0
Class IV.....	13.6	2.7	27.1	49.6			.3	6.7	93.0	16.3	41.0
Class V.....	10.0	2.6	21.3	54.3			.3	11.5	88.2	12.6	31.6
Class VI.....	7.3	2.8	18.2	53.3		.1	.4	17.9	81.6	10.2	25.9
Part-time.....	21.1	3.8	25.7	38.7		.1	.1	10.6	89.3	25.0	46.8
Residential.....	20.1	4.0	24.8	39.7	.1	.1	.3	10.9	88.6	24.3	45.3
Abnormal.....	94.4							5.6	94.4	94.4	94.4
CENTRAL REGION											
All farms.....	53.1	14.5	12.2	14.4	.1	.6	.3	4.8	94.2	68.3	65.6
Class I.....	88.3	3.8	5.4	.4			.3	1.8	97.9	92.1	94.0
Class II.....	79.4	9.1	0.4	3.0		.1	.3	1.7	97.9	88.6	86.1
Class III.....	63.1	14.8	11.6	7.0		.4	.5	2.6	96.5	78.3	75.2
Class IV.....	46.5	18.1	15.7	13.9	.1	.8	.3	4.6	94.2	65.5	62.6
Class V.....	40.7	16.9	13.6	21.2	.1	1.1	.2	6.2	92.4	58.8	54.6
Class VI.....	26.3	17.8	11.9	30.2		1.1	.3	12.4	86.2	45.2	38.5
Part-time.....	44.6	12.6	13.5	22.9	.1	.6		5.7	93.6	57.9	58.2
Residential.....	38.5	13.8	13.3	24.6	.1	.7		9.0	90.2	53.1	51.9
Abnormal.....	91.4							8.6	91.4	91.4	91.4
GREAT PLAINS REGION											
All farms.....	39.7	10.6	20.7	19.6	.1	.5	.5	8.3	90.6	51.0	61.1
Class I.....	74.5	2.6	15.1	2.4		.1	.9	4.4	94.6	77.2	90.5
Class II.....	62.1	7.8	21.3	5.4	.1	(Z)	.4	2.9	96.6	70.0	83.9
Class III.....	51.0	14.0	17.6	11.7	.2	.5	.6	4.4	94.3	65.7	68.4
Class IV.....	36.7	13.5	20.7	19.6	.2	.7	.5	8.1	90.5	51.1	58.1
Class V.....	27.9	13.6	23.2	23.9	.1	.7	.5	10.1	88.6	42.3	51.7
Class VI.....	16.2	6.2	21.0	37.6	.2	1.2	.7	16.0	81.9	23.8	39.0
Part-time.....	34.3	9.3	21.7	23.9		.2	.7	9.9	89.2	43.8	56.7
Residential.....	30.1	6.6	22.2	28.5	.2	.3	.3	11.8	87.4	37.2	52.8
Abnormal.....	50.0	16.7						33.3	66.7	66.7	50.0
WESTERN REGION											
All farms.....	65.0	2.4	20.5	6.1	.2	.2	.8	4.8	93.9	67.8	86.5
Class I.....	80.9	.5	13.4	1.3	.3		.3	3.3	96.1	81.7	94.9
Class II.....	75.3	1.1	18.0	2.2	.2	.2	.3	2.7	96.6	76.8	93.8
Class III.....	67.0	3.1	20.3	5.2	.2	.1	.5	3.6	95.6	70.4	88.0
Class IV.....	60.2	3.8	21.1	7.9	.1	.2	1.7	5.0	93.0	64.3	83.1
Class V.....	56.2	2.3	23.8	8.2	.1		1.2	8.2	90.5	58.6	81.3
Class VI.....	41.3	2.5	28.8	13.9	.5	.5	1.9	10.6	86.5	44.8	72.5
Part-time.....	64.6	3.6	19.4	6.2	.4	.4	.5	4.9	93.8	69.0	84.9
Residential.....	61.5	2.0	22.6	7.6	.3		.5	5.5	93.7	63.8	84.9
Abnormal.....	71.0					3.2		25.8	71.0	71.0	71.0

Z 0.05 percent or less.

Household facilities, by economic class, by five regions.—The percentage of farms that reported electricity, telephone, and piped running water is directly related to economic class (Table 22). Classes I, II, and III generally have a higher percentage with the facility than is the case with the lower commercial classes. Part-time farms (Class VII) ranked significantly higher than those in Class VI, indicating relatively higher levels of living among the part-time farms. The residential (Class VIII) farms are generally somewhat lower in percentage than the part-time group, especially in the East.

Comparisons by regions show that the South ranks considerably lower than the others. However, almost as large a percentage of southern farms (89.0 percent) have electricity as in the United States as a whole (93.0 percent). The percentage of farms in the South (41.7 percent) having piped running water is lower than that of any other region and is significantly lower than the United States average (58.8 percent). Telephones show the widest or greatest difference. Only 19.8 percent of the Southern farms have telephones as compared with 48.8 percent for the United States, and a high of 68.3 percent in the Central Region.

Data on television sets and home freezers give evidence of considerable differences by economic class in levels of living (Table 23). For the United States, for example, 63.1 percent of Class I farms have television sets as compared with only 16.2 percent of Class VI farms. The variation in percentage having home freezers is even wider from 65.4 percent of Class I farms to 16.6 percent of Class VI. The percentage of part-time farms having these items is about twice that for Class VI. The relationship or percentages are remarkably consistent among the major regions.

Table 23.—PERCENT OF FARMS REPORTING TELEVISION SET AND HOME FREEZER, BY ECONOMIC CLASS, FOR THE UNITED STATES AND REGIONS: 1954

Region and economic class	Television set, 1954	Home freezer, 1954	Region and economic class	Television set, 1954	Home freezer, 1954
UNITED STATES			THE SOUTH		
All farms.....	Percent 35.5	Percent 32.2	All farms.....	Percent 25.2	Percent 22.5
Class I.....	63.1	65.4	Class I.....	62.3	63.1
Class II.....	56.4	58.9	Class II.....	52.5	53.7
Class III.....	45.3	46.2	Class III.....	39.2	40.0
Class IV.....	33.2	32.6	Class IV.....	24.9	25.8
Class V.....	28.3	23.5	Class V.....	19.0	17.8
Class VI.....	16.6	14.7	Class VI.....	12.6	11.9
Part-time.....	36.2	27.4	Part-time.....	27.4	22.4
Residential.....	32.4	21.9	Residential.....	25.1	17.8
Abnormal.....	52.9	53.5	Abnormal.....	57.3	57.4
THE NORTH			THE WEST		
All farms.....	46.8	41.1	All farms.....	37.8	42.3
Class I.....	68.1	69.1	Class I.....	56.5	63.4
Class II.....	60.5	61.1	Class II.....	42.3	55.2
Class III.....	48.9	48.7	Class III.....	35.5	44.9
Class IV.....	40.4	37.3	Class IV.....	31.2	38.6
Class V.....	37.5	30.8	Class V.....	30.2	34.6
Class VI.....	26.6	20.3	Class VI.....	22.0	26.8
Part-time.....	51.4	33.9	Part-time.....	38.5	36.2
Residential.....	48.3	28.3	Residential.....	39.5	33.8
Abnormal.....	58.6	57.7	Abnormal.....	35.5	40.2

The percentage of farms reporting telephone and electricity increased sharply between 1950 and 1954 (Table 24). In 1950 only 38.2 percent had a telephone. In 1954, 48.8 percent had one. As to electricity, 78.3 percent had it in 1950, whereas 93.0 percent had electricity in 1954. Substantial changes occurred in each of three major regions—the North, the South, and the West.

Substantial and rather remarkable changes occurred in some regions and classes. In the South, for example, only 70.5 percent of the farms had electricity in 1950, whereas 90.4 percent had it in 1954. Only 57.5 percent of Class VI farms in the South had electricity in 1950 as compared with 82.9 percent in 1954.

Table 24.—PERCENT OF FARMS REPORTING TELEPHONE AND ELECTRICITY, BY ECONOMIC CLASS OF FARM, FOR THE UNITED STATES AND REGIONS: CENSUSES OF 1954 AND 1950

Region and economic class	Telephone		Electricity	
	1954	1950	1954	1950
UNITED STATES				
All farms.....	Percent 48.8	Percent 38.2	Percent 93.0	Percent 78.3
Class I.....	84.0	71.1	97.8	90.8
Class II.....	80.1	71.1	98.1	93.7
Class III.....	68.3	63.2	97.4	91.7
Class IV.....	49.2	45.1	95.3	85.2
Class V.....	36.2	29.4	91.4	75.5
Class VI.....	25.0	16.7	84.2	60.8
Part-time.....	43.6	32.5	92.6	78.5
Residential.....	37.9	25.6	90.3	70.8
Abnormal.....	83.2	60.0	89.1	71.8
THE NORTH				
All farms.....	70.6	61.5	95.7	81.4
Class I.....	92.7	84.4	99.0	93.1
Class II.....	87.4	81.7	98.7	96.0
Class III.....	78.7	73.7	97.8	92.7
Class IV.....	67.8	61.7	96.2	87.1
Class V.....	59.9	52.1	93.5	80.3
Class VI.....	51.0	40.8	87.3	68.5
Part-time.....	64.0	54.0	95.3	84.8
Residential.....	59.7	47.9	93.1	80.0
Abnormal.....	90.0	72.5	93.5	77.6
THE SOUTH				
All farms.....	26.2	16.1	90.4	70.5
Class I.....	70.9	51.9	96.5	87.5
Class II.....	57.7	44.2	97.0	91.3
Class III.....	39.7	32.6	96.9	89.4
Class IV.....	24.2	19.3	94.4	82.0
Class V.....	19.1	12.7	90.1	71.3
Class VI.....	14.0	8.0	82.9	57.5
Part-time.....	28.8	17.0	90.8	73.3
Residential.....	26.3	14.6	88.8	65.6
Abnormal.....	88.9	47.8	96.8	69.2
THE WEST				
All farms.....	67.2	50.9	94.5	86.5
Class I.....	82.6	69.7	97.0	90.6
Class II.....	76.9	62.9	96.8	91.1
Class III.....	69.9	56.0	95.7	89.6
Class IV.....	63.7	49.5	94.5	86.6
Class V.....	59.9	46.1	92.0	85.1
Class VI.....	47.9	33.1	87.3	75.9
Part-time.....	66.5	48.3	94.3	86.9
Residential.....	61.0	42.6	93.7	83.2
Abnormal.....	61.9	51.1	70.4	63.8

E. ECONOMIC CLASS V FARMS, PART-TIME, AND COMMERCIAL, 1954

A special tabulation is presented in this section of Economic Class V farms having value of farm sales from \$1,200 to \$2,499. The tabulation divides these farms into part-time and commercial groups. Out of 769,080 farms, 233,780, or 30.4 percent of the total, are classed as part-time, where the operator worked off farm 100 days or more, or other income of the family exceeded the value of farm products sold. About 535,300 farms, 69.6 percent of the total, are classed as commercial, where the operator did not work off farm as much as 100 days and the value of farm sales exceeded other income of the family.

The United States is divided into five regions for analysis of these farms in Figure 22, and the distribution of farms among these regions is given in Table 25. The size of the regions varies from 40.7 percent of total farms in the South to only 6.0 percent in the West; and from a proportion of 21.0 percent part-time and

79.0 percent commercial in the South to 53.5 percent part-time and 46.5 percent commercial in the Western Region.

Purpose of analysis.—Class V farms are near the lower end of a distribution of commercial farms and almost one-third of the operators work off the farm 100 days or more. Therefore, they illustrate notable characteristics and possibilities in adjustments between farm and nonfarm employment. The purpose of this tabulation and analysis is to ascertain how part-time and commercial farms in the Class V group differ as to size of farm, operating characteristics, type of farm, use of land, living facilities, geographic location, and other factors. Accompanying discussion also brings out important differences among the regions, suggests directions for necessary adjustments in size and type of farm to increase farm income and labor efficiency, and gives some indication of the extent to which off-farm employment serves as an alternative to farming.

Table 25.—CLASS V FARMS, (PART-TIME AND COMMERCIAL), FOR THE UNITED STATES AND REGIONS: 1954

Region	Number of farms			Part-time and commercial as percent of all farms			Region as percent of United States		
	All farms	Part-time	Commercial	All farms	Part-time	Commercial	All farms	Part-time	Commercial
United States.....	769,080	233,780	535,300	100.0	30.4	69.6	100.0	100.0	100.0
Eastern.....	116,780	36,140	80,640	100.0	30.9	69.1	15.2	15.5	15.1
Southern.....	313,180	65,800	247,380	100.0	21.0	79.0	40.7	28.1	46.2
Central.....	187,800	74,360	113,440	100.0	39.6	60.4	24.4	31.8	21.2
Great Plains.....	105,240	32,740	72,500	100.0	31.1	68.9	13.7	14.0	13.5
Western.....	46,080	24,740	21,340	100.0	53.7	46.3	6.0	10.6	4.0

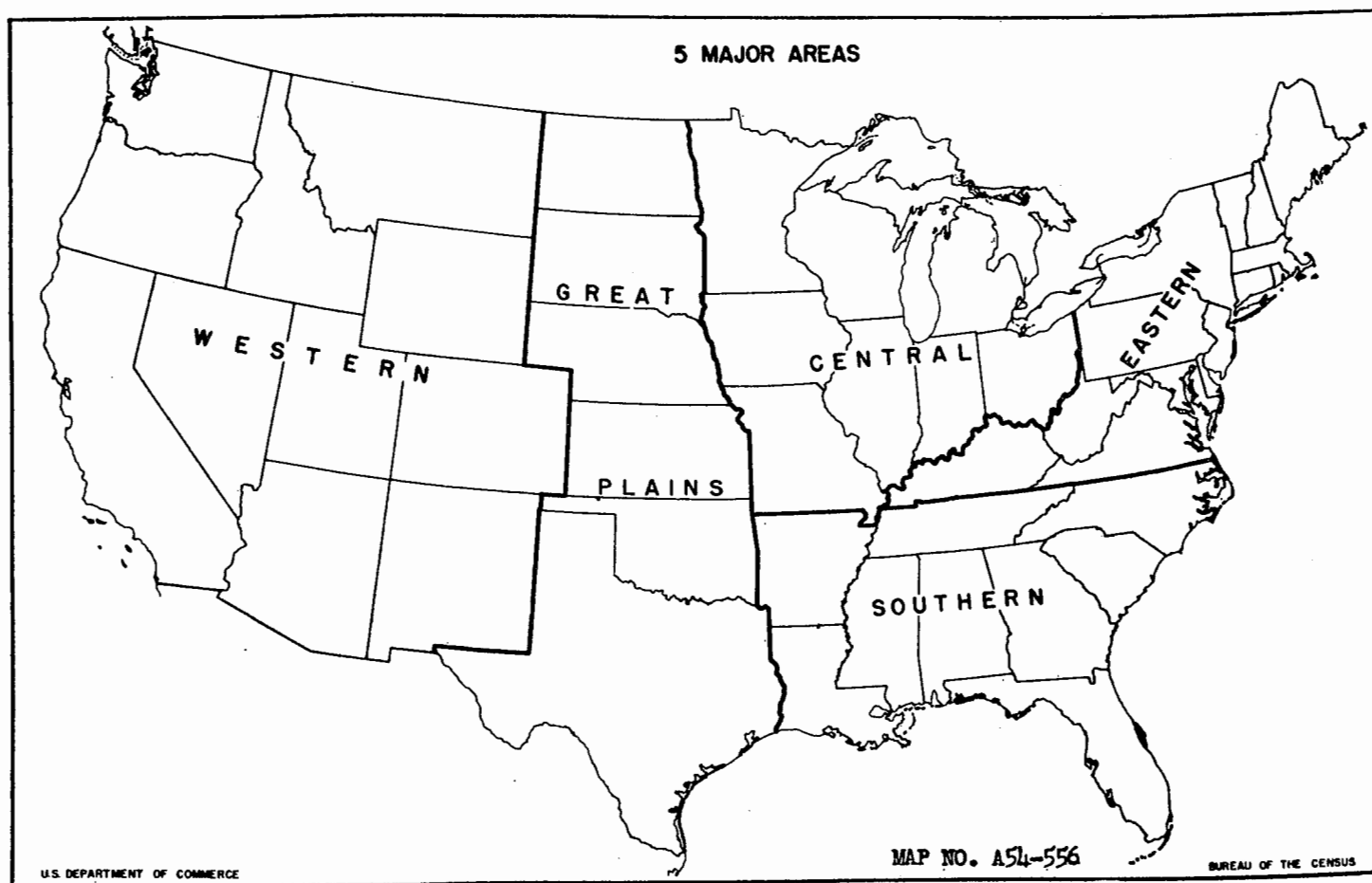


Figure 22.

Off-farm employment and income.—In 1954, 43.2 percent of total farm operators worked off their farms; more than half of these, 23.5 percent, worked off their farms 100 days or more and almost the same number, 23.2 percent, had other income of the family exceeding the value of farm sales (Table 26). The proportions working off farms 100 days or more differ considerably from region to region, with only 15.4 percent working off farms 100 days or more in the South as against 40.9 percent in the Western Region. Likewise, the proportion with other income exceeding the value of farm sales was almost three times as large (44.6 percent) in the Western Region as in the South (15.3 percent). These differences suggest other noteworthy differences in farm operation, in off-farm employment, and in level of living.

Value of land and buildings per farm and per acre.—Part-time farms rank consistently higher than commercial farms in terms of value of land and buildings, both per farm and per acre (Table 27). The average value per farm is higher for part-time farms in each of the regions, although the differences are not so large as the differences in value per acre. The differences in value per acre between part-time and commercial farms are most marked in the Western Region. This indicates that the part-time farms generally have a smaller acreage than the commercial farms in the West, and generally either are located on more productive land or are engaged in more intensive farming.

Total acreage per farm, part-time and commercial farms.—The average of 136.1 acres for part-time farms in the United States is

Table 26.—CLASS V FARMS, NUMBER OF OPERATORS AND PERCENT, BY OTHER INCOME EXCEEDING VALUE OF FARM PRODUCTS SOLD AND WORK OFF FARM, FOR THE UNITED STATES AND REGIONS: 1954

Region	Other income and work off farm							
	Number of operators				Percent of operators			
	Total	Other income of family exceeding value of farm products sold	Working off farm	Working off farm 100 days or more	Total	Other income of family exceeding value of farm products sold	Working off farm	Working off farm 100 days or more
United States.....	769,080	178,440	332,080	181,020	100.0	23.2	43.2	23.5
Eastern.....	116,780	27,840	47,520	28,420	100.0	23.8	40.7	24.3
Southern.....	313,180	47,880	118,640	48,140	100.0	15.3	37.9	15.4
Central.....	187,800	56,440	92,560	60,260	100.0	30.1	49.3	32.1
Great Plains.....	105,240	25,740	47,340	25,300	100.0	24.5	45.0	24.1
Western.....	46,080	20,540	26,020	18,840	100.0	44.6	56.5	40.9

Table 27.—CLASS V FARMS (PART-TIME AND COMMERCIAL), BY VALUE OF LAND AND BUILDINGS PER FARM AND PER ACRE, FOR THE UNITED STATES AND REGIONS: 1954

Region	Value of land and buildings (dollars)					
	Per farm			Per acre		
	All farms	Part-time	Commercial	All farms	Part-time	Commercial
United States.....	9,100	10,798	8,335	74.42	85.25	69.29
Eastern.....	8,409	9,472	7,920	87.81	101.06	81.92
Southern.....	5,890	7,751	5,384	74.68	72.42	75.61
Central.....	9,868	9,933	9,823	90.85	110.88	80.85
Great Plains.....	13,027	13,570	12,785	56.75	58.48	55.98
Western.....	17,865	18,226	17,441	74.13	103.45	54.97

more than the average of 128.4 acres for commercial farms. (See Table 28.) This larger total acreage for part-time farms is almost entirely due to the differences observed in the South, where the average of 129.2 acres for part-time farms is significantly larger than the 77.1 acres for commercial farms. In each of the other regions part-time farms are smaller in total acreage than the commercial farms. In the Western Region, in particular, this difference is substantial; commercial farms average 367.7 acres per farm as compared with 201.5 acres for the part-time farms.

Cropland harvested.—Cropland harvested per farm is about the same for part-time and commercial farms in both the Eastern and the Southern Regions, while in the Central, Great Plains, and Western Regions it is consistently more for commercial farms than for part-time farms, the greatest spread being 52.0 acres per farm for commercial farms in the Western Region as compared with 22.7 acres for part-time farms.

Table 28.—CLASS V FARMS (PART-TIME AND COMMERCIAL), LAND USE PER FARM, FOR THE UNITED STATES AND REGIONS: 1954

Land use	Average acreage per farm																	
	United States			Eastern Region			Southern Region			Central Region			Great Plains Region			Western Region		
	All farms	Part-time	Commercial	All farms	Part-time	Commercial	All farms	Part-time	Commercial	All farms	Part-time	Commercial	All farms	Part-time	Commercial	All farms	Part-time	Commercial
Total acreage per farm.....	130.7	136.1	128.4	100.5	98.9	101.2	88.0	129.2	77.1	113.1	94.8	125.2	258.1	235.4	268.3	278.5	201.5	367.7
Cropland harvested.....	38.0	32.1	40.6	27.5	27.0	27.8	25.7	25.7	25.7	42.4	35.4	46.7	79.4	50.1	92.6	36.3	22.7	52.0
Cropland used only for pasture.....	10.8	12.4	10.2	13.3	13.3	13.4	7.7	13.6	6.1	10.9	9.4	11.8	14.7	15.0	14.6	16.6	13.2	20.5
Cropland not harvested and not pastured.....	7.7	7.5	7.8	5.4	6.4	4.9	4.7	6.0	4.4	4.4	4.9	4.1	18.0	14.2	19.8	23.0	11.5	36.3
Woodland pastured.....	19.8	23.4	17.7	11.0	8.4	12.2	16.9	20.7	13.5	21.6	18.3	23.7	27.9	36.2	24.1	35.7	26.8	34.5
Woodland not pastured.....	14.7	16.0	14.2	23.1	21.2	23.9	19.9	29.6	17.4	8.2	6.4	9.4	3.8	6.7	2.5	10.1	13.1	6.7
Other pasture (not cropland and not woodland).....	34.0	38.8	31.9	15.7	18.7	14.3	10.2	19.8	7.7	16.5	13.2	18.7	104.5	107.2	103.3	152.6	105.7	206.9
Total pasture.....	64.6	74.6	59.8	40.0	40.4	39.9	34.8	63.1	27.3	49.0	40.9	54.2	147.1	158.4	142.0	204.9	145.7	261.9

Acreage pastured.—Total acreage pastured is about the same for part-time and commercial farms in the Eastern Region, more for commercial farms in the Central and Western Regions, and more for part-time farms in the South and the Great Plains Region. The largest spreads are found in the South, with 63.1 acres of pasture for part-time farms and 27.3 acres for commercial farms. The opposite situation is found in the Western Region; 155.7 acres of pasture for part-time farms compared with 261.9 acres for commercial farms.

Woodland per farm.—Woodland per farm does not differ consistently between part-time and commercial farms among the regions, although for the United States both woodland pastured and woodland not pastured is less for commercial farms than for part-time farms. In the Eastern and Central Regions, commercial farms have more woodland per farm than the part-time farms, while in the Southern Region the total of 59.3 acres of woodland per farm for part-time farms is almost twice the total of 30.9 acres for commercial farms. In the Great Plains a total of 36.2 acres of woodland pastured and 6.7 acres of woodland not pastured on part-time farms is significantly greater than the 24.1 acres pastured and the average of 2.5 acres pastured on the commercial farms. In the Western Region the commercial farms have a large acreage of woodland pastured and a small acreage not pastured.

Summary of land-use comparisons.—These differences in land use between part-time and commercial farms among regions suggest several conclusions. Apparently the part-time farms generally have more livestock and less acreage in cash crops than commercial farms. The greater extent of pasture for part-time farms is most marked in the South; the opposite extreme is found in the Western Region. The smaller acreage of cropland harvested on part-time farms is most evident in the Central, Great Plains, and Western Regions.

The general picture that emerges is one of cash cropping among these small-scale commercial farms, with land being used more extensively among the commercial than among the part-time farms in the Central, Great Plains, and Western Regions. In contrast there is a more intensive type of cropping, typically cotton and/or tobacco, among the commercial farms in the South.

Classification by type of farm.—These general observations are demonstrated more precisely in Table 29, and the reasons for the differences are made more evident, where it is shown that 60.1 percent of the commercial farms are classed as field-crop farms, other than vegetable and fruit-and-nut farms, while only 41.7 percent of the part-time farms are so classed. Further, 19.9

percent of the commercial farms are classed as predominantly other field-crop farms, whereas only 10.8 percent of the part-time farms are in this class. On the other hand, almost twice as large a proportion of the part-time farms (28.7 percent) as compared with the commercial farms (15.7 percent) are classed as livestock farms other than dairy and poultry.

Classification by type of farm, by regions.—The classification by regions further clarifies the general picture. In the Eastern, Southern, and Western Regions, particularly, the percentage of commercial farms classified as field-crop farms is higher than in the case of part-time farms. In the Eastern Region about twice as large a proportion of commercial farms (57.0 percent) are primarily field-crop, other than vegetable and fruit-and-nut, than is the case of the part-time farms (34.2 percent); whereas more than twice the percentage of part-time farms (14.7 percent compared with 6.3 percent for commercial farms) are primarily poultry. In the South, 57.5 percent of the commercial farms are primarily cotton as against 44.1 percent of the part-time farms; and only 5.4 percent of the commercial farms are livestock farms other than dairy and poultry as against 19.1 percent of the part-time farms.

On the other hand, in the Western Region, 18.8 percent of the commercial farms are primarily field-crop, other than vegetable and fruit-and-nut, as against only 10.6 percent of the part-time farms. However, in this case the part-time farms are not so likely to be primarily livestock, although 30.1 percent are primarily fruit-and-nut farms as against only 12.8 percent of the commercial farms.

In the Central Region, however, most of the proportions are reversed. The commercial farms tend toward livestock and away from cash crops, in comparison with the part-time farms. A smaller percentage of Class V commercial farms are primarily field-crop farms, other than vegetable and fruit-and-nut, 22.0 percent as compared with 28.6 percent of part-time farms; only 19.1 commercial farms are cash-grain as compared with 26.9 percent of the part-time farms; 39.5 percent of the commercial farms are primarily dairy and 5.9 percent, primarily livestock as compared with 29.2 percent primarily dairy and 4.2 percent primarily livestock for the part-time farms. The pattern in the Central Region is for part-time farming to be associated with grains and field crops and for commercial farms to tend toward chiefly dairy and livestock. Evidently in the Corn Belt, primarily crop farming permits greater mobility for the operators, and it complements off-farm employment.

Table 29.—CLASS V FARMS (PART-TIME AND COMMERCIAL), BY TYPE OF FARM, FOR THE UNITED STATES AND REGIONS: 1954

Type of farm	Percent of all farms																	
	United States			Eastern Region			Southern Region			Central Region			Great Plains Region			Western Region		
	All farms	Part-time	Commercial	All farms	Part-time	Commercial	All farms	Part-time	Commercial	All farms	Part-time	Commercial	All farms	Part-time	Commercial	All farms	Part-time	Commercial
All farms.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Field-crop farms, other than vegetable and fruit-and-nut.....	54.7	41.7	60.1	50.2	34.2	57.0	80.5	67.7	83.7	24.6	28.6	22.0	47.2	46.0	47.7	14.4	10.6	18.8
Cotton farms.....	26.2	15.6	30.5	.4	.3	.4	54.0	44.1	57.5	1.2	.8	1.4	19.4	18.4	19.8	.5	-----	1.1
Cash-grain farms.....	11.2	15.1	9.7	8.0	10.4	7.0	1.8	2.7	1.6	22.2	26.9	19.1	25.8	24.2	25.4	11.5	8.5	14.8
Other field-crop farms.....	17.3	10.8	19.9	41.9	23.5	49.6	23.8	20.9	24.5	1.2	.9	1.4	2.0	3.4	1.6	2.4	2.1	2.8
Livestock farms, other than dairy and poultry.....	19.5	28.7	15.7	15.4	23.2	12.1	8.1	19.1	5.4	27.4	20.7	26.0	39.9	50.4	35.7	36.2	34.6	38.0
Dairy farms.....	14.3	16.1	13.5	15.9	18.9	14.6	3.6	3.7	3.6	35.5	20.2	39.5	6.5	6.4	6.5	19.4	18.6	20.2
General farms.....	10.6	11.6	10.1	10.6	11.6	10.2	6.5	8.1	6.0	14.2	12.4	15.3	15.0	14.1	15.3	16.3	16.2	16.3
Crop and livestock farms.....	5.6	5.4	5.6	6.5	5.2	7.1	3.1	3.5	3.0	7.4	6.0	8.3	8.1	7.7	8.3	7.9	6.5	9.3
Poultry farms.....	4.2	7.1	3.0	8.8	14.7	6.3	1.9	4.8	1.2	5.5	7.6	4.1	2.4	3.4	1.9	7.5	5.1	10.1
Primarily crop farms.....	2.9	4.0	2.4	3.1	5.8	1.9	3.1	4.4	2.8	1.5	2.1	1.2	2.6	3.0	2.5	6.7	7.6	5.8
Fruit-and-nut farms.....	2.3	5.4	1.1	2.2	4.3	1.3	1.1	3.5	.5	1.3	2.3	.7	.3	.4	.3	21.0	30.1	12.8
Primarily livestock farms.....	2.1	2.2	2.1	1.0	.6	1.2	.2	.2	.2	5.2	4.2	5.9	4.2	3.4	4.5	1.7	2.1	1.2
Miscellaneous.....	1.0	1.9	.6	1.4	2.0	1.2	.9	2.2	.5	.7	1.2	.4	.3	.8	.2	3.1	4.2	1.9
Vegetable farms.....	.9	1.6	.7	1.2	1.5	1.0	.4	.7	.3	1.2	1.5	1.1	1.2	1.9	.9	2.6	4.0	1.1

In the Great Plains the differences between part-time and commercial farms are perhaps less marked than in any other region. About the same percentage of farms are primarily field-crop farms, other than vegetable and fruit-and-nut—47.7 percent of the commercial farms as compared with 46.0 percent of the part-time farms. A larger proportion of the part-time farms are primarily livestock other than dairy and poultry—50.4 percent of the part-time farms as compared with only 35.7 percent of the commercial farms.

Part-time and commercial farms as a percentage of all farms of same type.—In Table 30, the comparisons are based on part-time and commercial farms shown as a percentage of all farms of the same type. Of all farms, 28.8 percent are classed as part-time and 71.2 percent as commercial. Some types of farms are predominantly commercial; other types tend toward part-time farming. For example, 78.3 percent of field-crop farms, other than vegetable and fruit-and-nut are commercial, 83.0 percent of the cotton farms are commercial, 82.1 percent of the other field-crop farms are commercial. In contrast, 67.3 percent of fruit-and-nut farms are part-time; 55.6 percent of the miscellaneous farms and 48.8 percent of the poultry farms are part-time.

Commercial farms constitute 70.4 percent of the total farms in the Eastern Region, 80.3 percent of the total in the South, 61.1 percent in the Central Region, 71.5 in the Great Plains, and only 47.4 in the Western Region. In the South, field-crop and cotton farms are predominantly commercial (Table 27), while a larger

proportion of the livestock farms are part-time. Just the opposite situation is found in the Central Region, where a smaller percentage of crop farms and a larger percentage of livestock farms are commercial. In the Western Region, field-crop and poultry farms are predominantly commercial, and fruit-and-nut farms tend toward part-time operation.

Distribution of farms by cropland harvested.—Distribution of part-time and commercial farms in Table 31 according to acres of cropland harvested illustrates relatively small differences between the two groups in the United States generally. The differences between the two groups are not particularly marked in the Eastern and the Southern Regions, but in the Central, Great Plains, and Western Regions part-time farms have twice as large a percentage in the 1- to 9-acre group as do commercial farms and a smaller percentage have harvested acreage in excess of 50 acres.

Perhaps the most important generalization based on these data is that a smaller percentage of the commercial farms are found in the smallest size group and a larger percentage have more than 50 acres of cropland harvested. In each region except the Eastern, the commercial farms have a smaller percentage in the class of 1 to 9 acres harvested. In the South there are fewer commercial farms with 50 acres or more harvested; in the Central, Great Plains, and Western Regions a larger percentage of the commercial farms are in the classes of 50-acres-and-over of cropland harvested. This is consistent with a previous generalization about these regions—that the commercial farms generally rely more heavily on cash crops or field crops than do the part-time farms.

Table 30.—DISTRIBUTION OF CLASS V FARMS AS PART-TIME AND COMMERCIAL FARMS FOR EACH TYPE OF FARM, FOR THE UNITED STATES AND REGIONS: 1954

Type of farm	Percent distribution of Class V farms as part-time and commercial farms											
	United States		Eastern Region		Southern Region		Central Region		Great Plains Region		Western Region	
	Part-time	Commercial	Part-time	Commercial	Part-time	Commercial	Part-time	Commercial	Part-time	Commercial	Part-time	Commercial
All farms.....	28.8	71.2	29.6	70.4	19.7	80.3	38.9	61.1	28.5	71.5	52.6	47.4
Field-crop farms, other than vegetable and fruit-and-nut.....	21.7	78.3	20.2	79.8	16.6	83.4	45.2	54.8	27.8	72.2	38.7	61.3
Cotton farms.....	17.0	83.0	23.8	76.2	15.9	84.1	25.0	75.0	27.0	73.0	39.0	61.0
Cash-grain farms.....	38.5	61.5	38.5	61.5	29.1	70.9	47.2	52.8	26.8	73.2	45.7	54.3
Other field-crop farms.....	17.9	82.1	16.6	83.3	17.3	82.7	28.6	71.4	47.4	52.6	45.7	54.3
Livestock farms, other than dairy and poultry.....	42.3	57.7	44.7	55.3	46.2	53.8	42.1	57.8	36.0	64.0	50.2	49.8
Dairy farms.....	32.4	67.6	35.2	64.8	20.3	79.7	32.0	68.0	28.1	71.9	50.5	49.5
General farms.....	31.6	68.4	32.5	67.5	24.8	75.2	34.0	66.0	26.9	73.1	52.4	47.6
Crop and livestock farms.....	28.0	72.0	23.6	76.4	22.5	77.5	31.7	68.3	26.8	73.2	43.6	56.4
Poultry farms.....	48.8	51.2	49.5	50.5	49.0	51.0	53.8	46.2	40.9	59.1	35.9	64.1
Primarily crop farms.....	40.3	59.7	55.9	44.1	27.8	72.2	53.8	46.2	32.5	67.5	59.4	40.6
Fruit-and-nut farms.....	67.3	32.7	58.3	41.7	63.6	36.4	68.2	31.8	33.3	66.7	72.3	27.7
Primarily livestock farms.....	29.0	71.0	18.2	81.8	14.3	85.7	31.5	68.5	23.1	76.9	65.6	34.4
Miscellaneous.....	55.6	44.4	41.6	58.4	50.8	49.2	66.7	33.3	62.5	37.5	71.2	28.8
Vegetable farms.....	47.8	52.2	38.5	61.5	33.3	66.7	47.6	52.4	45.5	54.5	80.0	20.0

Table 31.—CLASS V FARMS (PART-TIME AND COMMERCIAL), CROPLAND HARVESTED, FOR THE UNITED STATES AND REGIONS: 1954

Cropland harvested	Percent of farms reporting																	
	United States			Eastern Region			Southern Region			Central Region			Great Plains Region			Western Region		
	All farms	Part-time	Commercial	All farms	Part-time	Commercial	All farms	Part-time	Commercial	All farms	Part-time	Commercial	All farms	Part-time	Commercial	All farms	Part-time	Commercial
Farms reporting.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1 to 9 acres.....	11.0	13.8	9.8	18.7	20.8	17.9	12.6	16.0	11.8	5.3	7.9	3.7	2.6	4.7	1.8	21.5	28.1	14.1
10 to 19 acres.....	22.3	19.5	23.4	24.1	19.9	25.8	32.8	28.9	33.8	11.7	14.1	10.2	5.7	7.5	4.9	21.3	25.0	17.3
20 to 29 acres.....	18.4	18.0	18.5	17.6	14.7	18.9	24.0	22.2	24.5	15.3	17.8	13.6	7.7	13.7	5.3	15.6	17.1	13.9
30 to 49 acres.....	23.0	25.0	22.2	24.3	29.1	22.4	20.5	19.2	20.9	30.5	31.7	29.8	18.3	22.7	16.5	17.3	16.1	18.6
50 to 99 acres.....	18.4	19.5	18.0	12.2	14.4	12.9	9.0	12.3	8.1	30.0	25.0	33.1	36.1	34.9	36.6	14.7	10.6	19.1
100 to 199 acres.....	5.4	3.6	6.1	2.1	.9	2.6	.9	1.3	.8	6.7	3.2	8.9	21.2	14.3	23.9	6.2	2.5	10.2
200 to 499 acres.....	1.4	.5	1.8	.3	.3	.3	.1	.1	.1	.5	.3	.7	7.9	2.1	10.3	3.2	.6	6.0
500 to 999 acres.....	.1		.1					.1					.6	.1	.6	.4		.8
1,000 acres and over.....													.1		.1			

FARMERS AND FARM PRODUCTION

Table 32.—CLASS V FARMS (PART-TIME AND COMMERCIAL), BY CLASS OF WORK POWER, FARM LABOR, AND SPECIFIED FARM EXPENDITURES, FOR THE UNITED STATES AND REGIONS: 1954

Item	Percent of all farms																	
	United States			Eastern Region			Southern Region			Central Region			Great Plains Region			Western Region		
	All farms	Part-time	Com-mercial	All farms	Part-time	Com-mercial	All farms	Part-time	Com-mercial	All farms	Part-time	Com-mercial	All farms	Part-time	Com-mercial	All farms	Part-time	Com-mercial
Farms reporting.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Tractors.....	55.9	64.8	52.0	54.2	64.8	49.6	36.0	49.1	32.6	75.8	78.4	74.0	78.5	71.5	82.7	63.4	58.3	69.3
Tractor and horses and/or mules.....	33.7	44.2	29.1	31.1	45.7	24.9	15.1	22.5	13.2	55.7	62.7	51.1	49.1	47.0	50.7	41.7	41.9	41.5
Tractor and no horses or mules.....	22.2	20.6	22.9	23.1	19.1	24.7	20.9	26.6	19.4	20.1	15.7	22.9	29.4	24.5	32.0	21.7	16.4	27.8
No tractor.....	44.0	35.1	48.0	46.9	35.2	50.3	64.0	50.9	67.4	24.2	21.7	26.1	21.6	28.6	18.7	36.6	41.7	30.6
No tractor, but horses and/or mules.....	20.8	12.7	24.4	24.6	12.2	30.0	32.0	23.6	34.2	9.0	5.0	11.8	8.4	9.2	8.2	12.0	12.3	11.6
No tractor, no horses or mules.....	23.2	22.4	23.6	21.3	23.0	20.3	32.0	27.3	33.2	15.2	16.7	14.3	13.2	19.4	10.5	24.6	29.4	19.0
Week of Sept. 26-Oct. 2 or Oct. 24-30:																		
Family workers including operator.....	90.9	86.6	92.8	91.0	87.8	92.4	90.2	84.2	91.8	91.9	88.5	94.1	92.2	86.6	96.1	88.3	85.0	92.1
Family and/or hired workers.....	75.0	88.7	69.0	92.5	90.3	93.6	49.7	87.0	39.7	92.3	80.2	94.3	93.1	88.1	96.6	91.3	89.3	93.6
Unpaid members of operator's family.....	41.6	35.7	44.1	40.2	35.7	42.2	47.6	37.9	50.2	36.2	35.6	36.6	36.6	31.6	30.5	37.2	35.5	38.8
Hired workers.....	11.0	15.0	9.3	13.7	19.6	11.0	11.5	18.3	9.7	7.3	8.5	5.5	11.1	14.3	9.8	16.1	19.2	11.8
Regular workers (to be employed 150 days or more).....	2.6	4.0	2.0	3.5	4.4	3.1	2.5	4.9	2.9	2.0	3.0	1.3	2.6	4.4	1.8	3.5	3.2	3.8
Seasonal workers (to be employed less than 150 days).....	8.9	11.6	7.7	10.6	15.8	8.3	9.8	14.7	8.5	5.4	5.8	5.1	8.6	9.9	8.1	12.7	16.7	8.1
Operator working on farm 1 or more hours.....	86.5	83.5	91.4	89.4	85.8	90.9	88.4	80.5	90.5	89.9	85.4	92.8	95.2	84.4	94.4	93.0	81.3	90.8
Machine hire and/or hired labor.....	76.8	75.7	77.3	73.5	73.4	73.5	81.4	79.3	82.0	74.0	73.0	74.6	75.7	80.0	73.7	68.3	72.3	63.8
Machine hire.....	59.9	59.6	60.0	53.8	56.9	52.4	59.1	54.6	60.3	67.0	66.2	61.5	59.4	60.2	59.1	52.4	56.4	47.9
Hired labor.....	49.2	49.4	49.1	53.2	53.3	53.2	57.4	61.4	56.3	34.0	34.3	33.9	49.4	57.1	45.9	44.8	47.1	42.3
\$1 to \$2,499.....	48.9	49.1	48.8	52.7	53.0	52.6	57.2	60.9	56.1	34.0	34.3	33.9	49.1	56.8	46.6	43.3	45.8	40.4
\$2,500 and over.....	.3	.4	.3	.5	.3	.6	.3	.5	.2				.3	.4	.2	1.5	1.2	1.9
Feed for livestock and poultry.....	70.2	75.3	67.9	73.8	77.9	72.0	57.4	67.1	54.8	83.4	81.2	84.8	81.0	83.0	80.1	69.0	65.6	72.9
Gasoline and other petroleum fuels.....	69.2	74.7	66.8	68.4	75.1	65.4	54.0	61.8	51.9	83.6	83.6	83.6	86.2	79.5	89.3	76.5	75.2	77.9

Source of work power: Tractor, horses, and/or mules.—Sources of work power are of paramount interest in farming. A larger percentage of part-time farms (64.8 percent) than commercial farms (52.0 percent) have tractors, and a larger percentage of part-time farms (44.2 percent) than commercial farms (29.1 percent) have both tractor and horses and/or mules. About twice as high a percentage of commercial farms (24.4 percent) as part-time farms (12.7 percent) have horses and/or mules and no tractor.

About the same percentage have no tractor and no horses or mules. These generalizations also apply in the Eastern and Southern Regions where tractors are more frequent among the part-time farms than among the commercial group. In the South, where commercial farms are depending heavily on field crops, only about one-third of the commercial farms (32.6 percent) have a tractor and about one-third (33.2 percent) have no tractor and no horses or mules. Many of these farms are cropper units.

In the Central Region about the same percentage of part-time farms (78.4 percent) as commercial farms (74.0 percent) have a tractor. A larger percentage of the part-time farms have horses and/or mules (62.7 percent to 51.1 percent), while more of the commercial farms have only tractors (22.9 percent to 15.7 percent). Also more of the commercial farms (11.8 percent) than the part-time farms (5.0 percent) have horses and/or mules and no tractors. However, only about one-sixth of the farms, as compared with one-third in the South, have neither tractors or horses and/or mules.

The situation is generally reversed in the Great Plains and in the Western Region where a higher percentage of commercial farms have tractors and a smaller percentage of the commercial farms have neither a tractor, horses and/or mules. In fact, in the Great Plains Region only 10.5 percent of the commercial farms—the low for any group—have no tractor and no horses and/or mules.

Family and hired workers: Week of September 26–October 2 or October 24–30.—The differences among part-time and commercial farms are generally not large in respect to family workers and hired help (Table 32). On the commercial farms there is somewhat higher percentage of family workers and a lower percentage having hired help. About 44.1 percent of the commercial farms and 35.7 percent of the part-time farms had unpaid members of the operator's family working on the farm during the specified

week; and only 9.3 percent of the commercial farms as against 15.0 percent of the part-time farms had hired workers during the same week.

Expenditures for machine hire, labor, feed, and fuel.—The percentage of farm operators hiring machines and labor is remarkably uniform between part-time and commercial farms and among the various regions. Moreover, in general there appears to be no significant difference between part-time and commercial farms as to the proportion hiring machines and labor.

Part-time farm operators reporting the specific expenditure spent more for machine hire, for hired labor, and for feed for livestock and poultry than did the commercial farmers (Table 33). Commercial farmers, with the notable exception of the South, spent more per farm for gasoline and other petroleum fuels. These data further emphasize the fact that, for the United States, part-time farmers tend more toward livestock, and the larger expenditures for gasoline and other petroleum fuels among commercial farms are a result of greater emphasis in most regions on field crops.

Table 33.—CLASS V FARMS (PART-TIME AND COMMERCIAL), SPECIFIED FARM EXPENDITURES PER FARM REPORTING, FOR THE UNITED STATES AND REGIONS: 1954

Specified expenditures and class of farm	United States	Eastern Region	Southern Region	Central Region	Great Plains Region	Western Region
Machine hire (dollars):						
All farms.....	131.44	114.30	106.44	136.45	180.43	211.62
Part-time farms.....	147.66	124.23	135.82	141.40	170.31	202.18
Commercial farms.....	124.36	109.52	99.30	133.29	185.10	224.38
Hired labor (dollars):						
All farms.....	221.69	226.19	206.48	165.59	242.72	459.69
Part-time farms.....	261.33	255.94	268.92	198.56	265.10	409.55
Commercial farms.....	204.27	212.99	191.14	143.87	230.12	523.76
Feed for livestock and poultry (dollars):						
All farms.....	406.40	478.80	248.85	473.87	472.30	587.81
Part-time farms.....	494.42	618.92	343.35	496.21	504.63	568.19
Commercial farms.....	363.79	411.53	217.80	459.91	429.09	608.09
Gasoline and other petroleum fuels (dollars):						
All farms.....	202.22	163.34	168.29	201.60	273.01	270.59
Part-time farms.....	185.36	161.24	174.24	180.02	217.30	217.18
Commercial farms.....	210.45	164.41	166.39	215.67	295.42	329.72

Other specified machinery and expenditures.—Part-time farms generally appear to be more adequately supplied with other farm machinery and equipment (Table 34). This is especially true of such items as milking machines and motortrucks. In some

Table 34.—CLASS V FARMS (PART-TIME AND COMMERCIAL), PERCENT REPORTING SPECIFIED FARM MACHINERY AND EQUIPMENT, FOR THE UNITED STATES AND REGIONS: 1954

Machinery and equipment and type of farm	United States	Eastern Region	Southern Region	Central Region	Great Plains Region	Western Region
Farms reporting electric pig brooder:						
All farms.....	0.9	0.5	0.2	2.1	0.7	1.1
Part-time.....	1.2	.6	.2	2.7	.6	.8
Commercial.....	.7	.5	.2	1.8	.7	1.5
Farms reporting power feed grinder:						
All farms.....	8.9	8.4	2.8	13.5	18.2	11.1
Part-time.....	9.7	10.0	4.4	11.7	17.3	7.4
Commercial.....	8.5	7.7	2.4	14.7	18.6	15.4
Farms reporting milking machine:						
All farms.....	8.4	9.2	1.7	18.9	6.1	14.8
Part-time.....	10.5	13.6	1.8	18.3	5.3	12.3
Commercial.....	6.8	7.2	.5	19.2	6.5	14.4
Farms reporting grain combine:						
All farms.....	9.9	4.9	3.7	15.8	22.6	12.8
Part-time.....	10.6	6.1	4.9	16.1	16.9	7.6
Commercial.....	8.8	4.6	1.3	15.6	25.2	18.8
Farms reporting corn picker:						
All farms.....	6.0	3.9	1.2	15.1	9.1	.3
Part-time.....	6.5	4.2	1.4	14.8	5.2	.1
Commercial.....	5.9	3.8	1.1	15.5	10.8	.7
Farms reporting pickup baler:						
All farms.....	4.6	6.6	1.8	6.7	5.4	8.0
Part-time.....	5.5	8.6	3.6	5.6	4.9	6.5
Commercial.....	4.2	5.7	1.4	7.5	5.5	9.7
Farms reporting field forage harvester:						
All farms.....	1.0	1.0	.3	1.7	1.5	1.5
Part-time.....	1.3	1.4	.8	1.6	1.6	1.0
Commercial.....	.9	1.0	.2	1.7	1.4	2.2
Farm reporting motortruck:						
All farms.....	39.6	39.4	33.3	35.3	56.6	62.2
Part-time.....	46.7	42.7	43.9	39.6	60.9	63.1
Commercial.....	36.5	37.8	30.5	32.4	54.6	61.1

cases as with milking machines, however, a somewhat larger percentage of part-time farmers would be expected to have the given machine since a larger percentage are dairy farms.

Farms by tenure of operator.—A relatively large percentage of all farm operators are listed as full owners or part owners. (This is shown in Table 35.) These two groups comprise 69.5 percent of the total as compared with 30.4 percent listed as tenants.

The stronger ownership status of part-time farmers is shown in the Eastern, Southern, and Western Regions where significantly larger percentages of part-time farmers are full owners. In contrast, in the Central and Great Plains Regions part-time and commercial farms are about equal in percentage of ownership.

Nationally, full ownership or part ownership among part-time farms, totaling 82.0 percent of all part-time farms as compared with 64.0 percent of ownership among commercial farmers, is largely the result of considerably greater ownership among part-time farmers in the South, where 69.3 percent of the part-time farms are operated by either full or part owners, compared with only 44.0 percent of commercial farms operated by full owners or part owners.

If owner operation is accepted as a criterion of financial status or well-being, there would be little difference among the part-time and commercial farms except in the South. It appears, however, that other factors should also be taken into account, such as value of farm, off-farm income, and type of operation. Part-time farms by definition, of course, have more off-farm income than do the commercial farms. In addition, the part-time farms have been found to be of higher value per farm and per acre, and except in the Central Region or Corn Belt, part-time farms generally have larger investments in livestock or, as in the Western Region, in specialties like fruits or nuts. Thus, although the percentage of ownership, except in the South, is about as high among commercial Class V operators as among the part-time groups, other factors suggest that financial status between the two groups is considerably different. In the South, however, the low percentage of ownership among the commercial farms, and the high percentage of crop-share tenancy in a situation of predominantly field-crop type of farming, suggest considerable insecurity and lack of financial reserves among the commercial farm-operator families.

Table 35.—CLASS V FARMS (PART-TIME AND COMMERCIAL), BY TENURE OF OPERATOR, FOR THE UNITED STATES AND REGIONS: 1954

Tenure of operator	Percent of operators																	
	United States			Eastern Region			Southern Region			Central Region			Great Plains Region			Western Region		
	All farms	Part-time	Commercial	All farms	Part-time	Commercial	All farms	Part-time	Commercial	All farms	Part-time	Commercial	All farms	Part-time	Commercial	All farms	Part-time	Commercial
All farms.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Full owners.....	53.7	64.7	48.9	65.5	72.9	62.1	35.5	50.4	31.6	74.2	74.2	74.3	48.9	51.4	47.8	74.4	80.0	68.0
Part owners.....	15.8	17.3	15.1	14.5	14.1	14.7	13.8	18.9	12.4	15.2	15.5	15.0	23.7	24.9	23.2	16.9	13.1	21.2
Managers.....	.2	.2	.1	.1	.3		.2	.4	.1				.4	.4	.4	.2	.1	.4
Tenants.....	30.4	17.8	35.9	20.0	12.7	23.2	50.5	30.3	55.9	10.6	10.4	10.7	27.0	23.4	28.7	8.5	6.8	10.4
Crop-share tenants and crop- pers.....	23.4	10.9	28.9	15.3	6.9	19.1	44.0	25.9	49.6	3.6	3.8	3.4	13.2	7.6	15.7	4.0	2.9	5.3
Cash tenants.....	2.4	2.6	2.3	1.4	2.2	1.0	2.6	1.8	2.8	2.1	2.2	2.1	3.8	6.3	2.6	1.7	1.5	1.9
Share-cash tenants.....	1.6	1.5	1.7	.1	.3		.6	.2	.8	1.9	1.7	1.9	6.2	5.8	6.4	.9	.1	1.9
Livestock share tenant.....	.9	.6	1.0	1.5	.6	1.9	.4		.5	1.0	1.1	1.0	1.6	.9	1.8		.1	
Other and unspecified.....	2.1	2.2	2.1	1.7	2.8	1.3	2.3	2.4	2.1	2.0	1.6	2.2	2.3	2.7	2.1	1.8	2.2	1.4
White operator.....	82.3	(NA)	(NA)	93.3	(NA)	(NA)	60.5	(NA)	(NA)	99.6	(NA)	(NA)	97.0	(NA)	(NA)	98.4	(NA)	(NA)
Colored operator.....	17.7	(NA)	(NA)	6.7	(NA)	(NA)	39.5	(NA)	(NA)	.4	(NA)	(NA)	3.0	(NA)	(NA)	1.6	(NA)	(NA)

NA Not available.

FARMERS AND FARM PRODUCTION

Tables 36 and 37 supplement the description of Table 35 by providing a direct comparison of relationships (1) with part-time and commercial farms as a percentage of all farms with similar tenure in the same region (Table 36), and (2) with part-time and commercial farms as a percentage of the United States total (Table 37).

Table 36.—CLASS V FARMS (PART-TIME AND COMMERCIAL), BY TENURE OF OPERATOR, BY TYPE OF FARM, FOR THE UNITED STATES AND REGIONS: 1954

Tenure of operator and type of farm	Percent distribution within each tenure					
	United States	East-ern Region	South-ern Region	Central Region	Great Plains Region	West-ern Region
Total all farms.....	100.0	100.0	100.0	100.0	100.0	100.0
Part-time farms.....	30.3	30.9	21.0	39.6	31.1	53.5
Commercial farms.....	69.6	69.1	79.0	60.4	68.9	46.5
Full owners.....	100.0	100.0	100.0	100.0	100.0	100.0
Part-time farms.....	36.6	34.5	29.8	39.6	32.7	57.5
Commercial farms.....	63.4	65.5	70.2	60.5	67.3	42.5
Part owners.....	100.0	100.0	100.0	100.0	100.0	100.0
Part-time farms.....	33.3	30.1	28.8	40.4	32.7	41.6
Commercial farms.....	66.6	69.9	71.2	59.6	67.3	58.4
Managers.....	100.0	100.0	100.0	100.0	100.0	100.0
Part-time farms.....	44.8	100.0	51.9	—	28.6	20.0
Commercial farms.....	55.2	—	48.1	—	71.4	80.0
Tenants.....	100.0	100.0	100.0	100.0	100.0	100.0
Part-time farms.....	17.8	19.7	12.6	38.8	27.0	42.9
Commercial farms.....	82.2	80.3	87.4	61.2	73.0	57.1
Cash.....	100.0	100.0	100.0	100.0	100.0	100.0
Part-time farms.....	32.9	50.0	14.9	40.0	52.0	48.7
Commercial farms.....	67.1	50.0	85.1	60.0	48.0	51.3
Share-cash.....	100.0	100.0	100.0	100.0	100.0	100.0
Part-time farms.....	27.2	100.0	5.0	37.1	29.1	4.8
Commercial farms.....	72.8	—	95.0	62.9	70.9	95.2
Crop-share tenants and crop- pers.....	100.0	100.0	100.0	100.0	100.0	100.0
Part-time farms.....	14.2	14.0	12.2	41.8	18.1	38.7
Commercial farms.....	85.8	86.0	87.8	58.2	81.9	61.3
Livestock share.....	100.0	100.0	100.0	100.0	100.0	100.0
Part-time farms.....	20.4	11.8	—	41.7	18.3	100.0
Commercial farms.....	79.6	88.2	100.0	58.3	81.7	—
Other and unspecified.....	100.0	100.0	100.0	100.0	100.0	100.0
Part-time farms.....	32.3	49.5	22.2	32.3	36.9	64.3
Commercial farms.....	67.7	50.5	77.8	67.7	63.1	35.7

Operators working off farm, by age of operator.—Table 38 shows that in each region the number of days the operator works off farm is closely correlated with the age of the operator. It also shows that whether or not he works off farm at all is considerably influenced by his age. Among all farms, for instance, the percentage of farmers working off farm decreases steadily from the 35-to-44 age group to the group 65 years and over; from a peak of 56.9 percent of all farm operators 35 to 44 years of age working off farm to 18.6 percent working off farm in the 65-year-and-over group.

Generally, although almost as large a percentage of the operators under 25 years of age work off farm as among those 35 to 44 years of age, the younger operators do not work off the farm as many days. Table 38 shows that 92.8 percent of the part-time operators under 25, for example, worked off farm, compared with 94.4 percent of those 35 to 44 years of age; yet only 67.4 percent of those under 25 years worked 100 days or more off farm, whereas 87.7 percent of those 35 to 44 years old did so. Only 42.0 percent of the younger age group worked 200 days or more off farm while 64.6 percent of those 35 to 44 years old worked off farm that much. A similar tendency is found among the commercial farms, where 33.7 percent under 25 worked off farm as compared with 31.0 percent of those 35 to 44 years of age. More of the younger ages worked off farm 1 to 49 days and relatively more of those over 25 worked 50 days or more off farm.

In almost all regions the operators of middle age, that is, from

Table 37.—CLASS V FARMS BY TENURE, BY TYPE OF FARM, FOR THE UNITED STATES AND REGIONS: 1954

Tenure of operator and type of farm	Farms in region as percent of United States total					
	United States	East-ern Region	South-ern Region	Central Region	Great Plains Region	West-ern Region
Total all farms.....	100.0	15.2	40.7	24.4	13.7	6.0
Part-time farms.....	100.0	15.5	28.2	31.8	14.0	10.5
Commercial farms.....	100.0	15.1	46.2	21.2	13.5	4.0
Full owners.....	100.0	18.5	27.0	33.8	12.5	8.3
Part-time farms.....	100.0	17.4	21.9	36.5	11.1	13.0
Commercial farms.....	100.0	19.1	29.9	32.2	13.2	5.6
Part owners.....	100.0	13.9	35.5	23.5	20.6	6.4
Part-time farms.....	100.0	12.6	30.7	28.5	20.2	8.0
Commercial farms.....	100.0	14.6	38.0	21.0	20.8	5.6
Managers.....	100.0	8.6	46.6	—	36.2	8.6
Part-time farms.....	100.0	19.2	53.8	—	23.1	3.8
Commercial farms.....	100.0	—	40.6	—	46.9	12.5
Tenants.....	100.0	10.0	67.7	8.5	12.2	1.7
Part-time farms.....	100.0	11.1	47.9	18.5	18.4	4.0
Commercial farms.....	100.0	9.7	72.0	6.3	10.8	1.2
Cash.....	100.0	8.7	43.7	21.8	21.5	4.2
Part-time farms.....	100.0	13.2	19.9	26.5	34.1	6.3
Commercial farms.....	100.0	6.5	55.4	19.4	15.4	3.2
Share-cash.....	100.0	8	15.9	27.9	52.1	3.3
Part-time farms.....	100.0	2.9	2.9	38.0	55.6	—
Commercial farms.....	100.0	—	20.8	24.1	50.8	4.4
Crop-share tenants and crop- pers.....	100.0	9.9	77.6	3.7	7.7	1.0
Part-time farms.....	100.0	9.8	66.6	11.0	9.8	2.8
Commercial farms.....	100.0	10.0	79.4	2.5	7.3	—
Livestock share.....	100.0	26.2	18.5	29.6	25.3	—
Part-time farms.....	100.0	15.2	—	60.6	22.7	1.5
Commercial farms.....	100.0	20.1	23.3	21.7	28.0	—
Other and unspecified.....	100.0	12.4	44.5	22.9	15.0	5.2
Part-time farms.....	100.0	19.1	30.5	22.9	17.2	10.3
Commercial farms.....	100.0	9.3	51.1	22.9	14.0	2.7

25 to 54 years who worked off farm at all, did so more days than those who were under 25 years or those 55 years old and over. Also both the percentage working off farm, and the days worked by those so working, declined sharply in the 55-to-64 and in the 65-years-and-over age groups.

Thus, these small-scale farms—particularly the part-time farms—generally did not absorb the full energies of the operators in the middle-age brackets. As the operators grew older and off-farm earnings declined, the farms served more as a basis for subsistence. However, the large percentage working off farm in all age groups under 65 possibly suggests that the extent of off-farm work and earnings is determined considerably by the opportunities that are available, rather than by the willingness of the operators to do such work.

Farms having specified facilities.—In the case of each of the facilities a larger percentage of the part-time farms than of the commercial farms have the facility throughout each of the major regions (Table 39). Sometimes, as with electricity, the differences are not large and possibly not significant. In most of the other cases, however, the differences are substantial and they indicate a higher level of living for the part-time farmers. These differences appear to be greatest in the South and least in the Western Region.

Summary and conclusion.—Dividing the farms in Economic Class V into part-time and commercial groups reveals noteworthy differences. The part-time farms generally are shown to average higher in value per farm and per acre. A higher percentage of the commercial farms are shown to be predominantly field-crop farms while the part-time farms are more generally livestock, except in the Corn Belt or Central Region where the opposite situation prevails. Part-time farms are somewhat better equipped and apparently have a higher level of living. The work done off farm is correlated with the age of the operator.

PART-TIME FARMING

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Table 38.—CLASS V FARMS (PART-TIME AND COMMERCIAL), BY DAYS OPERATOR WORKED OFF FARM, BY AGE OF OPERATOR, FOR THE UNITED STATES AND REGIONS: 1954

Days of work off farm and age of operator	Percent of operators																	
	United States			Eastern Region			Southern Region			Central Region			Great Plains Region			Western Region		
	All farms	Part-time	Com-mercial	All farms	Part-time	Com-mercial	All farms	Part-time	Com-mercial	All farms	Part-time	Com-mercial	All farms	Part-time	Com-mercial	All farms	Part-time	Com-mercial
Working off farm:																		
All ages.....	43.6	87.1	24.4	41.5	88.7	20.2	38.5	84.8	26.0	49.3	88.8	23.3	44.8	87.2	26.0	56.3	85.6	23.0
Under 25 years.....	50.2	92.8	33.7	48.0	93.3	36.8	41.0	91.7	29.0	75.0	100.0	50.0	54.9	100.0	43.9	78.0	89.1	38.5
25 to 34 years.....	55.6	94.6	32.9	56.3	98.0	29.9	43.2	87.7	30.2	75.3	96.4	46.1	62.7	98.3	31.0	78.9	99.3	46.0
35 to 44 years.....	58.9	94.4	31.0	57.5	95.2	26.0	48.8	89.1	32.7	69.1	97.6	30.1	53.5	98.6	27.3	79.8	95.6	42.4
45 to 54 years.....	48.3	91.9	28.4	50.0	94.6	27.0	37.9	89.1	25.9	59.7	93.2	29.6	54.3	91.2	37.8	62.0	91.8	26.2
55 to 64 years.....	35.7	82.7	20.1	34.1	88.2	15.1	32.1	83.6	21.4	37.2	82.0	20.5	37.6	76.1	22.7	49.9	84.6	15.3
65 years and over.....	18.6	48.6	11.8	16.1	47.1	10.1	18.8	46.4	13.7	19.1	50.1	11.7	19.1	55.4	11.0	21.5	42.2	11.7
Working off farm 1 to 49 days:																		
All ages.....	13.6	4.0	17.8	12.2	4.2	14.9	15.7	4.9	18.6	10.9	3.5	15.8	15.9	3.8	21.4	7.9	3.0	13.5
Under 25 years.....	20.2	7.2	25.2	28.0	10.7	31.6	18.8	8.3	21.5	20.8	8.3	33.3	24.5	-----	30.5	8.5	-----	38.5
25 to 34 years.....	14.2	2.3	21.3	15.9	2.0	24.7	15.1	1.9	19.0	13.1	2.7	27.4	12.1	-----	24.4	10.5	7.1	16.1
35 to 44 years.....	14.1	3.0	21.8	11.0	2.9	17.9	18.1	5.1	23.3	9.6	1.9	20.3	15.0	2.8	22.0	5.6	-----	18.8
45 to 54 years.....	16.4	4.8	21.7	15.9	4.3	21.9	17.0	7.9	19.1	12.8	4.4	20.3	23.7	2.8	33.1	9.7	1.8	19.3
55 to 64 years.....	12.5	6.7	14.7	9.2	4.4	10.9	14.1	3.0	16.4	11.8	4.9	14.3	14.8	9.9	16.6	8.9	8.7	9.1
65 years and over.....	8.4	3.9	9.4	8.9	7.9	9.1	9.0	4.0	10.7	7.4	4.0	8.2	9.0	3.0	10.3	6.0	-----	8.8
Working off farm 50 to 99 days:																		
All ages.....	6.2	5.1	6.6	4.5	4.8	4.3	7.1	6.2	7.3	5.0	3.5	7.5	5.1	6.0	4.7	7.7	6.1	9.5
Under 25 years.....	11.2	18.1	8.5	4.0	-----	5.3	10.3	20.8	7.5	12.5	8.3	16.7	15.7	25.0	13.4	25.4	32.6	-----
25 to 34 years.....	9.0	4.8	11.6	5.6	6.1	5.2	10.2	6.6	11.3	8.9	1.8	18.7	7.3	8.4	6.6	11.4	-----	29.9
35 to 44 years.....	7.0	3.7	9.2	6.6	4.8	8.1	7.7	3.2	9.5	6.1	3.3	9.8	5.4	5.6	5.3	8.5	2.1	23.6
45 to 54 years.....	6.2	5.3	6.7	4.8	4.3	5.1	7.3	9.5	6.8	6.5	3.4	9.2	4.0	2.5	4.7	6.4	6.1	6.9
55 to 64 years.....	5.7	6.6	5.4	4.7	5.9	4.2	5.2	6.0	5.0	6.8	4.9	8.1	6.4	7.1	6.1	9.3	12.4	6.2
65 years and over.....	2.6	3.5	2.4	1.8	2.6	1.0	2.8	2.0	3.0	3.6	4.0	3.5	1.6	6.0	.7	3.0	3.1	2.9
Working off farm 100 days or more:																		
All ages.....	23.8	78.0	-----	24.8	79.7	-----	15.7	73.6	-----	32.5	81.8	-----	23.9	77.3	-----	40.7	76.5	-----
Under 25 years.....	18.8	67.4	-----	16.0	66.7	-----	12.8	62.5	-----	41.7	83.3	-----	14.7	75.0	-----	44.1	56.5	-----
25 to 34 years.....	32.3	87.5	-----	34.9	89.9	-----	17.8	79.2	-----	53.3	91.9	-----	43.3	89.9	-----	57.0	92.2	-----
35 to 44 years.....	35.9	87.7	-----	39.8	87.4	-----	23.1	80.8	-----	53.4	92.4	-----	33.1	90.1	-----	65.7	93.5	-----
45 to 54 years.....	25.7	81.8	-----	29.3	85.9	-----	13.6	71.7	-----	40.5	85.4	-----	26.5	86.0	-----	45.8	83.9	-----
55 to 64 years.....	17.6	70.5	-----	20.3	77.9	-----	12.9	74.5	-----	19.6	72.2	-----	16.5	59.1	-----	31.7	63.5	-----
65 years and over.....	7.6	41.0	-----	5.9	36.6	-----	6.3	40.4	-----	8.0	42.0	-----	8.5	40.4	-----	12.5	39.1	-----
Working off farm 100 to 199 days:																		
All ages.....	6.5	21.2	-----	5.8	18.5	-----	5.3	24.8	-----	8.3	21.0	-----	6.1	19.8	-----	9.5	17.9	-----
Under 25 years.....	7.1	25.4	-----	4.0	16.7	-----	6.8	23.3	-----	4.2	8.3	-----	9.8	50.0	-----	16.9	21.7	-----
25 to 34 years.....	8.3	22.4	-----	8.7	22.4	-----	6.3	28.0	-----	10.5	18.0	-----	11.4	23.6	-----	9.6	15.6	-----
35 to 44 years.....	9.5	23.2	-----	8.8	19.4	-----	7.7	27.0	-----	11.6	92.4	-----	8.6	23.4	-----	18.4	26.2	-----
45 to 54 years.....	6.8	21.8	-----	6.7	19.6	-----	4.5	23.7	-----	10.9	22.9	-----	6.6	21.6	-----	9.0	16.4	-----
55 to 64 years.....	5.4	21.6	-----	5.0	19.1	-----	3.7	21.2	-----	7.4	27.3	-----	4.4	15.6	-----	9.7	19.5	-----
65 years and over.....	1.9	10.4	-----	1.3	7.9	-----	2.3	14.8	-----	2.8	14.8	-----	1.1	6.0	-----	.4	1.2	-----
Working off farm 200 days and over:																		
All ages.....	17.4	56.8	-----	19.1	61.2	-----	10.4	48.8	-----	24.1	60.7	-----	17.8	57.6	-----	31.2	58.6	-----
Under 25 years.....	11.7	42.0	-----	12.0	50.0	-----	6.0	29.2	-----	37.5	75.0	-----	4.9	25.0	-----	27.1	34.8	-----
25 to 34 years.....	24.1	65.1	-----	26.2	67.3	-----	11.5	51.1	-----	42.9	73.9	-----	31.9	66.2	-----	47.4	76.6	-----
35 to 44 years.....	26.4	64.6	-----	31.0	68.0	-----	15.4	53.8	-----	41.9	72.4	-----	24.5	66.7	-----	47.3	67.4	-----
45 to 54 years.....	18.8	60.1	-----	22.6	66.3	-----	9.1	48.0	-----	29.6	62.4	-----	19.9	64.4	-----	36.8	67.5	-----
55 to 64 years.....	12.2	48.9	-----	15.3	58.8	-----	9.2	53.3	-----	12.2	44.9	-----	12.2	43.5	-----	21.9	44.0	-----
65 years and over.....	5.7	30.6	-----	4.7	28.8	-----	4.0	25.6	-----	5.2	27.2	-----	7.4	40.5	-----	12.1	37.9	-----

Table 39.—CLASS V FARMS (PART-TIME AND COMMERCIAL), PERCENT REPORTING SPECIFIED FACILITIES, FOR THE UNITED STATES AND REGIONS: 1954

Specified facility and type of farm	United States	Eastern Region	Southern Region	Central Region	Great Plains Region	Western Region
Farms reporting electricity:						
All farms.....	93.0	92.6	89.4	94.2	91.0	91.2
Part-time.....	94.1	95.3	92.5	96.7	92.1	91.4
Commercial.....	90.0	91.4	88.2	92.5	90.6	91.0
Farms reporting telephone:						
All farms.....	48.8	43.2	13.2	62.0	43.0	58.6
Part-time.....	52.3	61.0	28.1	65.3	50.3	67.8
Commercial.....	28.7	35.2	9.2	55.7	40.2	47.9
Farms reporting piped running water:						
All farms.....	58.8	50.4	32.1	54.6	52.7	81.7
Part-time.....	65.5	72.6	54.2	65.8	63.1	87.1
Commercial.....	37.7	40.4	26.2	47.3	48.1	75.4
Farms reporting television set:						
All farms.....	25.9	35.4	15.5	38.4	22.4	30.5
Part-time.....	41.3	53.2	28.5	53.1	30.7	36.9
Commercial.....	19.2	27.4	12.0	28.7	18.6	23.4
Farms reporting home freezer:						
All farms.....	23.4	25.7	15.2	31.8	26.2	32.6
Part-time.....	34.7	39.9	27.2	40.3	31.3	34.3
Commercial.....	18.5	19.3	12.0	26.1	23.9	30.6
Farms reporting automobile:						
All farms.....	63.1	65.4	46.6	79.9	73.4	77.6
Part-time.....	75.4	79.5	69.3	84.2	75.7	82.5
Commercial.....	57.8	59.0	43.1	77.1	72.3	72.0

F. OFF-FARM INCOME OF FARM-OPERATOR FAMILIES

The data in this section are from a special survey of farm family income and expenditures made by the Agricultural Marketing Service, U. S. Department of Agriculture with the cooperation of the Bureau of the Census. (See *Farmers' Expenditures in 1955*, Volume III, Part 11, 1954 Census of Agriculture.) Information was gathered from a national sample of farm-operator families on sources of income and family expenditures. This sample is deemed reliable for purposes of inferences concerning distribution of off-farm income for the United States by economic class of farm. The data included in this section are reprinted from the survey report and provide the most detailed information available on off-farm earnings and other off-farm income of farm people.

Aggregate off-farm income.—The aggregate off-farm income of farm-operator families of \$8.0 billion for 1955, shown in Table 40, compares with \$11.3 billion realized net money and nonmoney income from agriculture, as estimated by the Agricultural Marketing Service.¹⁰ Thus, off-farm income of farm-operator families is an estimated 41 percent of the total realized net money and nonmoney income of farm-operator families.

Total off-farm income of \$1.0 billion derived from farm sources such as work on other farms, farm customwork, farm trucking and hauling, rental of farm real estate, etc., if added to realized net income from farming, would result in a ratio of about 64 percent from agriculture and 36 percent from nonagricultural

sources. In other words, according to these estimates, more than 40 percent of the aggregate net income of farm-operator families is derived from sources off their farm and a little more than one-third is from sources outside of agriculture.

The largest or most important source of off-farm income is income received by the operator from working for others for wages or salary with nonfarm work of \$3.2 billion constituting more than 93 percent of the \$3.4 billion total from this source. Income received by wife—which includes income received from working for others for wages or salary as well as from other sources—is about 97 percent from nonfarm sources. Likewise, the income received by other members of the family is about 89 percent from nonfarm sources.

The largest part of the income from off-farm business or self-employment off the farm is from nonfarm business. Of the total of \$1.3 billion from off-farm business or nonfarm self-employment, about 79 percent is from nonfarm business. Farm customwork comprises about 16 percent and farm trucking and hauling only 5 percent of this total.

The only item of off-farm income in which agricultural sources are more important than nonagricultural sources is the income from rental of real estate. In this case, income from rental of farm real estate is 72 percent of the total income from rental of real estate, or more than two and one-half times the total from rental of nonfarm real estate.

Table 40.—OFF-FARM INCOME OF FARM-OPERATOR FAMILIES BY SOURCE OF INCOME, BY CLASS OF FARM, AGGREGATE FOR THE UNITED STATES: 1955

Source of income	United States (000 dollars)	Group I			Group II				Group III			
		Total (000 dollars)	Class I (000 dollars)	Class II (000 dollars)	Total (000 dollars)	Class III (000 dollars)	Class IV (000 dollars)	Class V (000 dollars)	Total (000 dollars)	Class VI (000 dollars)	Part-time (000 dollars)	Residential (000 dollars)
Total off-farm income of farm-operator families:												
Total from all sources.....	8,006,472	1,009,530	392,575	616,956	2,876,423	835,290	1,008,824	1,032,308	4,120,518	300,731	1,683,006	2,046,781
Total farm income (except this farm).....	1,066,728	343,918	170,731	173,188	447,077	179,115	151,107	116,856	275,733	64,056	99,247	112,430
Total nonfarm income.....	6,939,744	665,612	221,844	443,768	2,429,347	656,175	857,717	915,454	3,844,785	326,676	1,583,759	1,934,351
Income received by farm operator:												
Income from off-farm business or self-employment.....	1,267,414	243,524	121,617	121,907	462,309	122,460	175,042	164,807	561,581	43,675	261,682	256,224
Farm customwork.....	205,521	81,366	46,415	34,951	110,074	48,268	31,483	30,323	14,081	3,557	7,249	3,275
Farm trucking and hauling.....	66,485	7,819	7,819	7,819	29,258	5,008	13,523	10,727	28,408	2,852	6,141	19,415
Nonfarm business.....	996,408	154,339	75,202	79,137	322,977	69,185	130,036	123,756	519,092	37,267	248,292	233,594
Income from working for others for wages or salary.....	3,423,210	236,129	95,006	141,122	1,043,567	202,809	360,036	480,722	2,143,514	82,325	922,179	1,139,009
Farm work.....	229,593	91,972	61,034	30,938	68,876	20,155	27,396	21,326	68,745	12,778	27,029	28,938
Nonfarm work.....	3,193,617	144,157	33,973	110,184	974,691	182,655	332,640	459,396	2,074,769	69,547	895,150	1,110,072
Income from rental of farm real estate.....	455,880	126,153	55,708	70,445	200,064	90,020	63,296	45,848	129,663	32,070	49,160	48,433
Income from rental of nonfarm real estate.....	173,014	24,460	9,572	14,889	73,279	32,420	22,395	18,465	75,274	5,120	44,323	25,831
Income from roomers and boarders.....	53,183	4,205	1,200	3,005	20,032	7,443	6,288	6,300	28,946	2,336	13,278	13,331
Income from interest, dividends, trust funds, or royalties.....	450,052	150,927	57,538	93,388	212,789	114,943	68,839	29,007	86,336	5,330	17,025	63,981
Income from veteran's pensions and compensation, veteran's school allotment, serviceman's family allotment.....	189,832	11,749	1,675	10,074	77,955	25,212	22,596	30,148	100,128	26,378	27,908	45,843
Income from retirement pay, unemployment compensation, old age pension, annuities, alimony, regular contributions or welfare received.....	325,559	8,766	1,286	7,480	54,420	8,270	15,410	30,740	262,372	43,704	77,956	140,713
Any other personal income.....	45,480	6,967	2,408	4,559	25,499	5,948	12,437	7,114	13,015	3,118	3,795	6,102
Income received by wife.....	828,916	83,150	23,287	59,872	350,153	93,715	154,278	102,160	395,603	62,909	173,672	159,023
From farm sources.....	22,401	3,145	150	2,994	11,731	3,301	6,952	1,389	7,526	4,996	830	1,699
From nonfarm sources.....	806,514	80,015	23,137	56,877	338,422	90,325	147,326	100,771	388,078	57,912	172,842	157,324
Income received by other family members.....	793,932	113,490	23,277	90,213	356,355	131,150	108,207	116,998	324,087	83,766	92,028	148,293
From farm sources.....	87,848	33,463	7,424	26,039	27,073	11,375	8,457	7,241	27,311	7,802	8,837	10,671
From nonfarm sources.....	706,084	80,027	15,853	64,174	329,282	119,775	99,750	109,757	296,776	75,964	83,191	137,622

¹⁰ Data published periodically in *Farm Income Situation* (AMS). Includes Government payments. In 1955, according to AMS estimates, gross farm income of \$32.9 billion included \$21.6 billion production expenses and \$11.3 billion realized net income from agriculture.

Distribution of farm operators, sales of farm products, and off-farm income by class of farm.—Table 41 provides a basis for comparing the percentage distribution of all farm operators and of market sales of all farm products with the percentage distribution of off-farm income by economic class. The various sources of income in each class are expressed as a percentage of aggregate income received by all farmers from each source.

The farm-operator families on part-time (Class VII) and residential (Class VIII) farms, constituting 30.4 percent (12.0 percent plus 18.4 percent) of the total number of farm-operator families, receive only 1.8 percent of the total receipts from market sales of farm products and 46.6 percent (21.0 percent plus 25.6 percent) of the total off-farm income. Part-time and residential farm families, in other words, who have relatively small receipts from farming have higher-than-average off-farm income. Income from nonfarm work is largely concentrated in the part-time and residential groups. The farm-operator families on part-time and residential farms received more than three-fifths of the total income from non-farm work (28.0 percent plus 34.8 percent).

Farm-operator families on Class II to Class VI farms, constituting two-thirds (67.0 percent) of the total number of farm families, receive slightly less than half (48.5 percent) of the total off-farm income.

The distribution of nonfarm income by class of farm does not show as great extremes or as wide a range among the commercial

farm operators (Classes I to VI) as does the distribution of receipts from sales of farm products. Thus, farm operators in Economic Classes I and II constitute 12.2 percent of the total number of farm-operator families and receive 58.2 percent of the receipts from sale of farm products or about four and one-half the mean or average for all farms. But they receive only 12.6 percent of the aggregate off-farm income. At the other end of the class scale, Class V farm operators have receipts from sales of farm products, about one-third the average for all farms and receipts from off-farm income about three-fourths that for all farm-operator families. Class VI farm operators are 9.7 percent of the total (Class VI includes farm operators who work off the farm less than 100 days or whose off-farm income is less than the value of farm sales), yet they have receipts from sales of farm products constituting only 1.4 percent of the aggregate for all farms, which is about one-seventh the level for all farms, while their receipts of off-farm income, constituting 4.9 percent of the aggregate, are at a level about half as high as that of all farms. Thus, the distribution of off-farm income is such as to reduce the relative dispersion of aggregate income from all sources in comparison with income received from farm sources alone. The off-farm income of part-time (Class VII) and residential (Class VIII) farm operators is so high, in fact, as to form the basis for an inference that the "low-income problem" is largely concentrated in the lower class commercial farm in Classes IV, V, and VI, and particularly in Class VI.

Table 41.—PERCENT DISTRIBUTION OF OFF-FARM INCOME OF FARM-OPERATOR FAMILIES FROM EACH SOURCE OF INCOME, BY CLASS OF FARM, FOR THE UNITED STATES: 1955

Source of income	United States	Group I			Group II				Group III			
		Total	Class I	Class II	Total	Class III	Class IV	Class V	Total	Class VI	Part-time	Residential
Total off-farm income of farm-operator families:												
Total from all sources.....	100.0	12.6	4.9	7.7	35.9	10.4	12.6	12.9	51.5	4.9	21.0	25.6
Total farm income (except this farm).....	100.0	32.2	16.0	16.2	41.9	16.8	14.2	11.0	25.8	6.0	9.3	10.5
Total nonfarm income.....	100.0	9.6	3.2	6.4	35.0	9.5	12.4	13.2	55.4	4.7	22.8	27.9
Income received by farm operator:												
Income from off-farm business or self-employment.....	100.0	19.2	9.6	9.6	36.5	9.7	13.8	13.0	44.3	3.4	20.6	20.2
Farm customwork.....	100.0	39.6	22.6	17.0	53.6	23.5	15.3	14.8	6.9	1.7	3.5	1.6
Farm trucking and hauling.....	100.0	11.9	-----	11.9	44.7	7.6	20.7	16.4	43.4	4.4	9.4	29.6
Nonfarm business.....	100.0	15.5	7.5	7.9	32.4	6.9	13.1	12.4	52.1	3.7	24.9	23.4
Income from working for others for wages or salary.....	100.0	6.9	2.8	4.1	30.5	5.9	10.5	14.0	62.6	2.4	26.9	33.3
Farm work.....	100.0	40.1	26.6	13.5	30.0	8.8	11.9	9.3	29.9	5.6	11.8	12.6
Nonfarm work.....	100.0	4.5	1.1	3.5	30.5	5.7	10.4	14.4	65.0	2.2	28.0	34.8
Income from rental of farm real estate.....	100.0	27.7	12.2	15.5	43.9	19.9	13.9	10.1	28.4	7.0	10.8	10.6
Income from rental of nonfarm real estate.....	100.0	14.1	5.5	8.6	42.4	18.7	12.9	10.7	43.5	3.0	25.6	14.9
Income from roomers and boarders.....	100.0	7.9	2.3	5.7	37.7	14.0	11.8	11.8	54.4	4.4	25.0	25.1
Income from interest, dividends, trust funds, or royalties.....	100.0	33.5	12.8	20.8	47.3	25.5	15.3	6.4	19.2	1.2	3.8	14.2
Income from veteran's pensions and compensation, veteran's school allotment, serviceman's family allotment.....	100.0	6.2	.9	5.3	41.1	13.3	11.9	15.9	52.7	13.9	14.7	24.1
Income from retirement pay, unemployment compensation, old age pension, annuities, alimony, regular contributions or welfare received.....	100.0	2.7	.4	2.3	16.7	2.5	4.7	9.4	80.6	13.4	23.9	43.2
Any other personal income.....	100.0	15.3	5.3	10.0	56.1	13.1	27.3	15.6	28.6	6.9	8.3	13.4
Income received by wife.....	100.0	10.0	2.8	7.2	42.2	11.3	18.6	12.3	47.7	7.6	21.0	19.2
From farm sources.....	100.0	14.0	.7	13.4	52.4	15.1	31.0	6.2	33.6	22.3	3.7	7.6
From nonfarm sources.....	100.0	9.9	2.9	7.1	42.0	11.2	18.3	12.5	48.1	7.2	21.4	19.5
Income received by other family members.....	100.0	14.3	2.9	11.4	44.9	16.5	13.6	14.7	40.8	10.6	11.6	18.7
From farm sources.....	100.0	38.1	8.5	29.6	30.8	12.9	9.6	8.2	31.1	8.9	10.1	12.1
From nonfarm sources.....	100.0	11.3	2.2	9.1	46.6	17.0	14.1	15.5	42.0	10.8	11.8	19.5

Average off-farm income by source of income by class of farm.—Table 42, expressing off-farm income as an average per farm, indicates a sharp distinction between part-time (Class VII) and residential (Class VIII) farm operators on the one hand and Classes II–VI on the other; with the average off-farm income of \$2,730 for Class VII and \$2,382 for Class VIII compared with a narrow range of \$1,198 for Class II, \$1,161 for Class III, \$1,228 for Class IV, and a wider range of \$1,668 for Class V to \$834 for Class VI. Class I farm operators average particularly high in income received from farm custom work, farm work, nonfarm business, rental of farm real estate, and interest, dividends, trust funds, or royalties. Part-time and residential farm operators report that nonfarm work for others for wages or salary is their major source of off-farm income. Thus, Class I farm-operator families derive the major part of their off-farm income from investments in machinery or custom equipment, in land, real estate stocks, etc., while the high income of part-time and residential farm operators is largely from wages or salary.

Income received from working for others, for wages or salary in nonfarm work, averages about the same for Classes II and III, increases for Classes IV and V, and reaches a peak for part-time and residential farms; thus suggesting that the amount of money earned in nonfarm work by the operator is in inverse proportion to the labor required for farm operation. The income earned by the wife and by other family members does not vary in the same way from class to class and there is no apparent consistent relationship between size of farm operations and average off-farm earnings of

the wife and other members of the family. The most notable exception is the high average income of the wife in the part-time (Class VII) farm-operator group.

The differences by economic class in average income from wages or salary from nonfarm work by the operator—as compared with income of wife and other family members from nonfarm sources—suggests that nonfarm earnings of the farm operator are limited by the time he has available for nonfarm work as well as by the availability of off-farm work. This suggests that the growing mechanization of “medium-size” farms, in Classes III, IV, and V especially, and the consequent reduction in the farm labor requirements of these farms, will lead to increased off-farm employment of the farm operator and to more nonfarm family income. The low level of mechanization in Class VI, part-time (Class VII), and residential (Class VIII) farms—in spite of the increases previously noted—leads to the inference that off-farm earnings of the farm operator in these classes will increase to a lesser degree, as a general rule, as the result of further advances in mechanization. The hypothesis might be suggested that increases in mechanization among the Class III, IV, and V farms will result in alleviating part of their income problem by enhancement of off-farm earning ability. Among farm operators in Classes VI, VII, and VIII further increases in mechanization will have relatively little effect in this regard and the low-income problem of these operators, who constitute 40 percent of the total number of all operators, will be alleviated primarily through increased off-farm income with reductions in the farm labor requirement being dependent more on decline in the amount of farm enterprises undertaken.

Table 42.—AVERAGE OFF-FARM INCOME OF FARM-OPERATOR FAMILIES BY SOURCE OF INCOME, BY CLASS OF FARM, FOR THE UNITED STATES: 1955

Source of income	United States (dollars)	Group I			Group II				Group III			
		Total (dollars)	Class I (dollars)	Class II (dollars)	Total (dollars)	Class III (dollars)	Class IV (dollars)	Class V (dollars)	Total (dollars)	Class VI (dollars)	Part-time (dollars)	Residential (dollars)
Average off-farm income of farm-operator families:												
Total from all sources.....	1,682	1,538	2,779	1,198	1,332	1,161	1,228	1,668	2,119	834	2,730	2,382
Total farm income (except this farm).....	224	524	1,209	336	207	249	184	189	142	137	161	131
Total nonfarm income.....	1,458	1,014	1,571	862	1,125	912	1,044	1,479	1,977	698	2,569	2,251
Income received by farm operator:												
Income from off-farm business or self-employment.....	266	371	861	237	214	170	213	266	289	93	424	298
Farm custom work.....	43	124	329	68	51	67	38	49	7	8	12	4
Farm trucking and hauling.....	14	12	15	14	7	7	16	17	15	6	10	23
Nonfarm business.....	209	235	532	154	150	96	158	200	267	80	403	272
Income from working for others for wages or salary.....	719	360	673	274	483	282	438	777	1,102	176	1,496	1,325
Farm work.....	48	140	432	60	32	28	33	34	35	27	44	34
Nonfarm work.....	671	220	241	214	451	254	405	742	1,067	148	1,452	1,292
Income from rental of farm real estate.....	96	192	394	137	93	126	77	74	67	68	80	56
Income from rental of nonfarm real estate.....	36	37	68	29	34	45	27	30	39	11	72	30
Income from roomers and boarders.....	11	6	8	6	9	10	8	10	15	5	22	16
Income from interest, dividends, trust funds, or royalties.....	95	230	407	181	99	160	84	47	44	11	28	74
Income from veteran's pensions and compensation, veteran's school allotment, serviceman's family allotment.....	40	18	12	20	36	35	28	49	51	56	45	53
Income from retirement pay, unemployment compensation, old age pension, annuities, alimony, regular contributions or welfare received.....	68	13	9	15	25	11	19	50	135	93	126	164
Any other personal income.....	10	11	17	9	12	8	15	11	7	7	6	7
Income received by wife.....	174	127	165	116	162	130	188	165	203	134	282	185
From farm sources.....	5	5	1	6	5	5	8	2	4	11	1	2
From nonfarm sources.....	169	122	164	110	157	126	179	163	200	124	280	183
Income received by other family members.....	167	173	165	175	165	182	132	189	167	179	149	173
From farm sources.....	18	51	53	51	13	16	10	12	14	17	14	12
From nonfarm sources.....	148	122	112	125	152	167	121	177	153	162	135	160

Distribution of sources of off-farm income by class of farm.—Table 43 presents each source of off-farm income as a percentage of the total off-farm income of each class or group. Thus, for all farms in the United States, nonfarm income constitutes 86.7 percent of total off-farm income while 13.3 percent is from farm sources other than the farm of the operator. The most important sources of off-farm income for all farms are seen to be nonfarm work for others for wages or salary, nonfarm business, income received by wife from nonfarm sources, and income received by other family members from nonfarm sources.

By classes and by groups the percentage of off-farm income received from farm sources generally declines from Class I to Class V and from Group I to Group III. Thus, in Group I (Classes I and II) 34.1 percent of off-farm income is from farm sources while in Group III (Classes VI, VII, and VIII) only 6.7 percent is from farm sources; this indicates relatively greater reliance, by the higher class commercial farm operators on farm customwork, farm trucking and hauling, and other farm investments. Class I farm operators are also unique in that they have almost twice as much income from farm work as from nonfarm work; whereas, Class II farm operators have more than three times as much from nonfarm work; and the proportion from farm work declines markedly for other classes from Class III to Class VIII farm operators.

The farm ownership status of Classes I, II, and III is clearly indicated in that the percent of off-farm income received from rental of farm real estate of 14.2 percent, 11.4 percent, and 10.9 percent, respectively, is considerably higher than 6.3 percent and 4.4 percent for Class IV and Class V and the 3.1 percent for Classes VI, VII, and VIII (Group III). A much narrower range of income is indicated in returns from rental of nonfarm real estate.

There is basis for the inference that operators of large commercial farms on the average do not have as large investment in property outside of agriculture as they do in farm resources outside their farm. This is contrary to a belief that appears to be held by many people. The data in Table 43 show that on the average the off-farm property of the large-scale operators is largely concentrated in agriculture. Thus, Class I farm operators, with 14.2 percent of their off-farm income from rental of farm real estate and only 2.4 percent from rental of nonfarm real estate are shown to have considerably larger investments in rental property in agriculture. In addition, although 19.2 percent of Class I off-farm income is from nonfarm business and another 8.7 percent from nonfarm work, a total of 27.3 percent is from farm work such as farm customwork (11.8 percent) and from work for others for wages or salary (15.5 percent). These percentages, when compared with those for farm operators in other classes, illustrate that the investments of the large-scale operators are more largely concentrated in agriculture than are those of operators of smaller farms.

Classes I, II, and III farm operators, however, are seen to have relatively larger percentages of income from interest, dividends, trust funds, or royalties, than is the case for the operators of smaller-scale farms. This merely points to the fact that operator families in Classes I, II, and III have larger equities than other groups.

Operators of Class VI farms are unique in having a decidedly higher-than-average percentage of income from retirement pay, old-age pensions, annuities, unemployment pay, etc. One may infer from this that these operators are older than those in other groups and not as well-to-do.

Table 43.—PERCENT DISTRIBUTION OF OFF-FARM INCOME OF FARM-OPERATOR FAMILIES BY SOURCE OF INCOME, BY CLASS OF FARM, FOR THE UNITED STATES: 1955

Source of income	United States	Group I			Group II				Group III			
		Total	Class I	Class II	Total	Class III	Class IV	Class V	Total	Class VI	Part-time	Residential
Total off-farm income of farm-operator families:												
Total from all sources.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total farm income (except this farm).....	13.3	34.1	43.5	28.1	15.5	21.4	15.0	11.3	6.7	16.4	5.9	5.5
Total nonfarm income.....	86.7	65.9	56.5	71.9	84.5	78.6	85.0	88.7	93.3	83.6	94.1	94.5
Income received by farm operator:												
Income from off-farm business or self-employment.....	15.8	24.1	31.0	19.8	16.1	14.7	17.4	16.0	13.6	11.2	15.5	12.5
Farm customwork.....	2.6	8.1	11.8	5.7	3.8	5.8	3.1	2.9	.3	.9	.4	.2
Farm trucking and hauling.....	.8	.8	1.3	1.0	.6	.6	1.3	1.0	.7	.7	.4	.9
Nonfarm business.....	12.4	15.3	19.2	12.8	11.2	8.3	12.9	12.0	12.6	9.5	14.8	11.4
Income from working for others for wages or salary.....	42.8	23.4	24.2	22.9	36.3	24.3	35.7	46.6	52.0	21.1	54.8	55.6
Farm work.....	2.9	9.1	15.5	5.0	2.4	2.4	2.7	2.1	1.7	3.3	1.6	1.4
Nonfarm work.....	39.9	14.3	8.7	17.9	33.9	21.9	33.0	44.5	50.4	17.8	53.2	54.2
Income from rental of farm real estate.....	5.7	12.5	14.2	11.4	7.0	10.9	6.3	4.4	3.1	8.2	2.9	2.4
Income from rental of nonfarm real estate.....	2.2	2.4	2.4	2.4	2.5	3.9	2.2	1.8	1.8	1.3	2.6	1.3
Income from roomers and boarders.....	.7	.4	.3	.5	.7	.9	.6	.6	.7	.6	.8	.7
Income from interest, dividends, trust funds, or royalties.....	5.6	15.0	14.7	15.1	7.4	13.8	6.8	2.8	2.1	1.4	1.0	3.1
Income from veteran's pensions and compensation, veteran's school allotment, serviceman's family allotment.....	2.4	1.2	.4	1.6	2.7	3.0	2.2	2.9	2.4	6.8	1.7	2.2
Income from retirement pay, unemployment compensation, old age pension, annuities, alimony, regular contributions or welfare received.....	4.1	.9	.3	1.2	1.9	1.0	1.5	3.0	6.4	11.2	4.6	6.9
Any other personal income.....	.6	.7	.6	.7	.9	.7	1.2	.7	.3	.8	.2	.3
Income received by wife.....	10.4	8.2	5.9	9.7	12.2	11.2	15.3	9.9	9.6	16.1	10.3	7.8
From farm sources.....	.3	.3	(Z)	.5	.4	.4	.7	.1	.2	1.3	(Z)	.1
From nonfarm sources.....	10.1	7.9	5.9	9.2	11.8	10.8	14.6	9.8	9.4	14.8	10.3	7.7
Income received by other family members.....	9.9	11.2	5.9	14.6	12.4	15.7	10.7	11.3	7.9	21.4	5.5	7.2
From farm sources.....	1.1	3.3	1.9	4.2	.9	1.4	.8	.7	.7	2.0	.5	.5
From nonfarm sources.....	8.8	7.9	4.0	10.4	11.4	14.3	9.9	10.6	7.2	19.4	4.9	6.7

Z 0.05 percent or less.

Off-farm income per farm reporting.—Comparison of data in Table 44, on off-farm income of farm-operator families per farm reporting, shows (1) that the income received from most of the sources is remarkably uniform from class to class outside of Class I, (2) that average total income from nonfarm work is substantially higher for part-time (Class VII), residential (Class VIII), and Class V farm operators, than for those in Classes II-IV, (3) that income received from interest, dividends, trust

funds or royalties is considerably larger for Class I farm operators than for others, and (4) that income received by wife from farm work is low in Class I and part-time (Class VII) farms and high in Class III and IV. (This is considered significant as there is assumed to be an inverse relation between income earned by the wife in farm work and the level of living of the family on the farm.)

Table 44.—AVERAGE OFF-FARM INCOME OF FARM-OPERATOR FAMILIES BY FARMS REPORTING SPECIFIED SOURCES, BY CLASS OF FARM, FOR THE UNITED STATES: 1955

Source of income	United States, total (dollars)	Group I			Group II				Group III			
		Total (dollars)	Class I (dollars)	Class II (dollars)	Total (dollars)	Class III (dollars)	Class IV (dollars)	Class V (dollars)	Total (dollars)	Class VI (dollars)	Part-time (dollars)	Residential (dollars)
Average off-farm income per farm-operator family:												
Income received by farm operator:												
Income from off-farm business or self-employment:												
Farm customwork.....	762	1,089	2,874	597	664	599	687	774	480	322	916	316
Farm trucking or hauling.....	860	981		981	765	369	1,016	942	950	510	516	1,566
Nonfarm business.....	2,249	3,390	4,666	2,691	2,054	2,010	2,229	1,919	2,161	838	2,609	2,323
Income from working for others for wages or salary:												
Farm work.....	712	1,540	3,739	713	592	578	628	564	470	288	689	462
Nonfarm work.....	2,220	1,445	2,186	1,309	1,770	1,275	1,521	2,433	2,632	845	2,878	2,811
Income from rental of farm real estate.....	821	1,659	1,937	1,490	953	1,408	847	649	482	402	483	474
Income from rental of nonfarm real estate.....	701	689	688	689	663	813	627	529	748	366	946	650
Income from roomers and boarders.....	421	674	508	775	364	412	316	370	445	371	462	445
Income from interest, dividends, a trust fund, or royalties.....	505	773	1,283	621	438	576	391	263	413	111	196	861
Income from veteran's pensions and compensation, veteran's school allotment, serviceman's family allotment.....	743	543	277	646	758	788	578	947	764	831	620	843
Income from retirement pay, unemployment compensation, old age pension, annuities, alimony, regular contributions or welfare received.....	654	594	544	604	504	635	517	629	671	580	673	704
Any other personal income.....	527	420	718	344	708	516	722	983	386	1,594	207	456
Income received by wife:												
From farm work.....	254	243	78	272	360	458	600	102	176	295	79	111
From nonfarm work.....	1,204	1,136	1,306	1,079	1,254	1,189	1,263	1,304	1,178	1,015	1,435	1,036
Income received by other family members:												
From farm work.....	356	825	870	813	291	423	211	277	241	295	274	195
From nonfarm work.....	1,391	1,297	911	1,449	1,535	1,617	1,419	1,564	1,282	1,366	1,368	1,197

Table 45.—FARM OPERATORS BY AGE, NUMBER OF PERSONS IN FAMILY, EDUCATION, AND FAMILY INCOME AFTER TAXES, FOR THE UNITED STATES: 1955

Item	United States, total
Farm operators by age:	
Total operators.....	4,760,050
Under 35 years.....	613,801
35 to 64 years.....	3,209,546
65 years and over.....	936,703
Farm operators by number of persons in family:	
Total operators.....	4,760,050
1.9 persons or less.....	244,520
2.0 to 4.9 persons.....	3,126,786
5.0 to 5.9 persons.....	573,472
6.0 or more persons.....	815,272
Farm operators by education:	
Total operators.....	4,760,050
Not completing eighth grade.....	1,535,263
Completing eighth grade but not completing high school.....	2,083,240
Completing high school.....	1,081,407
Operators not reporting as to education.....	60,140
Farm operators by family income after taxes:	
Total operators.....	4,760,050
Negative income.....	189,133
\$0 to \$999.....	1,031,746
\$1,000 to \$1,999.....	1,003,694
\$2,000 to \$2,999.....	840,136
\$3,000 to \$3,999.....	605,229
\$4,000 to \$4,999.....	322,017
\$5,000 to \$5,999.....	212,970
\$6,000 to \$7,499.....	137,102
\$7,500 to \$9,999.....	90,835
\$10,000 and over.....	85,550
Operators not reporting family income.....	241,638

Table 46.—PERCENT DISTRIBUTION OF FARM OPERATORS BY AGE, NUMBER OF PERSONS IN FAMILY, EDUCATION, AND FAMILY INCOME AFTER TAXES, FOR THE UNITED STATES: 1955

Item	United States, total
Farm operators by age:	
Total operators.....	100.0
Under 35 years.....	12.9
35 to 64 years.....	67.4
65 years and over.....	19.7
Farm operators by number of persons in family:	
Total operators.....	100.0
1.9 persons or less.....	5.1
2.0 to 4.9 persons.....	65.7
5.0 to 5.9 persons.....	12.0
6.0 or more persons.....	17.1
Farm operators by education:	
Total operators.....	100.0
Not completing eighth grade.....	32.3
Completing eighth grade but not completing high school.....	43.8
Completing high school.....	22.7
Operators not reporting as to education.....	1.3
Farm operator by family income after taxes:	
Total operators.....	100.0
Negative income.....	4.0
\$0 to \$999.....	21.7
\$1,000 to \$1,999.....	21.1
\$2,000 to \$2,999.....	17.6
\$3,000 to \$3,999.....	12.7
\$4,000 to \$4,999.....	6.8
\$5,000 to \$5,999.....	4.5
\$6,000 to \$7,499.....	2.9
\$7,500 to \$9,999.....	1.9
\$10,000 and over.....	1.8
Operators not reporting family income.....	5.1

PART-TIME FARMING

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Table 47.—FARM OPERATORS OF CLASS VI, PART-TIME, AND RESIDENTIAL FARMS, BY AGE, NUMBER OF PERSONS IN FAMILY, EDUCATION, AND FAMILY INCOME AFTER TAXES, FOR THE UNITED STATES: 1955

Item	Total Class VI, part-time, and residential farms	Operators of—		
		Class VI farms	Part-time farms	Residential farms
Farm operators by age:				
Total operators.....	1,944,357	468,350	616,571	859,436
Under 35 years.....	204,971	24,473	86,682	93,816
35 to 64 years.....	1,180,754	260,167	420,388	500,199
65 years and over.....	558,632	183,710	109,501	265,421
Farm operators by number of persons in family:				
Total operators.....	1,944,357	468,350	616,571	859,436
1.9 persons or less.....	144,410	37,563	30,830	76,017
2.0 to 4.9 persons.....	1,249,306	309,777	399,713	539,816
5.0 to 5.9 persons.....	193,117	43,352	64,143	85,622
6.0 or more persons.....	367,524	77,658	121,885	157,981
Farm operators by education:				
Total operators.....	1,944,357	468,350	616,571	859,436
Not completing eighth grade.....	852,444	242,863	226,656	382,925
Completing eighth grade but not completing high school.....	788,243	180,747	259,153	348,343
Completing high school.....	276,454	37,508	122,485	116,461
Operators not reporting as to education.....	27,216	7,232	8,277	11,707
Farm operators by family income after taxes:				
Total operators.....	1,944,357	468,350	616,571	859,436
Negative income.....	44,103	16,019	19,322	8,762
\$0 to \$999.....	558,549	233,774	106,757	218,018
\$1,000 to \$1,999.....	401,134	105,838	132,310	162,986
\$2,000 to \$2,999.....	281,910	53,128	90,621	138,161
\$3,000 to \$3,999.....	242,303	24,576	87,706	130,021
\$4,000 to \$4,999.....	136,364	7,009	61,881	67,474
\$5,000 to \$5,999.....	88,725	7,148	37,676	43,901
\$6,000 to \$7,499.....	53,297	3,466	28,905	25,926
\$7,500 to \$9,999.....	25,974	647	14,798	10,529
\$10,000 and over.....	9,836		5,708	4,128
Operators not reporting family income.....	97,162	16,745	30,887	49,530

Table 48.—PERCENT DISTRIBUTION BY ECONOMIC CLASS OF FARM OF OPERATORS OF CLASS VI, PART-TIME, AND RESIDENTIAL FARMS, BY AGE, NUMBER OF PERSONS IN FAMILY, EDUCATION, AND FAMILY INCOME AFTER TAXES, FOR THE UNITED STATES: 1955

Item	Percent distribution by economic class of farm			
	Total	Class VI	Part-time	Residential
Farm operators by age:				
Total operators.....	100.0	24.1	31.7	44.2
Under 35 years.....	100.0	11.9	42.3	45.8
35 to 64 years.....	100.0	22.0	35.6	42.4
65 years and over.....	100.0	32.9	19.6	47.5
Farm operators by number of persons in family:				
Total operators.....	100.0	24.1	31.7	44.2
1.9 persons or less.....	100.0	26.0	21.3	52.6
2.0 to 4.9 persons.....	100.0	24.8	32.0	43.2
5.0 to 5.9 persons.....	100.0	22.4	33.2	44.3
6.0 or more persons.....	100.0	21.7	34.1	44.2
Farm operators by education:				
Total operators.....	100.0	24.1	31.7	44.2
Not completing eighth grade.....	100.0	28.5	26.6	44.9
Completing eighth grade but not completing high school.....	100.0	22.9	32.9	44.2
Completing high school.....	100.0	13.6	44.3	42.1
Operators not reporting as to education.....	100.0	26.6	30.4	43.0
Farm operators by family income after taxes:				
Total operators.....	100.0	24.1	31.7	44.2
Negative income.....	100.0	36.3	43.8	19.9
\$0 to \$999.....	100.0	41.9	19.1	39.0
\$1,000 to \$1,999.....	100.0	26.4	33.0	40.6
\$2,000 to \$2,999.....	100.0	18.8	32.1	49.0
\$3,000 to \$3,999.....	100.0	10.1	36.2	53.7
\$4,000 to \$4,999.....	100.0	5.1	45.4	49.5
\$5,000 to \$5,999.....	100.0	8.1	42.5	49.5
\$6,000 to \$7,499.....	100.0	5.9	49.6	44.5
\$7,500 to \$9,999.....	100.0	2.5	57.0	40.5
\$10,000 and over.....	100.0		58.0	42.0
Operators not reporting family income.....	100.0	17.2	31.8	51.0

Table 49.—PERCENT DISTRIBUTION OF OPERATORS OF CLASS VI, PART-TIME, AND RESIDENTIAL FARMS, BY AGE, NUMBER OF PERSONS IN FAMILY, EDUCATION, AND FAMILY INCOME AFTER TAXES, FOR THE UNITED STATES: 1955

Item	Percent distribution of operators of—			
	Class VI, part-time, and residential farms	Class VI farms	Part-time farms	Residential farms
Farm operators by age:				
Total operators.....	100.0	100.0	100.0	100.0
Under 35 years.....	10.5	5.2	14.1	10.9
35 to 64 years.....	60.7	55.5	68.2	58.2
65 years and over.....	28.7	39.2	17.8	30.9
Farm operators by number of persons in family:				
Total operators.....	100.0	100.0	100.0	100.0
1.9 persons or less.....	7.4	8.0	5.0	8.8
2.0 to 4.9 persons.....	64.3	66.1	64.8	62.8
5.0 to 5.9 persons.....	9.9	9.3	10.4	10.0
6.0 or more persons.....	18.4	16.6	19.8	18.4
Farm operators by education:				
Total operators.....	100.0	100.0	100.0	100.0
Not completing eighth grade.....	43.8	51.9	36.8	44.6
Completing eighth grade but not completing high school.....	40.5	38.6	42.0	40.5
Completing high school.....	14.2	8.0	19.9	13.6
Operators not reporting as to education.....	1.4	1.5	1.3	1.4
Farm operators by family income after taxes:				
Total operators.....	100.0	100.0	100.0	100.0
Negative income.....	2.3	3.4	3.1	1.0
\$0 to \$999.....	28.7	49.9	17.3	25.4
\$1,000 to \$1,999.....	20.6	22.6	21.5	19.0
\$2,000 to \$2,999.....	14.5	11.3	14.7	16.1
\$3,000 to \$3,999.....	12.5	5.2	14.2	15.1
\$4,000 to \$4,999.....	7.0	1.5	10.0	7.9
\$5,000 to \$5,999.....	4.6	1.5	6.1	5.1
\$6,000 to \$7,499.....	3.0	.7	4.7	3.0
\$7,500 to \$9,999.....	1.3	.1	2.4	1.2
\$10,000 and over.....	.5		.9	.5
Operators not reporting family income.....	5.0	3.6	5.0	5.8

G. FARM MORTGAGE DEBT, BY ECONOMIC CLASS

The data given in this section are based on estimates published in greater detail in Part 5 of Volume III of the reports of the 1954 Census of Agriculture. The data on the number of mortgaged farms are estimates of the mortgage status as of January 1, 1956, for farms included in the 1954 Census of Agriculture. Likewise, the estimates of land in farms, value of land and buildings, and amount of mortgage debt represent totals as of January 1, 1956, for farm land and buildings included in the 1954 Census of Agriculture. The data on mortgaged part-owner farms relate only to the proportion of the part-owned farm, owned and operated by the owner.

Distribution of mortgaged farms and land in farms, by economic class.—The data in Table 50 present full-owner farms and part-owner farms according to their distribution by economic class. A larger percentage of the full-owner farms are found in the part-time and residential class while a relatively heavier concentration of the part-owner group is found in Classes I to IV. The distribution of mortgaged land shows a similar relationship between full owners and part owners providing allowance is made for the difference among the economic classes in size of farm. Over one-third of all mortgaged farms operated by full owners are part-time or residential farms.

TABLE 50.—PERCENT DISTRIBUTION OF NUMBER OF MORTGAGED FARMS AND LAND IN MORTGAGED FARMS, OF FULL OWNERS AND PART OWNERS, BY ECONOMIC CLASS OF FARM, FOR THE UNITED STATES: 1956

Economic class	Number of farms		Land in mortgaged farms	
	Full owners	Part owners	Full owners	Part owners
All classes.....	100.0	100.0	100.0	100.0
Class I.....	2.5	7.0	10.3	23.1
Class II.....	8.1	19.8	19.3	31.6
Class III.....	15.1	26.6	21.0	22.6
Class IV.....	17.4	21.6	19.1	13.8
Class V.....	16.4	12.6	13.2	5.5
Class VI.....	6.8	4.0	4.9	1.6
Part-time.....	15.3	5.7	7.3	1.4
Residential.....	18.4	2.6	4.9	.4

Percentage of farms mortgaged, by economic classes.—A larger percentage of farms are mortgaged in Economic Classes I, II, and III than among the other economic classes, as is shown in Table 51. Among commercial Classes I to VI there is a definite correlation between economic class and percent of farms mortgaged. Also, in each of the classes of commercial farms a higher percentage of farms operated by part owners than by full owners are mortgaged while a slightly higher percentage of part-time and residential farms oper-

ated by full owners are mortgaged. Almost a third of the part-time and almost a fourth of the residential farms are mortgaged.

TABLE 51.—PERCENT OF FARMS MORTGAGED, FOR FARMS OPERATED BY FULL OWNERS AND BY PART OWNERS, BY ECONOMIC CLASS OF FARM, FOR THE UNITED STATES: 1956

Economic class	Full owner	Part owner
	Percent	Percent
All classes.....	33.1	42.4
Class I.....	47.4	50.2
Class II.....	46.7	48.8
Class III.....	46.3	49.3
Class IV.....	40.5	44.8
Class V.....	36.6	37.0
Class VI.....	21.0	27.6
Part-time.....	33.2	31.5
Residential.....	22.9	21.5

TABLE 52.—AVERAGE SIZE OF MORTGAGED FARMS, FOR FULL OWNERS AND PART OWNERS, BY ECONOMIC CLASS OF FARM, FOR THE UNITED STATES: 1956

Economic class	Full owners (acres per farm)	Part owners (acres per farm)
All classes.....	164.0	317.9
Class I.....	686.2	1,054.0
Class II.....	389.6	507.3
Class III.....	228.5	269.2
Class IV.....	179.1	203.4
Class V.....	132.4	138.9
Class VI.....	117.3	127.1
Part-time.....	78.1	78.4
Residential.....	44.1	44.1

TABLE 53.—VALUE OF LAND AND BUILDINGS, PER FARM AND PER ACRE FOR MORTGAGED FARMS OF FULL OWNERS AND PART OWNERS, BY ECONOMIC CLASS OF FARM, FOR THE UNITED STATES: 1956

Economic class	Mortgaged farms			
	Average value per farm		Value per acre	
	Full owners	Part owners	Full owners	Part owners
All classes.....	\$19,385	\$24,675	\$118.20	\$77.61
Class I.....	97,253	95,742	141.73	90.84
Class II.....	45,747	36,265	117.41	71.49
Class III.....	27,114	21,062	118.68	78.23
Class IV.....	18,296	13,860	102.16	68.15
Class V.....	12,821	9,602	96.84	69.13
Class VI.....	9,275	7,544	79.04	59.37
Part-time.....	10,768	8,841	137.85	112.75
Residential.....	8,763	7,054	198.77	159.89

TABLE 54.—VALUE OF LAND AND BUILDINGS AND AMOUNT OF MORTGAGE DEBT PER FARM, FOR MORTGAGED FARMS OPERATED BY FULL OWNERS AND PART OWNERS, BY ECONOMIC CLASS OF FARM, FOR THE UNITED STATES: 1956

Economic class	Value of land and buildings per mortgaged farm	Amount of mortgage debt per farm
All classes.....	\$20,910	\$5,504
Class I.....	96,445	20,400
Class II.....	41,035	10,233
Class III.....	24,592	6,840
Class IV.....	16,814	4,797
Class V.....	12,054	3,412
Class VI.....	8,943	2,292
Part-time.....	10,516	3,026
Residential.....	8,669	2,653

Land in farms, value of land and buildings, and amount of mortgage debt per farm for mortgaged farms, by economic class.—The average size of mortgaged farms for both farms operated by full owners and part owners declines from Class I to (class VIII residential farms). (See Table 52.) Likewise, except for part-time farms, the average value of land and buildings and the average amount of mortgage debt per farm decreases from Class I to Class VIII. (See Tables 53 and 54.)

Ratio of mortgage debt to value, by economic class.—Among both full owners and part owners, the ratio of debt to value is lowest for Class I farms and increases from class to class from Classes I to IV, after which there is some leveling off. The ratio of mortgage debt to value is greater on Class V, on part-time, and residential farms than on all farms. As is shown in Table 55, in most of the economic classes there is not much difference in ratio of debt to value, between the farms operated by full owners and those operated by part owners.

TABLE 55.—RATIO OF FARM MORTGAGE DEBT TO VALUE FOR MORTGAGED FARMS OF FULL OWNERS AND PART OWNERS, BY ECONOMIC CLASS OF FARM, FOR THE UNITED STATES: 1956

Economic class	Full owners	Part owners
	<i>Percent</i>	<i>Percent</i>
All classes.....	26.8	25.4
Class I.....	21.9	20.5
Class II.....	24.4	25.6
Class III.....	27.9	27.6
Class IV.....	28.3	29.1
Class V.....	28.1	29.2
Class VI.....	24.9	29.2
Part-time.....	28.6	30.5
Residential.....	30.6	30.9

U. S. Department of Agriculture
Ezra Taft Benson, Secretary

Agricultural Research Service
Byron T. Shaw, Administrator

U. S. Department of Commerce
Sinclair Weeks, Secretary

Bureau of the Census
Robert W. Burgess, Director

United States Census of Agriculture: 1954

Volume III

SPECIAL REPORTS

Part 9

Farmers and Farm Production in the United States **(A Cooperative Report)**

Chapter IX

**Agricultural Producers and
Production in the United
States—A General View**

CHARACTERISTICS OF FARMERS and FARM PRODUCTION •

PRINCIPAL TYPES OF FARMS •



BUREAU OF THE CENSUS

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AGRICULTURAL RESEARCH SERVICE

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PREFACE

The purpose of this report is to present an analysis of the characteristics of farmers and farm production for the most important types of farms as shown by data for the 1954 Census of Agriculture. The analysis deals with the relative importance, pattern of resource use, some measures of efficiency, and problems of adjustment and change for the principal types of farms.

The data given in the various chapters of this report have been derived largely from the special tabulation of data for each type of farm, by economic class, for the 1954 Census of Agriculture. The detailed statistics for each type of farm for the United States and the principal subregions appear in Part 8 of Volume III of the reports for the 1954 Census of Agriculture.

This cooperative report was prepared under the direction of Ray Hurley, Chief of the Agriculture Division of the Bureau of the Census, U. S. Department of Commerce, and Kenneth L. Bachman, Head, Production, Income, and Costs Section, Production Economics Research Branch, Agricultural Research Service of the U. S. Department of Agriculture.

Jackson V. McElveen, Agricultural Economist, Production, Income, and Costs Section, Production Economics Research Branch, Agricultural Research Service of the U. S. Department of Agriculture, supervised a large part of the detailed planning and analysis for the various chapters.

The list of chapters and the persons preparing each chapter are as follows:

Chapter I-----	Wheat Producers and Wheat Production A. W. Epp, University of Nebraska.	Chapter VI----	Western Stock Ranches and Live- stock Farms Mont H. Saunderson, Western Ranching and Lands Consultant, Bozeman, Mont.
Chapter II-----	Cotton Producers and Cotton Production Robert B. Glasgow, Production Economics Research Branch, Agricultural Research Service, United States Department of Agriculture.	Chapter VII---	Cash-grain and Livestock Pro- ducers in the Corn Belt Edwin G. Strand, Production Economics Research Branch, Agricultural Research Service, United States Department of Agriculture.
Chapter III----	Tobacco and Peanut Producers and Production R. E. L. Greene, University of Florida.	Chapter VIII--	Part-time Farming H. G. Halcrow, University of Connecticut.
Chapter IV-----	Poultry Producers and Poultry Production William P. Mortenson, University of Wisconsin.	Chapter IX----	Agricultural Producers and Pro- duction in the United States— A General View Jackson V. McElveen, Production Economics Research Branch, Agricultural Research Service, United States Department of Agriculture.
Chapter V-----	Dairy Producers and Dairy Pro- duction P. E. McNall, University of Wisconsin.		

The editorial work for this report was performed by Caroline B. Sherman, and the preparation of the statistical tables was supervised by Margaret Wood.

December 1956

UNITED STATES CENSUS OF AGRICULTURE: 1954

REPORTS

Volume I.—Counties and State Economic Areas. Statistics for counties include number of farms, acreage, value, and farm operators; farms by color and tenure of operator; facilities and equipment; use of commercial fertilizer; farm labor; farm expenditures; livestock and livestock products; specified crops harvested; farms classified by type of farm and by economic class; and value of products sold by source.

Data for State economic areas include farms and farm characteristics by tenure of operator, by type of farm, and by economic class. Volume I is published in 33 parts.

Volume II.—General Report. Statistics by Subjects, United States Census of Agriculture, 1954. Summary data and analyses of the data for States, for Geographic Divisions, and for the United States by subjects.

Volume III.—Special Reports

Part 1.—Multiple-Unit Operations. This report will be similar to Part 2 of Volume V of the reports for the 1950 Census of Agriculture. It will present statistics for approximately 900 counties and State economic areas in 12 Southern States and Missouri for the number and characteristics of multiple-unit operations and farms in multiple units.

Part 2.—Ranking Agricultural Counties. This special report will present statistics for selected items of inventory and agricultural production for the leading counties in the United States.

Part 3.—Alaska, Hawaii, Puerto Rico, District of Columbia, and U. S. Possessions. These areas were not included in the 1954 Census of Agriculture. The available current data from various Government sources will be compiled and published in this report.

Part 4.—Agriculture, 1954, a Graphic Summary. This report will present graphically some of the significant facts regarding agriculture and agricultural production as revealed by the 1954 Census of Agriculture.

Part 5.—Farm-Mortgage Debt. This will be a cooperative study by the Agricultural Research Service of the U. S. Department of Agriculture and the Bureau of the Census. It will present, by States, data based on the 1954 Census of Agriculture and a special mail survey conducted in January 1956, on the number of mortgaged farms, the amount of mortgage debt, and the amount of debt held by principal lending agencies.

Part 6.—Irrigation in Humid Areas. This cooperative report by the Agricultural Research Service of the U. S. Department of Agriculture and the Bureau of the Census will present data obtained by a mail survey of operators of irrigated farms in 28 States on the source of water, method of applying water, number of pumps used, acres of crops irrigated in 1954 and 1955, the number of times each crop was irrigated, and the cost of irrigation equipment and the irrigation system.

Part 7.—Popular Report of the 1954 Census of Agriculture. This report is planned to be a general, easy-to-read publication for the general public on the status and broad characteristics of United States agriculture. It will seek to delineate such aspects of agriculture as the geographic distribution and differences by size of farm for such items as farm acreage, principal crops, and important kinds of livestock, farm facilities, farm equipment, use of fertilizer, soil conservation practices, farm tenure, and farm income.

Part 8.—Size of Operation by Type of Farm. This will be a cooperative special report to be prepared in cooperation with the Agricultural Research Service of the U. S. Department of Agriculture. This report will contain data for 119 economic sub-

regions (essentially general type-of-farming areas) showing the general characteristics for each type of farm by economic class. It will provide data for a current analysis of the differences that exist among groups of farms of the same type. It will furnish statistical basis for a realistic examination of production of such commodities as wheat, cotton, and dairy products in connection with actual or proposed governmental policies and programs.

Part 9.—Farmers and Farm Production in the United States. The purpose of this report is to present an analysis of the characteristics of farmers and farm production for the most important types of farms as shown by data for the 1954 Census of Agriculture. The analysis deals with the relative importance, pattern of resource use, some measures of efficiency, and problems of adjustment and change for the principal types of farms. The report was prepared in cooperation with the Agricultural Research Service of the U. S. Department of Agriculture.

The list of chapters (published separately only) and title for each chapter are as follows:

Chapter I—*Wheat Producers and Wheat Production*

II—*Cotton Producers and Cotton Production*

III—*Tobacco and Peanut Producers and Production*

IV—*Poultry Producers and Poultry Production*

V—*Dairy Producers and Dairy Production*

VI—*Western Stock Ranches and Livestock Farms*

VII—*Cash-Grain and Livestock Producers in the Corn Belt*

VIII—*Part-Time Farming*

IX—*Agricultural Producers and Production in the United States—A General View*

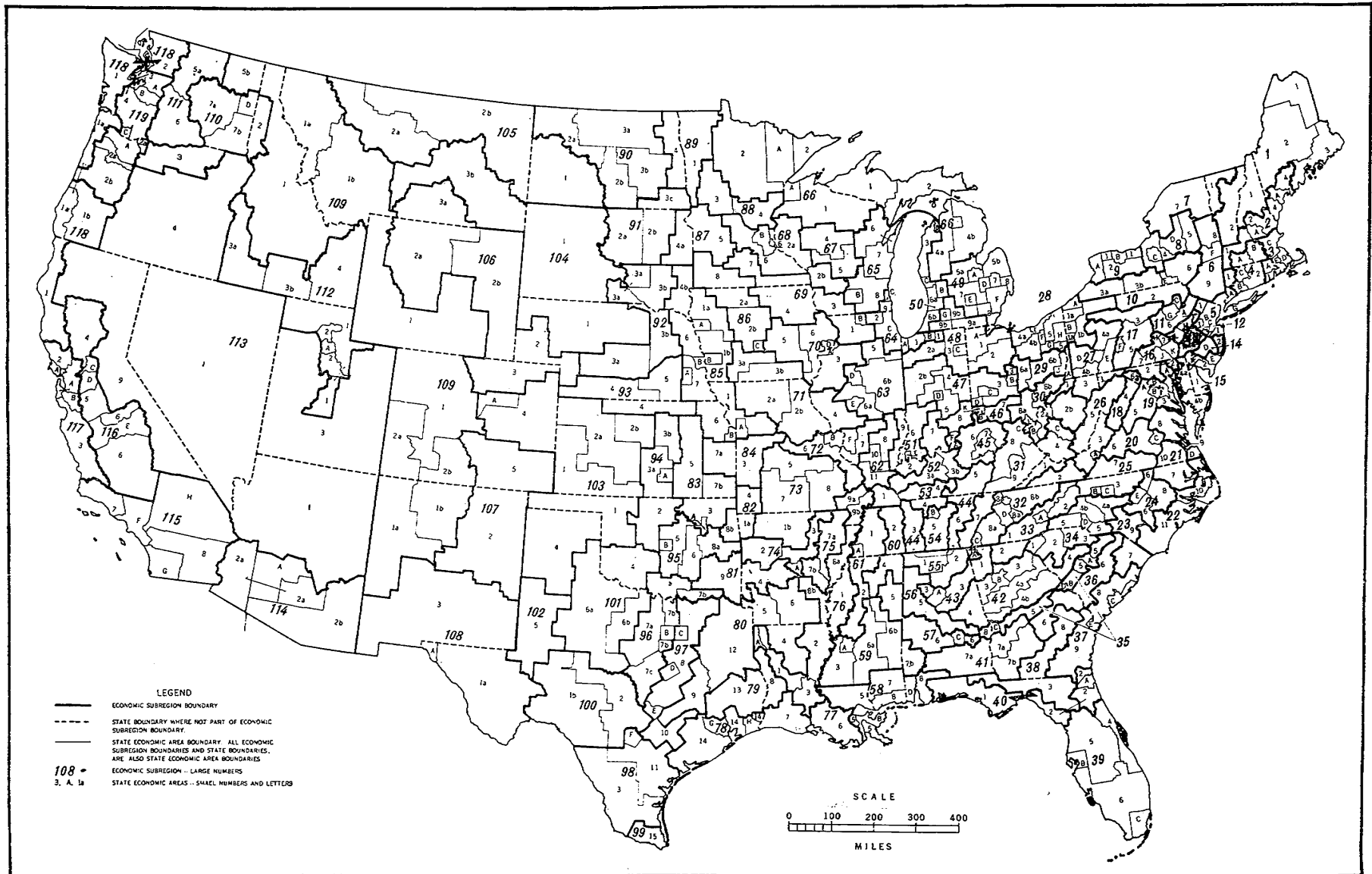
Part 10.—Use of Fertilizer and Lime. The purpose of this report is to present in one publication most of the detailed data compiled for the 1954 Census of Agriculture regarding the use of fertilizer and lime. The report presents data for counties, State economic areas, and generalized type-of-farming areas regarding the quantity used, acreage on which used, and expenditures for fertilizer and lime. The Agricultural Research Service cooperated with the Bureau of the Census in the preparation of this report.

Part 11.—Farmers' Expenditures. This report presents detailed data on expenditures for a large number of items used for farm production in 1955, and on the living expenditures of farm operators' families. The data were collected and compiled cooperatively by the Agricultural Marketing Service of the U. S. Department of Agriculture and the Bureau of the Census.

Part 12.—Methods and Procedures. This report contains an outline and a description of the methods and procedures used in taking and compiling the 1954 Census of Agriculture.

INTRODUCTION

ECONOMIC SUBREGIONS AND STATE ECONOMIC AREAS



INTRODUCTION

Purpose and scope.—American agriculture is exceedingly diverse and is undergoing revolutionary changes. Farmers and their families obtain their income by producing a large variety of products under a large variety of conditions as well as from sources other than farming. The organization of production, type of farming, productivity, income, expenditures, size, and characteristics of operators of the 4.8 million farms in the United States vary greatly. Agriculture has been a dynamic, moving, adjusting part of our economy. Basic changes in farming have been occurring and will continue to be necessary. Adjustments brought by technological change, by changing consumer wants, by growth of population, and by changes in the income of nonfarm people, have been significant forces in changing agriculture since World War II. The transition from war to an approximate peacetime situation has also made it necessary to reduce the output of some farm products. Some of the adjustments in agriculture have not presented relatively difficult problems as they could be made by the transfer of resources from the production of one product to another. Others require substantial shifts in resources and production.

Moreover, a considerable number of farm families, many of whom are employed full time in agriculture, have relatively low incomes. Most of these families operate farms that are small when compared with farms that produce higher incomes. The acreage of land and the amount of capital controlled by the operators of these small farms are too small to provide a very high level of income. In recent years, many farm families on these small farms have made adjustments by leaving the farm to earn their incomes elsewhere, by discontinuing their farm operations, and by earning more non-farm income while remaining on the farm or on the place they farmed formerly.

One objective of this report is to describe and analyze some of the existing differences and recent adjustments in the major types of farming and farm production. For important commodities and groups of farms, the report aims to make available, largely from the detailed data for the 1954 Census of Agriculture but in a more concise form, facts regarding the size of farms, capital, labor, and land resources on farms, amounts and sources of farm income and expenditures, combinations of crop and livestock enterprises, adjustment problems, operator characteristics, and variation in use of resources and in size of farms by areas and for widely differing production conditions. Those types of farms on which production of surplus products is important have been emphasized. The report will provide a factual basis for a better understanding of the widespread differences among farms in regard to size, resources, and income. It will also provide a basis for evaluating the effects of existing and proposed farm programs on the production and incomes of major types and classes of farms.

Income from nonfarm sources is important on a large number of farms. About 1.4 million of the 4.8 million farm-operator families, or about 3 in 10, obtain more income from off-farm sources than from the sale of agricultural products. More than three-fourths of a million farm operators live on small-scale part-time farms and ordinarily are not dependent on farming as the main source of family income. These part-time farmers have a quite different relation to adjustments, changes, and farm problems than do commercial farmers. A description of and facts regarding these part-time farms and the importance of nonfarm income for commercial farms are presented in Chapter 8.

Except for Chapter 8, this report deals with commercial farms (see economic class of farm). The analysis is limited to the major types of agricultural production and deals primarily with geographic areas in which each of the major types of agricultural production has substantial significance.

Source of data.—Most of the data presented in this report are from special compilations made for the 1954 Census of Agriculture, although pertinent data from research findings and surveys of the U. S. Department of Agriculture, State Agricultural Colleges, and other agencies have been used to supplement Census data. The detailed Census data used for this report are contained in Part 8 of Volume III of the reports of the 1954 Census of Agriculture. Reference should be made to that report for detailed explanations and definitions and statements regarding the characteristics and reliability of the data.

Areas for which data are presented.—Data are presented in this report primarily for selected economic subregions and for the United States. The boundaries of the 119 subregions used for the compilation of data on which this report is based are indicated by the map on page vi. These subregions represent primarily general type-of-farming areas. Many of them extend into two or more States. (For a more detailed description of economic subregions, see the publication "Economic Subregions of the United States, Series Census BAE; No. 19, published cooperatively by the Bureau of the Census, and the Bureau of Agricultural Economics, U. S. Department of Agriculture, July 1953.)

DEFINITIONS AND EXPLANATIONS

Definitions and explanations are given only for some of the more important items. For more detailed definitions and explanations, reference can be made to Part 8 of Volume III and to Volume II of the reports of the 1954 Census of Agriculture.

A farm.—For the 1954 Census of Agriculture, places of 3 or more acres were counted as farms if the annual value of agricultural products, exclusive of home-garden products, amounted to \$150 or more. The agricultural products could have been either for home use or for sale. Places of less than 3 acres were counted as farms only if the annual value of sales of agricultural products amounted to \$150 or more. Places for which the value of agricultural products for 1954 was less than these minima because of crop failure or other unusual conditions, and places operated at the time of the Census for the first time were counted as farms if normally they could be expected to produce these minimum quantities of agricultural products.

All the land under the control of one person or partnership was included as one farm. Control may have been through ownership, or through lease, rental, or cropping arrangement.

Farm operator.—A "farm operator" is a person who operates a farm, either performing the labor himself or directly supervising it. He may be an owner, a hired manager, or a tenant, renter, or sharecropper. If he rents land to others or has land cropped for him by others, he is listed as the operator of only that land which he retains. In the case of a partnership, only one partner was included as the operator. The number of farm operators is considered the same as the number of farms.

FARMERS AND FARM PRODUCTION

Farms reporting or operators reporting.—Figures for farms reporting or operators reporting, based on a tabulation of all farms, represent the number of farms, or farm operators, for which the specified item was reported. For example, if there were 11,922 farms in a subregion and only 11,465 had chickens over 4 months old on hand, the number of farms reporting chickens would be 11,465. The difference between the total number of farms and the number of farms reporting an item represents the number of farms not having that item, provided the inquiry was answered completely for all farms.

Farms by type.—The classification of commercial farms by type was made on the basis of the relationship of the value of sales from a particular source, or sources, to the total value of all farm products sold from the farm. In some cases, the type of farm was determined on the basis of the sale of an individual farm product, such as cotton, or on the basis of the sales of closely related products, such as dairy products. In other cases, the type of farm was determined on the basis of sales of a broader group of products, such as grain crops including corn, sorghums, all small grains, field peas, field beans, cowpeas, and soybeans. In order to be classified as a particular type, sales or anticipated sales of a product or group of products had to represent 50 percent or more of the total value of products sold.

The types of commercial farms for which data are shown, together with the product or group of products on which the classification is based are:

<i>Type of farm</i>	<i>Product or group of products amounting to 50 percent or more of the value of all farm products sold</i>
Cash-grain.....	Corn, sorghum, small grains, field peas, field beans, cowpeas, and soybeans.
Cotton.....	Cotton (lint and seed).
Other field-crop.....	Peanuts, Irish potatoes, sweet-potatoes, tobacco, sugarcane, sugar beets for sugar, and other miscellaneous crops.
Vegetable.....	Vegetables.
Fruit-and-nut.....	Berries and other small fruits, and tree fruits, nuts, and grapes.
Dairy.....	Milk and other dairy products. The criterion of 50 percent of the total sales was modified in the case of dairy farms. A farm for which the value of sales of dairy products represented less than 50 percent of the total value of farm products sold was classified as a dairy farm if— (a) Milk and other dairy products accounted for 30 percent or more of the total value of products sold, and (b) Milk cows represented 50 percent or more of all cows, and (c) Sales of dairy products, together with the sales of cattle and calves, amounted to 50 percent or more of the total value of farm products sold.
Poultry.....	Chickens, eggs, turkeys, and other poultry products.
Livestock farms other than dairy and poultry.	Cattle, calves, hogs, sheep, goats, wool, and mohair, provided the farm did not qualify as a dairy farm.

Type of farm
General.....

Product or group of products amounting to 50 percent or more of the value of all farm products sold

Farms were classified as general when the value of products from one source or group of sources did not represent as much as 50 percent of the total value of all farm products sold. Separate figures are given for three kinds of general farms:

- (a) Primarily crop.
- (b) Primarily livestock.
- (c) Crop and livestock.

Primarily crop farms are those for which the sale of one of the following crops or groups of crops—vegetables, fruits and nuts, cotton, cash grains, or other field crops—did not amount to 50 percent or more of the value of all farm products sold, but for which the value of sales for all these groups of crops represented 70 percent or more of the value of all farm products sold.

Primarily livestock farms are those which could not qualify as dairy farms, poultry farms, or livestock farms other than dairy and poultry, but on which the sale of livestock and poultry and livestock and poultry products amounted to 70 percent or more of the value of all farm products sold.

General crop and livestock farms are those which could not be classified as either crop farms or livestock farms, but on which the sale of all crops amounted to at least 30 percent but less than 70 percent of the total value of all farm products sold.

Miscellaneous..... This group of farms includes those that had 50 percent or more of the total value of products accounted for by sale of horticultural products, or sale of horses, or sale of forest products.

Farms by economic class.—A classification of farms by economic class was made for the purpose of segregating groups of farms that are somewhat alike in their characteristics and size of operation. This classification was made in order to present an accurate description of the farms in each class and in order to provide basic data for an analysis of the organization of agriculture.

The classification of farms by economic class was made on the basis of three factors; namely, total value of all farm products sold, number of days the farm operator worked off the farm, and the relationship of the income received from nonfarm sources by the operator and members of his family to the value of all farm products sold. Farms operated by institutions, experiment stations, grazing associations, and community projects were classified as abnormal, regardless of any of the three factors.

For the purpose of determining the code for economic class and type of farm, it was necessary to obtain the total value of farm products sold as well as the value of some individual products sold.

The total value of farm products sold was obtained by adding the reported or estimated values for all products sold from the farm. The value of livestock, livestock products except wool and mohair, vegetables, nursery and greenhouse products, and forest

products was obtained by the enumerator from the farm operator for each farm. The enumerator also obtained from the farm operator the quantity sold for corn, sorghums, small grains, hays, and small fruits. The value of sales for these crops was obtained by multiplying the quantity sold by State average prices.

The quantity sold was estimated for all other farm products. The entire quantity produced for wool, mohair, cotton, tobacco, sugar beets for sugar, sugarcane for sugar, broomcorn, hops, and mint for oil was estimated as sold. To obtain the value of each product sold, the quantity sold was multiplied by State average prices.

In making the classification of farms by economic class, farms were grouped into two major groups, namely, commercial farms and other farms. In general, all farms with a value of sales of farm products amounting to \$1,200 or more were classified as commercial. Farms with a value of sales of \$250 to \$1,199 were classified as commercial only if the farm operator worked off the farm less than 100 days or if the income of the farm operator and members of his family received from nonfarm sources was less than the total value of all farm products sold.

Land in farms according to use.—Land in farms was classified according to the use made of it in 1954. The classes of land are mutually exclusive, i. e., each acre of land was included only once even though it may have had more than one use during the year.

The classes referred to in this report are as follows:

Cropland harvested.—This includes land from which crops were harvested; land from which hay (including wild hay) was cut; and land in small fruits, orchards, vineyards, nurseries, and greenhouses. Land from which two or more crops were reported as harvested was to be counted only once.

Cropland used only for pasture.—In the 1954 Census, the enumerator's instructions stated that rotation pasture and all other cropland that was used only for pasture were to be included under this class. No further definition of cropland pastured was given the farm operator or enumerator. Permanent open pasture may, therefore, have been included under this item or under "other pasture," depending on whether the enumerator or farm operator considered it as cropland.

Cropland not harvested and not pastured.—This item includes idle cropland, land in soil-improvement crops only, land on which all crops failed, land seeded to crops for harvest after 1954, and cultivated summer fallow.

In the Western States, this class was subdivided to show separately the acres of cultivated summer fallow. In these States, the acreage not in cultivated summer fallow represents largely crop failure. There are very few counties in the Western States in which there is a large acreage of idle cropland or in which the growing of soil-improvement crops is an important use of the land.

In the States other than the Western States, this general class was subdivided to show separately the acres of idle cropland (not used for crops or for pasture in 1954). In these States, the incidence of crop failure is usually low. It was expected that the acreage figure that excluded idle land would reflect the acreage in soil-improvement crops. However, the 1954 crop year was one of low rainfall in many Eastern and Southern States and, therefore, in these areas the acreage of cropland not harvested and not pastured includes more land on which all crops failed than would usually be the case.

Cultivated summer fallow.—This item includes cropland that was plowed and cultivated but left unseeded for several months to control weeds and conserve moisture. No land from which crops were harvested in 1954 was to be included under this item.

Cropland, total.—This includes cropland harvested, cropland used only for pasture, and cropland not harvested and not pastured.

Land pastured, total.—This includes cropland used only for pasture, woodland pastured, and other pasture (not cropland and not woodland).

Woodland, total.—This includes woodland pastured and woodland not pastured.

Value of land and buildings.—The value to be reported was the approximate amount for which the land and the buildings on it would sell.

Off-farm work and other income.—Many farm operators receive a part of their income from sources other than the sale of farm products from their farms. The 1954 Agriculture Questionnaire included several inquiries relating to work off the farm and non-farm income. These inquiries called for the number of days worked off the farm by the farm operator; whether other members of the operator's family worked off the farm; and whether the farm operator received income from other sources, such as sale of products from land rented out, cash rent, boarders, old age assistance, pensions, veterans' allowances, unemployment compensation, interest, dividends, profits from nonfarm business, and help from other members of the operator's family. Another inquiry asked whether the income of the operator and his family from off-farm work and other sources was greater than the total value of all agricultural products sold from the farm in 1954. Off-farm work was to include work at nonfarm jobs, businesses, or professions, whether performed on the farm premises or elsewhere; also, work on someone else's farm for pay or wages. Exchange work was not to be included.

Specified facilities and equipment.—Inquiries were made in 1954 to determine the presence or absence of selected items on each place such as (1) telephone, (2) piped running water, (3) electricity, (4) television set, (5) home freezer, (6) electric pig brooder, (7) milking machine, and (8) power feed grinder. Such facilities or equipment were to be counted even though temporarily out of order. Piped running water was defined as water piped from a pressure system or by gravity flow from a natural or artificial source. The enumerator's instructions stated that pig brooders were to include those heated by an electric heating element, by an infrared or heat bulb, or by ordinary electric bulbs. They could be homemade.

The number of selected types of other farm equipment was also obtained for a sample of farms. The selected kinds of farm equipment to be reported were (1) grain combines (for harvesting and threshing grains or seeds in one operation); (2) cornpickers; (3) pickup balers (stationary ones not to be reported); (4) field forage harvesters (for field chopping of silage and forage crops); (5) motortrucks; (6) wheel tractors (other than garden); (7) garden tractors; (8) crawler tractors (tracklaying, caterpillar); (9) automobiles; and (10) artificial ponds, reservoirs, and earth tanks.

Wheel tractors were to include homemade tractors but were not to include implements having built-in power units such as self-propelled combines, powered buck rakes, etc. Pickup and truck-trailer combinations were to be reported as motortrucks. School buses were not to be reported, and jeeps and station wagons were to be included as motortrucks or automobiles, depending on whether used for hauling farm products or supplies, or as passenger vehicles.

Farm labor.—The farm-labor inquiries for 1954, called for the number of persons doing farmwork or chores on the place during a specified calendar week. Since starting dates of the 1954 enumeration varied by areas or States, the calendar week to which the farm-labor inquiries related varied also. The calendar week was September 26–October 2 or October 24–30. States with the September 26–October 2 calendar week were: Arizona, California, Colorado, Connecticut, Florida, Idaho, Kansas, Kentucky, Louisiana, Maine, Massachusetts, Michigan, Minnesota, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico,

New York, North Dakota, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Dakota, Tennessee, Texas, Utah, Vermont, Washington, Wisconsin, and Wyoming. States with the October 24-30 calendar week were: Alabama, Arkansas, Delaware, Georgia, Illinois, Indiana, Iowa, Maryland, Mississippi, Missouri, North Carolina, Ohio, South Carolina, Virginia, and West Virginia. Farmwork was to include any work, chores, or planning necessary to the operation of the farm or ranch business. Housework, contract construction work, and labor involved when equipment was hired (custom work) were not to be included.

The farm-labor information was obtained in three parts: (1) Operators working, (2) unpaid members of the operator's family working, and (3) hired persons working. Operators were considered as working if they worked 1 or more hours; unpaid members of the operator's family, if they worked 15 or more hours; and hired persons, if they worked any time during the calendar week specified. Instructions contained no specifications regarding age of the persons working.

Regular and seasonal workers.—Hired persons working on the farm during the specified week were classed as "regular" workers if the period of actual or expected employment was 150 days or more during the year, and as "seasonal" workers if the period of actual or expected employment was less than 150 days. If the period of expected employment was not reported, the period of employment was estimated for the individual farm after taking into account such items as the basis of payment, wage rate, expenditures for labor in 1954, and the type and other characteristics of the farm.

Specified farm expenditures.—The 1954 Census obtained data for selected farm expense items in addition to those for fertilizer and lime. The expenditures were to include the total specified expenditures for the place whether made by landlord, tenant, or both.

Expenditures for machine hire were to include any labor included in the cost of such machine hire. Machine hire refers to custom machine work such as tractor hire, threshing, combining, silo filling, baling, ginning, plowing, and spraying. If part of the farm products was given as pay for machine hire, the value of the products traded for this service was to be included in the amount of expenditures reported. The cost of trucking, freight, and express was not to be included.

Expenditures for hired labor were to include only cash payments. Expenditures for housework, custom work, and contract construction work were not to be included.

Expenditures for feed were to include the expenditures for pasture, salt, condiments, concentrates, and mineral supplements, as well as those for grain, hay, and mill feeds. Expenditures for grinding and mixing feeds were also to be included. Payments made by a tenant to his landlord for feed grown on the land rented by the tenant were not to be included.

Expenditures for gasoline and other petroleum fuel and oil were to include only those used for the farm business. Petroleum products used for the farmer's automobile for pleasure or used exclusively in the farm home for heating, cooking, and lighting were not to be included.

Crops harvested.—The information on crops harvested refers to the acreage and quantity harvested for the 1954 crop year. An exception was made for land in fruit orchards and planted nut trees. In this case, the acreage represents that in both bearing and nonbearing trees and vines as of October and November 1954.

Hay.—The data for hay includes all kinds of hay except soybean, cowpea, sorghum, and peanut hay.

Livestock and poultry.—The data on the number of livestock and poultry represent the number on hand on the day of enumera-

tion (October-November 1954). The data relating to livestock products and the number of livestock sold relate to the sales made during the calendar year 1954.

LABOR RESOURCES

The data for labor resources available represent estimates based largely on Census data and developed for the purpose of making comparisons among farms of various size of operations. The labor resources available are stated in terms of man-equivalents.

To obtain the man-equivalents the total number of farm operators as reported by the 1954 Census were adjusted for estimated man-years of work off the farm and for the number of farm operators 65 years old and over. The farm operator was taken to represent a full man-equivalent of labor unless he was 65 years or older or unless he worked at an off-farm job in 1954.

The man-equivalent estimated for farm operators reporting specified amounts of off-farm work were as follows:

<i>Days worked off the farm in 1954</i>	<i>Estimated man-equivalent</i>
1-99 days.....	0. 85
100-199 days.....	. 50
200 days and over.....	. 15

The man-equivalent for farm operators 65 years of age and older was estimated at 0.5.

Man-equivalents of members of the farm operator's family were based upon Census data obtained in response to the question "How many members of your family did 15 or more hours of farm work on this place the week of September 26-October 2 (or, in some areas, the week of October 24-30) without receiving cash wages?" Each family worker was considered as 0.5 man-equivalent. This estimate provides allowance for the somewhat higher incidence of women, children, and elderly persons in the unpaid family labor force.

In addition, the number of unpaid family workers who were reported as working 15 or more hours in the week of September 26-October 2 was adjusted to take account of seasonal changes in farm employment. Using published and unpublished findings of the U. S. Department of Agriculture and State Agricultural Colleges, and depending largely upon knowledge and experience with the geographic areas and type of farming, each author determined the adjustment factor needed to correct the number of family workers reported for the week of September 26-October 2 to an annual average basis.

Man-equivalents of hired workers are based entirely upon the expenditure for cash wages and the average wage of permanent hired laborers as reported in the 1954 Census of Agriculture.

Value of or investment in livestock.—Numbers of specified livestock and poultry in each subregion were multiplied by a weighted average value per head. The average values were computed from data compiled for each kind of livestock for the 1954 Census of Agriculture. The total value does not include the value of goats. (For a description of the method of obtaining the value of livestock, see Chapter VI of Volume II of the reports for the 1954 Census of Agriculture.)

Value of investment in machinery and equipment.—The data on value of investment in machinery and equipment were developed for the purpose of making broad comparisons among types and economic classes of farms and by subregions. Numbers of specified machines on farms, as reported by the Census, were multiplied by estimated average value per machine. Then the total values obtained were adjusted upward to provide for the inclusion of items of equipment not included in the Census inventory of farm machinery.

The estimates for average value of specified machines and the proportion of total value of all machinery represented by the value of these machines were based largely on published and unpublished data from the "Farm Costs and Returns" surveys conducted currently by the Agricultural Research Service, U. S. Department of Agriculture.¹ Modifications were made as needed in the individual chapters on the basis of State and local studies. The total estimated value of all machinery for all types and economic classes of farms is approximately equal to the value of all machinery as estimated by the U. S. Department of Agriculture.

Value of farm products sold, or gross sales.—Data on the value of the various farm products sold were obtained for 1954 by two methods. First, the values of livestock and livestock products sold, except wool and mohair; vegetables harvested for sale; nursery and greenhouse products; and forest products were obtained by asking each farm operator the value of sales. Second, the values of all other farm products sold were computed. For the most important crops, the quantity sold or to be sold was obtained for each farm. The entire quantity harvested for cotton and cottonseed, tobacco, sugar beets for sugar, hops, mint for oil, and sugarcane for sugar was considered sold. The quantity of minor crops sold was estimated. The value of sales for each crop was computed by multiplying the quantity sold by State average prices. In the case of wool and mohair, the value of sales was computed by multiplying the quantity shorn or clipped by the State average prices.

Gross sales include the value of all kinds of farm products sold. The total does not include rental and benefit, soil conservation, price adjustment, Sugar Act, and similar payments. The total

does include the value of the landlord's share of a crop removed from a farm operated by a share tenant. In most of the tables, detailed data are presented for only the more important sources of gross sales and the total for the individual farm products or sources will not equal the total as the values for the less important sources or farm products have been omitted. (For a detailed statement regarding the reliability and method of obtaining the value of farm products sold, reference should be made to Chapter IX of Volume II of the reports for the 1954 Census of Agriculture.)

Livestock and livestock products sold.—The value of sales for livestock and livestock products includes the value of live animals sold, dairy products sold, poultry and poultry products sold, and the calculated value of wool and mohair. The value of bees, honey, fur animals, goats, and goat milk is not included.

The value of dairy products includes the value of whole milk and cream sold, but does not include the value of butter and cheese, made on the farm, and sold. The value of poultry and products includes the value of chickens, broilers, chicken eggs, turkeys, turkey eggs, ducks, geese, and other miscellaneous poultry and poultry products sold. The value does not include the value of baby chicks sold.

Crops sold.—Vegetables sold includes the value of all vegetables harvested for sale, but does not include the value of Irish potatoes and sweetpotatoes.

The value of all crops sold includes the value of all crops sold except forest products. The value of field crops sold includes the value of sales of all crops sold except vegetables, small fruits and berries, fruits, and nuts.

¹ Farm Costs and Returns, 1955 (with comparisons), Agriculture Information Bulletin No. 153, Agricultural Research Service, U. S. Department of Agriculture, June 1956.

CHAPTER IX

AGRICULTURAL PRODUCERS AND PRODUCTION IN THE UNITED STATES—A GENERAL VIEW

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AGRICULTURAL PRODUCERS AND PRODUCTION IN THE UNITED STATES— A GENERAL VIEW

JACKSON V. McELVEEN

MAJOR SECTORS IN AGRICULTURE

One of the striking features of American agriculture is the diversity of farming—the differences in crops and livestock grown on farms in various areas, the wide range in size of farms, and the contrast in the way farm resources are used.

In a Nation so vast in land area, there are wide variations in topography, climate, and soils. The terrain varies from alluvial reaches and flat coastal plains and prairies, to rolling hills, to mountain valleys, and plateaus. Soil types differ in composition and fertility and in their adaptability for crops and grasses. Climatic conditions range from semitropical in the southernmost parts of the country to cooler northern areas that have a growing season of only a few months; and from the relatively heavy rainfall of the East to some western regions where the rainfall can support only the sparsest vegetation.

Along with growth and development of the Nation's economy, basic changes have taken place that have created even greater differences in economic environments. Some of these differences have been due to shifts in concentrations of population and markets, to changes in consumer food habits, and to developments in processing and transportation of farm products. Others relate to technological improvements in farming that have increased the total farm production while reducing the need for so many farm workers.

Differences in farming over the United States are explainable largely in terms of man's efforts in adapting himself to his environment. Each farmer makes the decisions of how to use the land, labor, and capital resources at his disposal. His decisions are made within the framework of his appraisal of his environment and of the relative advantage of alternative courses of action. Because the environment is constantly changing, the process is never complete but one of continuous adjustment to changing conditions in both farm and nonfarm sectors of the economy.

Changes that affect agriculture have been particularly rapid in recent decades. Technological developments in farming have brought about substantial increases in crop and livestock yields. Substitution of tractors for workstock has meant that many acres that were used previously to produce feed for workstock are now devoted to production for human use. The result has been a phenomenal increase in farm output.

Mechanization of farming has enabled a smaller farm labor force to tend and harvest this larger farm output. The output per man-hour of farm labor has increased by nearly 3 times since 1910. (See figure 1.) Farmers have been faced with the fact that fewer people are required to produce the foods and fibers for a growing population off the farms.

At the same time, growth and expansion of the economy has provided increasing job opportunities in the nonfarm sector. Many farm people, particularly farm youth, have left for other occupations. The farm population has decreased by 10 million since 1910 and now comprises only an eighth of the total population in the United States. (See figure 2.)

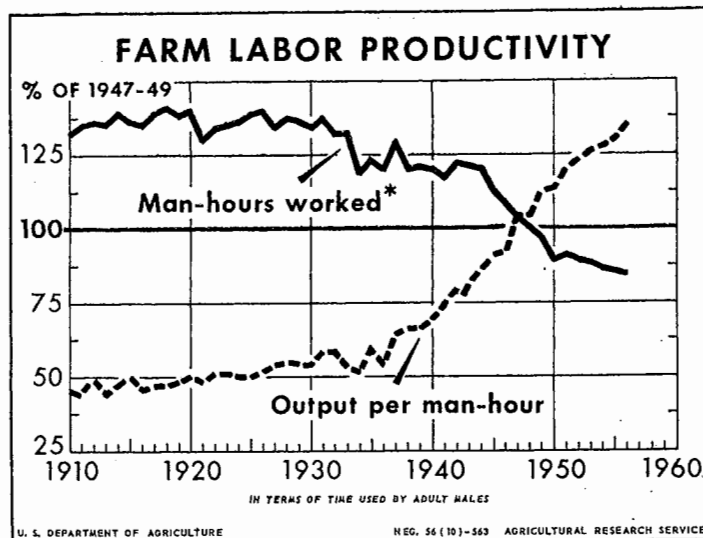


FIGURE 1.

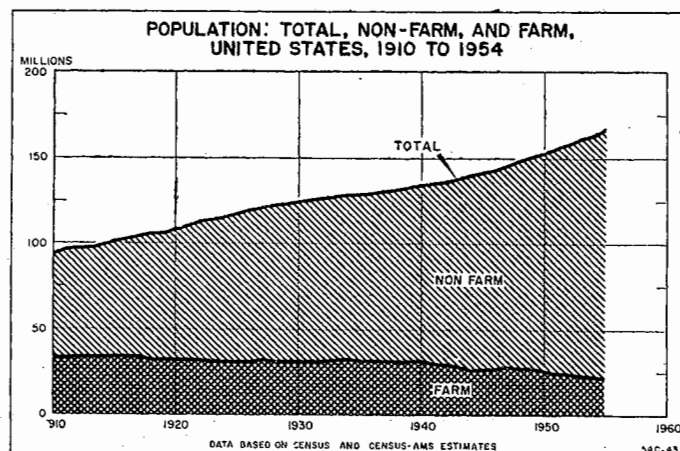


FIGURE 2.

Growth in the agricultural sector has been accompanied by changes in the nature and purpose of individual farm units. Production of many enterprises such as dairying and poultry have become more specialized. Many farmers have increased the scope and efficiency of their farming through the application of improved techniques. At the same time, the pull of opportunities elsewhere has persuaded others to reduce the size of their farm businesses and to take up work in nearby towns and factories. Now that electrification and farm-to-market roads have brought city conveniences to all but the remote rural areas, many city workers have moved to the country. Some of these rural residents raise farm products for home use and incidental sales.

Included in the rural farm population are many farm operators and members of their families who work at other jobs and businesses. (See figure 3.) More than 2 million farm operators reported working off their farms in 1950 and in 1954. Of greater significance in respect to levels of off-farm work, is the number of farm operators who worked off the farm 100 or more days. This figure indicates that off-farm work provides a major source of employment and income. Most of the farm operators in this group worked off their farms 200 or more days. While the number of operators working off their farms less than 100 days has decreased in recent years, those working off the farm 100 days or more has increased in each part of the country.

Off-farm work of operators is a major indication of the increasing importance of nonfarm sources of income to farm people. In addition, many other members of the families—wives and children—work at jobs removed from the farm. Moreover, many farm people now receive annuities or money from investment funds and savings as a result of the greater coverage of the population in provisions for retirement and for social security, as well as the general increase in income levels. The income to farm families from nonfarm sources has grown steadily since the 1930's; in 1954 it accounted for nearly a third of the farm family income. (See figure 4.)

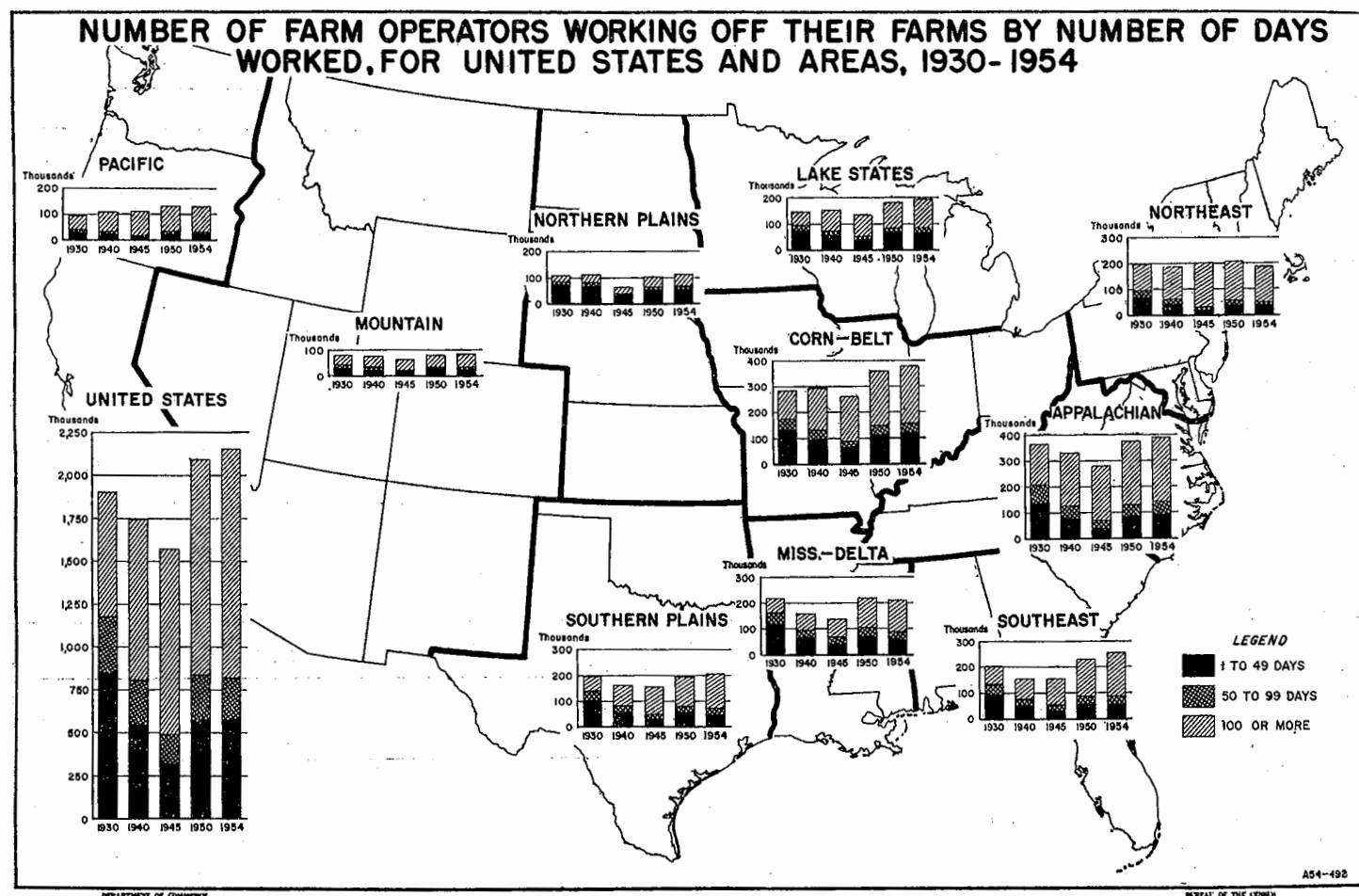


FIGURE 3.

Since the total number of farms has been decreasing, the proportion of operators working off farm 100 or more days has increased more than the increase in the number alone would indicate. The table below shows this proportion for the United States and major geographic regions from Censuses of 1930 to 1954. For the United States this increase was from 12 percent of the farms in 1930 to 28 percent in 1954. The increase has been much more rapid in the South than in other regions—from 11 percent of the farms in 1930 to 30 percent in 1954.

Year	Percent of all farm operators working off farm 100 or more days			
	United States	The North	The South	The West
1929 ¹	Percent 11.6	Percent 11.1	Percent 10.8	Percent 17.8
1939 ²	16.8	16.5	15.8	24.0
1944 ¹	15.4	17.8	18.1	27.1
1949 ²	23.9	22.0	24.3	31.5
1954 ²	28.3	25.3	29.6	35.2

¹ Percents based on all farm operators.

² Percents based on operators reporting as to off-farm work.

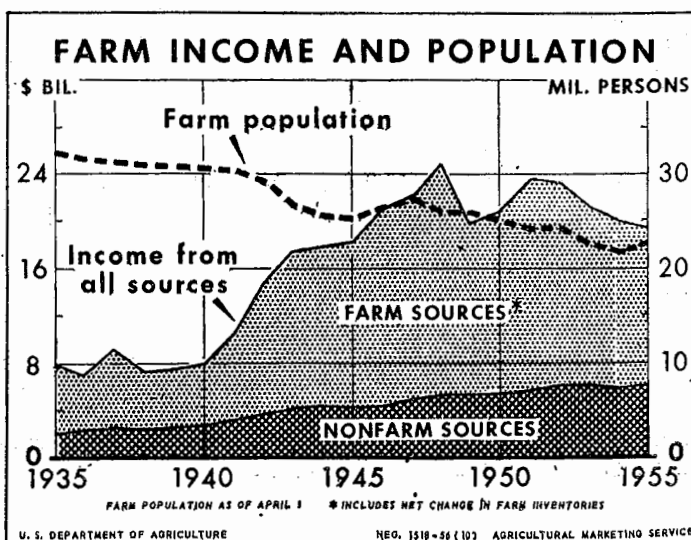


FIGURE 4.

Merging of farm and nonfarm sectors of our economy created a zone in farming that is in contrast to commercial agriculture. In this zone farming provides only supplementary income, and farm-production plans are influenced by considerations that affect employment in the nonfarm sector of the economy.

ECONOMIC CLASSIFICATION OF FARMS

In delineation of major sectors in agriculture, a basic step is the separation of the farms that are operated to provide the major source of employment and income to the farm family from the places that serve primarily as rural homes for urban workers. The economic classification of farms, developed by the Bureau of the Census and the Department of Agriculture, separates farms into two broad categories—commercial farms and other farms. The basis for separation is the value of farm sales, the off-farm work, and the other income of the operator family.

In the economic classification, all farms with a value of farm products sold of \$1,200 or more were considered commercial farms. Indications are that most of the farms with farm sales above this amount are operated to provide a major source of farm-family income. In addition, farms with sales of \$250 to \$1,199 were classified as commercial provided the farm operator was not employed at an off-farm job as much as 100 days during the year and provided the gross income from farm sales exceeded other income of the family.

The category of other farms includes part-time, residential, and abnormal farms. Residential farms are those having farm sales of less than \$250. On these, the size of business is small enough to preclude the likelihood of their being operated to provide the major source of income and employment for the operator family. Part-time farms are those with farm sales of \$250 to \$1,199 but whose operators work 100 or more days of the year at a nonfarm job, or report that income received by the family from other sources is greater than sales from the farm. Abnormal farms are mainly public and private institutional farms, such as college, prison, community, experiment station farms, and grazing associations.

The separation of commercial farms from those that are part-time and residential defines two distinct sectors within agriculture with marked differences in economic interests. Commercial farms are the going concerns in agriculture that produce virtually all of the farm products for sale. The separation of this group of farms for special study provides an improved basis for analysis of production problems and gives greater form and meaning to comparisons of income and of efficiency within agriculture and between farm and nonfarm sectors of the economy.

Commercial and Noncommercial Farms

The other or noncommercial farms are numerous, accounting for approximately a third of all farms in the United States in 1954. (See table below.)

Classification	Number of farms	Land in farms	Cropland harvested	Value of land and buildings	Value of farm products sold
	Percent 100.0	Percent 100.0	Percent 100.0	Percent 100.0	Percent 100.0
All farms.....					
Commercial farms.....	69.6	89.0	96.2	87.9	98.0
Other farms.....	30.4	11.0	3.8	12.1	2.0

¹ The data in figure 5 are not entirely comparable with the current Census economic classification since the criteria for separation of part-time from commercial were applied to farms in the \$1,200 to \$2,499 value group. See McElveen, J. V., *Family Farms in a Changing Economy*. Agriculture Information Bulletin 171, Economics Research Division, ARS, USDA, March 1957.

Activity on these farms is not oriented to commercial agriculture. This is supported best by the relatively small volume of farm sales, which amounted to less than 2 percent of all farm products sold. Commercial farms comprised over two-thirds of the total number of farms and accounted for 89 percent of the land in farms, 96 percent of the cropland harvested, 88 percent of the investment in land and buildings, and produced 98 percent of the market sales in 1954.

The total number of farms has decreased from 6.3 million in 1930 to 4.8 million in 1954, a decrease of 1.5 million. (See figure 5.) Commercial farms have declined by 1.6 million which is at a more rapid rate than the decrease in all farms.¹ The decrease in commercial farms has been partly offset by an increase in part-time and residential units. A substantial part of the decrease in farm numbers between 1930 and 1954 was among the small subsistence units. These are places that have farm sales of less than \$250 and no apparent sources of income other than from the farm.

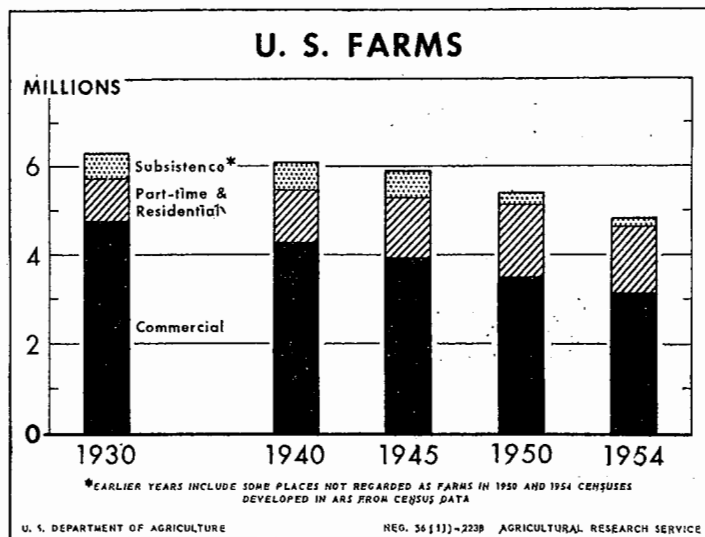


FIGURE 5.

Part-time and residential farms.—The increase in part-time farming is the result of numerous factors associated with general growth and development of both farm and nonfarm sectors of the economy. Farmers have not shared equally in the benefits from improved technology. Hilly land and small fields limited the adaptability of machines in some areas. Many operators of small farms have not found it economic to use even the smallest of the tractors and machines. At the same time, there has been a tremendous increase in retail and other services in rural areas because of the increasing proportion of farm inputs being bought by farmers as well as the larger disposable incomes of farm people. This, along with continued expansion of industries in the open country and small towns has provided local alternatives to farming.

Earnings from farming on some of the smaller units were less than nonfarm wages, so farmers and members of their families took advantage of attractive jobs nearby. Many continued to farm while commuting to other work nearby.

Part-time and residential farms are located in most parts of the country, but are most numerous in the South. Concentrations are noticeable throughout the Appalachian and Cumberland Mountains and in the vicinity of many of the larger cities.

FARMERS AND FARM PRODUCTION

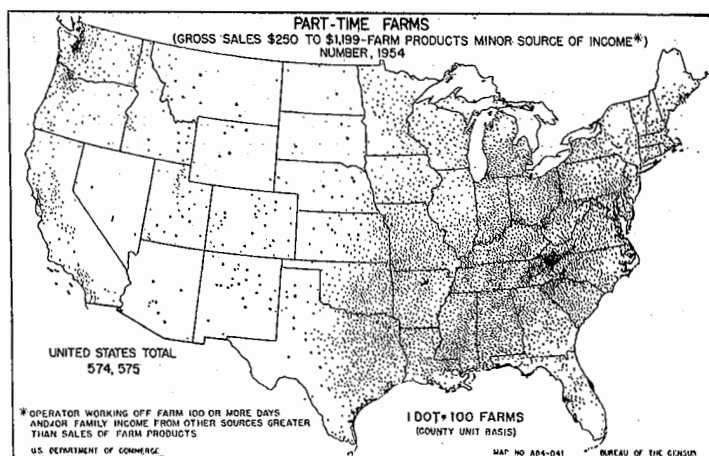


FIGURE 6.

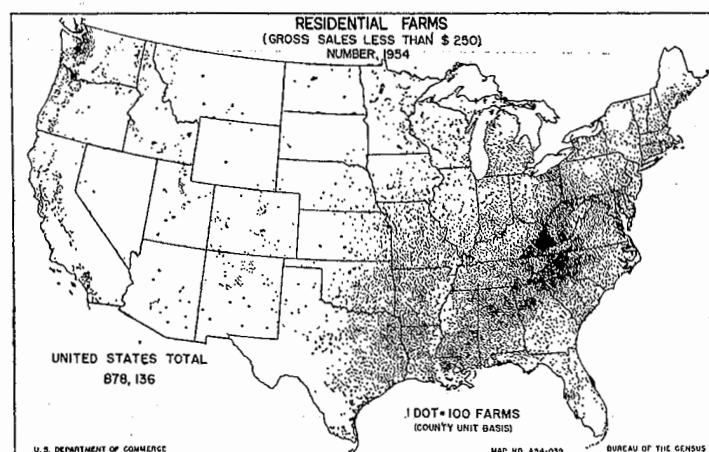


FIGURE 7.

The higher incidence of part-time and residential farms in the South is owing partly to the more recent industrial development there. Growth in manufacturing, in industries, and in trades and services coincided with other developments such as improvement of roads and the prevailing use of automobiles, which made it possible for farm people to commute to jobs in town, while continuing to live on the farms. Rural electrification made city conveniences possible in many rural homes and reduced some of the incentive for moving to town. An important factor has been the tendency of the manufacturing industries in the South to decentralize by locating their plants throughout many semirural areas. Also, the South contains a higher proportion of small, low-income farms than other broad regions of the country. Farm families on these small farms have probably had the greatest incentive to supplement their incomes through off-farm work.

A detailed analysis of part-time farming appears in chapter 8 of this report.

Commercial farms.—Commercial farms have a more general and widespread distribution over the United States than is true of the noncommercial farm categories. In most areas east of the 100th meridian there is a uniform and fairly heavy concentration of commercial farms. The density in the Mississippi River flood plains of Arkansas and Mississippi, the tobacco country of the Carolinas, and other scattered locations, reflect the larger numbers of small farms in these areas. The Corn Belt States of Iowa, Indiana, Illinois, and Ohio have a uniformly heavy concentration of commercial farms that is due to the high proportion of land open and suitable for farming.

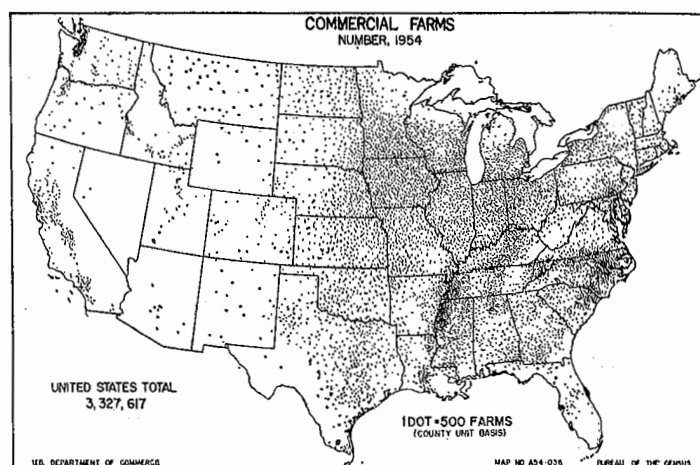


FIGURE 8.

The small number of commercial farms in most of the western half of the United States reflects the low average productivity of a region that has rough terrain and limited rainfall. The farms are large, on the average, except where irrigation has been developed. In the West, wherever large numbers of farms are clustered, the presence of irrigation is indicated. Exceptions are the Willamette Valley of Oregon and the Puget Sound country of Washington, where rainfall is sufficient to allow a variety of crops to be grown without irrigation.

Economic Classes of Commercial Farms

The commercial farms are divided into six economic classes on the basis of the value of farm products sold. The criteria for separating commercial from noncommercial farms and for delineating the economic classes of commercial farms are shown in the table which follows.

Economic class of farm	Criteria	
	Value of farm products sold	Other
Commercial farms.....		Total of 6 classes below.
Class I.....	\$25,000 or more.....	None.
Class II.....	\$10,000 to \$24,999.....	None.
Class III.....	\$5,000 to \$9,999.....	None.
Class IV.....	\$2,500 to \$4,999.....	None.
Class V.....	\$1,200 to \$2,499.....	None.
Class VI.....	\$250 to \$1,199.....	Less than 100 days of off-farm work by operator and income of operator and members of his family from nonfarm sources less than value of all farm products sold.
Other farms.....		Total of categories below.
Part-time.....	\$250 to \$1,200.....	Operator worked off farm 100 or more days or other income of family greater than value of all farm products sold.
Residential.....	Less than \$250.....	None.
Abnormal.....		Public and private institutional farms, experiment stations, etc.

Economic class as a measure of farm size.—One of the major uses of the economic classes of commercial farms is in broad analysis of the structure of farming. Information is needed on the extent to which producers on different sizes of farms have been able to make adjustments in production and take advantage of new techniques that have proved efficient. The economic classification, being based on gross sales of farm products, also provides an indirect measure of relative levels of farm income and its distribution.

There is today a great public interest in the size structure of farming. This is because of a real concern about the future of family-type farms. These are farms on which the management and most of the capital and labor are furnished by the operator and members of his family. The apparent growth in the size of farms and the reduction in the number of farms in recent years, have made people wonder whether the family type of farm is declining in importance as the major production unit in the Nation's agriculture. As farming on a commercial scale today requires large capital investments, a question is raised as to the ability of farm families to compete in the adoption of new techniques designed to increase efficiency and output.

TABLE 1.—FARMS AND SPECIFIED FARM RESOURCES BY ECONOMIC CLASS OF COMMERCIAL FARM, FOR THE UNITED STATES: 1954

Economic class of farm	Number of farms	Average per farm			
		Land in farms	Value of land and buildings	Expenditure for hired labor	Value of farm products sold
Commercial farms	<i>Thousands</i> 3,328	<i>Acres</i> 310.3	<i>Dollars</i> 25,429	<i>Dollars</i> 665	<i>Dollars</i> 7,302
Class I	134	1,939.1	134,160	8,342	57,997
Class II	449	537.8	51,510	1,166	14,883
Class III	707	311.9	27,992	422	7,178
Class IV	812	201.0	15,880	214	3,703
Class V	764	134.3	9,829	106	1,851
Class VI	463	97.1	6,096	43	756
Percentage distribution					
Commercial farms	100.0	100.0	100.0	100.0	100.0
Class I	4.0	25.2	22.2	50.5	32.0
Class II	13.5	23.4	27.4	23.6	27.5
Class III	21.2	21.4	23.2	13.5	20.9
Class IV	24.4	15.8	15.1	7.8	12.4
Class V	22.9	9.9	8.8	3.7	5.8
Class VI	13.9	4.4	3.3	0.9	1.4

Class I farms represent the relatively few large operations that had gross sales of \$25,000 or more in 1954. As a group, these farms are characterized by large acreages and large investments in land and buildings. They use considerable hired labor. The average wage bill amounted to \$8,342 per farm in 1954. Although comprising only 4 percent of the commercial farms, Class I farms accounted for 25 percent of the land in farms and 22 percent of the investment in land and buildings. They produced nearly a third of the farm products sold in 1954.

Economic Classes II, III, and IV represent, by and large, the medium to high income family farms that are an outstanding characteristic of American agriculture. They cover a fairly wide range in value of farm products sold, from \$2,500 to \$24,999. These farms as a group comprise the largest segment of commercial agriculture in respect to both numbers and value of production.

Class V farms had sales of farm products that ranged from \$1,200 to \$2,499. Class VI farms sold between \$250 and \$1,199 of farm products. By definition, operators of Class VI farms did not work off the farm as much as 100 days during the year and gross farm sales exceeded the income of the farmer and his family from off-farm sources. Although farms in these two classes comprised 37 percent of the commercial farms, they accounted for only 7 percent of the sales of all farm products. The small size of farm business

on these farms is indicated by the relatively small acreage and small investment in land and buildings.

Geographic distribution of economic classes.—The geographic distribution of each of the six economic classes of commercial farms is shown on the accompanying maps.

Class I farms are most numerous in Illinois, Iowa, the High Plains of Texas, and the irrigated parts of California. Many Class I farms, particularly in Iowa and Illinois, are livestock farms. Many of these purchase cattle and hogs for fattening. Farms with gross sales of \$25,000 are not considered large for this type of farm and the net income may be no larger than that received on many of the smaller economic classes in other types of farming.

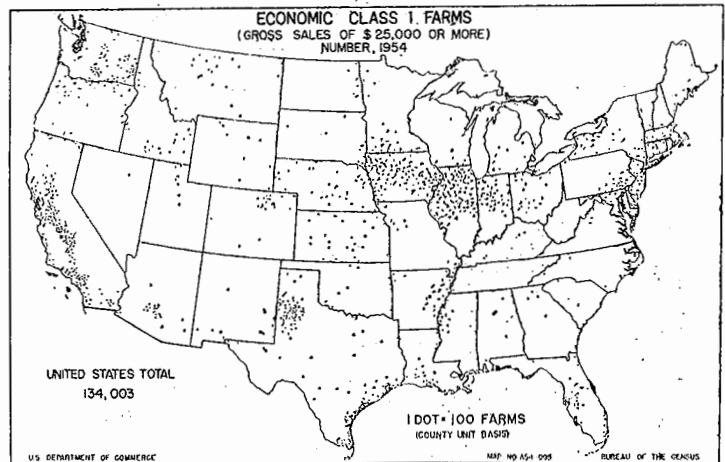


FIGURE 9.

The Corn Belt is the broad area of greatest density of Class II farms. Many farms in this class are also found in the Northeast, in the Plains States, and in the Pacific Coast States. Class III farms are widely distributed in the North. Class IV farms are fairly uniformly distributed throughout the entire country, although a heavy concentration of them is noticeable in the tobacco sections of the Carolinas. Economic Classes V and VI are much more numerous in the South where they are likely to be associated primarily with the growing of cotton and tobacco.

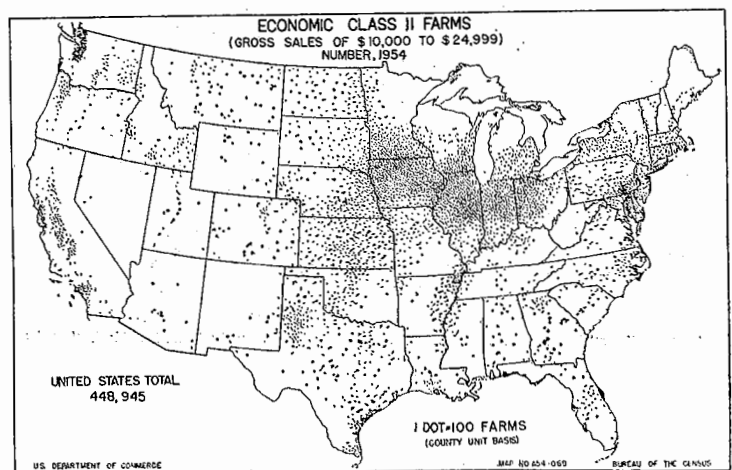


FIGURE 10.

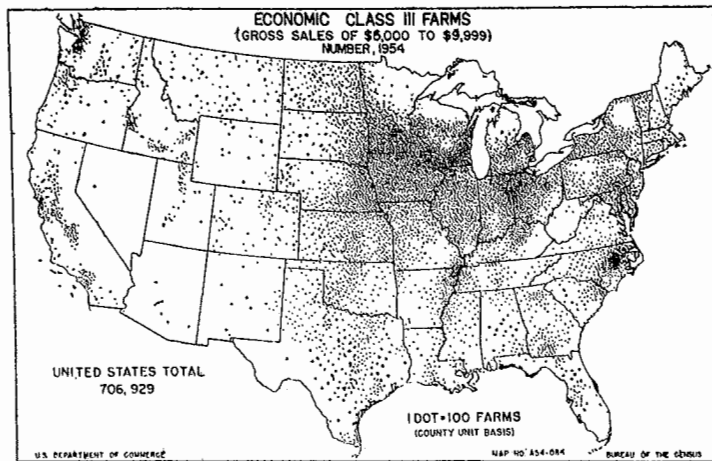


FIGURE 11.

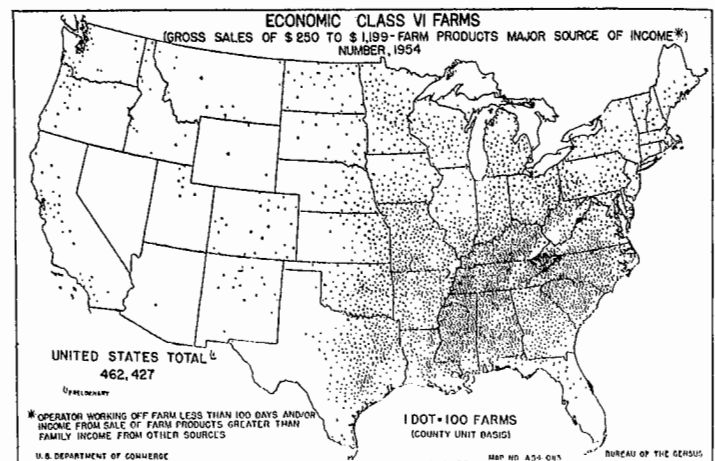


FIGURE 14.

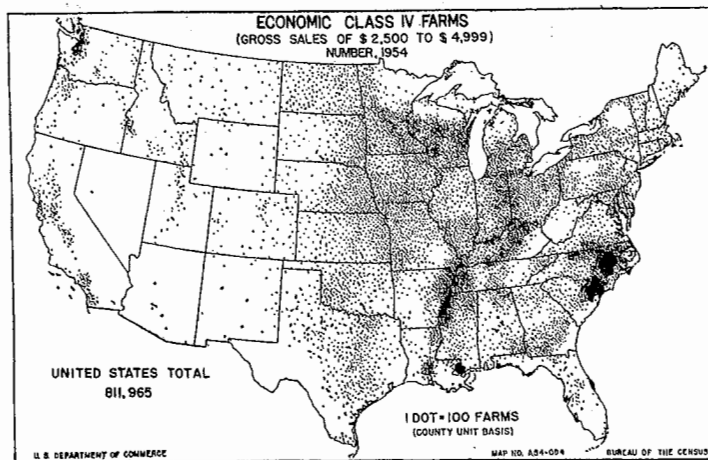


FIGURE 12.

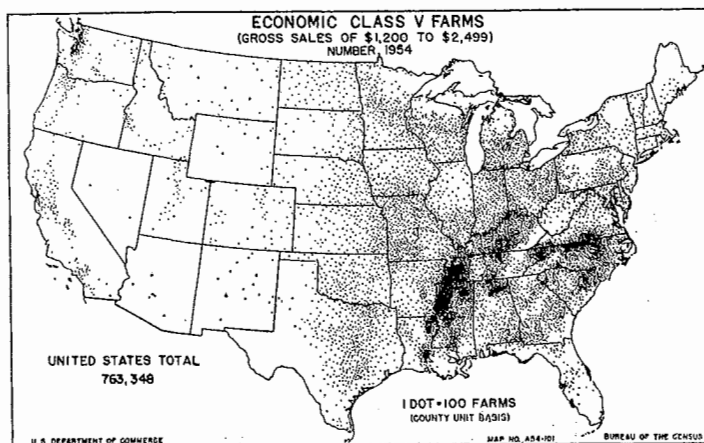


FIGURE 13.

Characteristics and limitations of the economic classification.—The economic classification is subject to certain characteristics which need to be considered when they are used. Probably the most important consideration is that classification on the basis of gross sales rather than net value of production fails to take account of differences in purchased inputs. This needs to be considered when comparisons are made between different types of farms.

In addition, the classification is based on one year's sales of farm products. For the purpose of providing a picture of the normal size of farms, this may not give an accurate picture of any farm that, because of chance factors, had higher or lower than normal yields or sales from inventories. The market output of an individual farm may vary considerably from year to year even though the farm organization remains relatively stable over a period of years in respect to capital, labor, and enterprises. This may be because of fluctuations in yield that arise through vagaries in weather or through higher or lower than normal sales of livestock. Thus, it is possible for farms with fairly similar levels of production over the average of several years to fall in different classes when classified on the basis of sales in a given year.

TYPES OF COMMERCIAL FARMS

The commercial farms are divided into types on the basis of the proportion of gross sales accounted for by sales of various commodities. In general, a farm was placed in a particular commodity type if gross sales of the particular commodity or group of commodities accounted for as much as 50 percent of the total gross sales from the farm. In some cases the type of farm was determined on the basis of the sale of an individual farm product, such as cotton, or on the basis of closely related products, such as dairy products. In other cases the type was determined on the basis of a broader group of products such as corn, sorghums, small grains, field beans, field peas, cowpeas, and soybeans. When the value of products from one source or group of sources did not represent as much as 50 percent of the total value of all farm products sold, the farms were classified as general.

The information on farm sales was only for the year specified. Many farms get a major part of their income from sales of two or more of the commodities used in the criteria for determining type. For these farms, classification by type in the particular year may be influenced to some extent by chance factors, such as the price relationships between commodities in the particular year and abnormalities in crop yield or changes in livestock inventories.

In the classification by type of farm, no recognition is given to products produced but not sold from the farm.

A measure of commodity specialization.—The separation of commercial farms by type of farm identifies the major producers of commodities or commodity groups. The criteria for determining type required that 50 percent or more of the farm income be derived from a particular source. Most types represent a fairly high degree of specialization among the producers classified. In consideration of problems in the production of specific commodities, this permits analysis of the farm organizations, efficiency and income of the producers involved, as well as identification of the areas of the country most affected. It makes possible a more meaningful appraisal of public policies and of the probable effects of alternative programs of assistance.

The number and proportions of the commercial farms by type of farm are shown in the table below.

Type of farm	Number of farms	Percent distribution
Cash-grain farms.....	537,974	16.2
Cotton farms.....	525,463	15.8
Other field-crop farms.....	367,733	11.1
Vegetable farms.....	32,581	1.0
Fruit-and-nut farms.....	82,096	2.5
Dairy farms.....	548,767	16.5
Poultry farms.....	154,251	4.6
Livestock farms other than dairy and poultry.....	694,888	20.9
General farms.....	347,079	10.4
Miscellaneous farms.....	37,057	1.1
Total.....	3,327,889	100.0

Geographic Distribution of Types of Farms

Cash-grain farms.—Out of 3.3 million commercial farms, more than a half-million are cash-grain farms. Cash-grain farms are those on which the value of farm sales from corn, sorghums, small grains, soybeans, cowpeas, and dry field beans and peas was equal to 50 percent or more of the total value of all farm products sold.

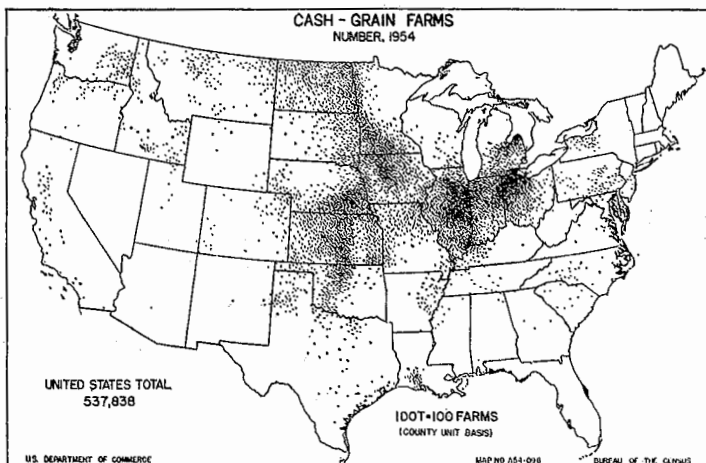


FIGURE 15.

The geographic distribution of cash-grain farms is shown on the map below. Concentrations of these farms are noticeable in areas where one or more of the cash grains are a predominate crop. In the Dakotas, Montana, Idaho, and Oregon, cash-grain farms are primarily spring wheat farms. Farther south, in Nebraska, Kansas, western Oklahoma, and the northern Panhandle of Texas, winter wheat was the grain crop that determined the type. In the Corn Belt States of Iowa, Illinois, Indiana, and Ohio, cash-grain farms represent largely corn and soybean farms. Cash-grain farms in the Gulf Coast of Louisiana and Texas, the Arkansas Prairies, and the Sacramento Valley of California, include many rice farms. In scattered localities the major source of income on cash-grain farms is from sorghum, dry field beans and peas, and small grains other than wheat and rice, but these farms are relatively unimportant numerically.

Cotton farms.—Cotton farms are those on which 50 percent or more of the sales of all farm products was from sales of cotton. The one crop, cotton, was the major source of farm sales on slightly more than one-half million farms, or about 16 percent of the commercial farms in 1954. Cotton farms are located almost entirely in the South and in selected irrigated areas of Texas, New Mexico, Arizona, and California. (See map below.) The northern extent of cotton production is limited sharply by temperature and length of growing season. In general, rainfall is insufficient in the Southwest so cotton can be grown only if irrigated.

The heaviest centers of concentration appear in the Mississippi and Arkansas deltas, in the Upper Piedmont and Coastal Plains of North Carolina, South Carolina, Georgia, Alabama, and Mississippi, and the Black Prairie of east central Texas. Other concentrations are found in southwestern Oklahoma and the high plains and lower Rio Grande Valley of Texas.

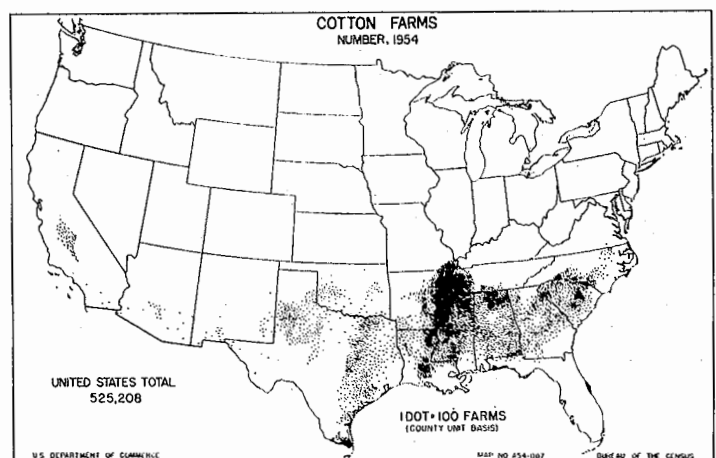


FIGURE 16.

Other field-crop farms.—Farms were classified in this category whenever the value of sales of a variety of major and minor crops accounted for 50 percent or more of the total value of all farm products sold. These crops include tobacco, peanuts, potatoes, sugar beets, sugarcane, and other specialty field crops except cotton. No one area has all these crops. In areas where one or more of them are grown, usually one tends to predominate. This makes it possible to identify the "other field-crop" farms in most areas as a more specific type, such as tobacco farms or peanut farms.

Slightly more than 10 percent of the commercial farms were classified as other field-crop farms in 1954. These farms are heavily concentrated in the Appalachian and southeastern States (see map below). Tobacco is the most important type-determining crop. Farms on which the sale of tobacco was the major source of farm sales accounted for more than two-thirds of the other field-crop farms in 1954. Burley and fire-cured tobacco farms account for most of the other field-crop farms in Kentucky, Tennessee, and western North Carolina. In the eastern Carolinas and Virginia, flue-cured tobacco predominates, although peanuts are grown along the coast of Virginia and North Carolina. The concentration of other field-crop farms in Georgia and Alabama represent primarily peanuts in Alabama and a mixture of peanuts and tobacco in Georgia.

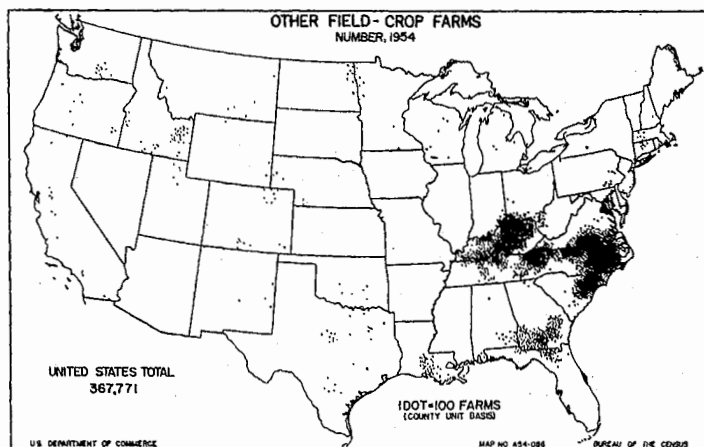


FIGURE 17.

Concentrations of other field-crop farms include potato farms in Aroostook County, Maine, and sugarcane farms in Louisiana. In the Red River Valley area of Minnesota and North Dakota, and in scattered western areas, potatoes and sugar beets are grown in the same areas and frequently on the same farms.

Vegetable farms.—Farms on which the value of all vegetables sold comprised 50 percent or more of the total farm products sold were classified as vegetable farms. They account for only 1 percent of the commercial farms. Many farms that grow vegetables for sale do not grow enough to fall in this specialized category.

Important localized areas of vegetable farms are found in many States across the Continent. (See map below.) Particular areas of concentration are Long Island, the Florida Peninsula, the lower Rio Grande Valley of Texas, southwest Arizona, and the area adjacent to San Francisco Bay.

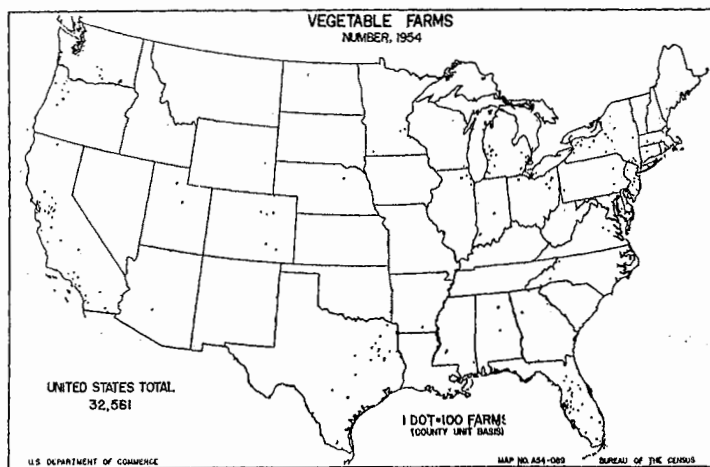


FIGURE 18.

Fruit-and-nut farms.—Like vegetable farms, the fruit-and-nut farms comprise one of the less numerous types. As fruit production on a commercial scale is largely restricted to areas having favorable conditions in respect to temperature, air drainage, and soil moisture, fruit-and-nut farms are highly concentrated in a few localities. (See map below.) The most important are found in California, Oregon, Washington, Michigan, New York, Florida, and Texas.

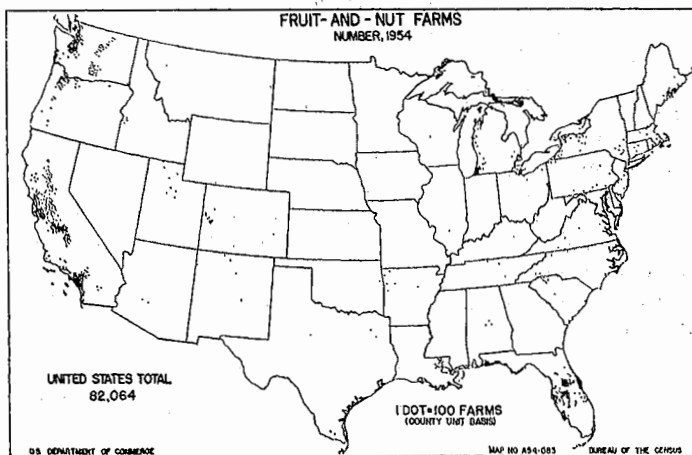


FIGURE 19.

Dairy farms.—Dairying is one of the more important types of farming. More than one-half million farms, comprising nearly 17 percent of the commercial farms, were classified as dairy farms in 1954. Farms were so classified if 50 percent or more of the total sales of farm products were milk or other dairy products; or, if 50 percent of the cows on hand were milk cows, sales of dairy products of 30 percent was sufficient, if together with sales of cattle and calves the two sources accounted for 50 percent of the total sales of farm products.

The principal areas of concentration of dairy producers are the Northeast, the Lake States, and the Pacific Coast States. (See map below.) Smaller areas of concentration are the Central Basin of Tennessee, southwestern Missouri, and the Lower Snake River country of Idaho. Other localized concentrations are found around most of the larger cities everywhere and are referred to frequently as local milksheds.

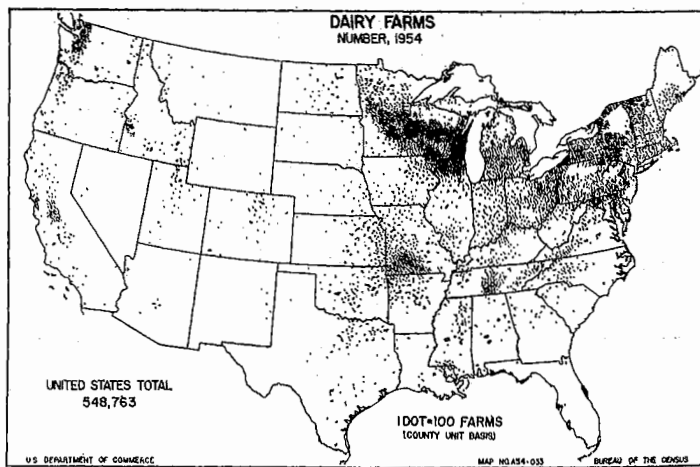


FIGURE 20.

Poultry farms.—Sales of chickens and eggs from the home flock is one of the most common sources of farm sales to farmers. In few cases, are these sales large enough to comprise the 50 percent of total sales of farm products needed to classify farms as poultry farms. Of all commercial farms, slightly less than 5 percent were poultry farms.

In general, poultry producers are most numerous in the north-eastern quarter of the United States. (See map below.) In this broad region, particular areas of concentration are shown in the Delmarva Peninsula, New Jersey, southeastern Pennsylvania, and the three southern New England States. In the southeastern part of the United States, concentrations of poultry farms appear in a few widely scattered localities. Particularly noticeable are the places of broiler production in Georgia, North Carolina, and the northwestern part of Arkansas. Poultry farms are relatively scarce in the West except in the Pacific Coast States.

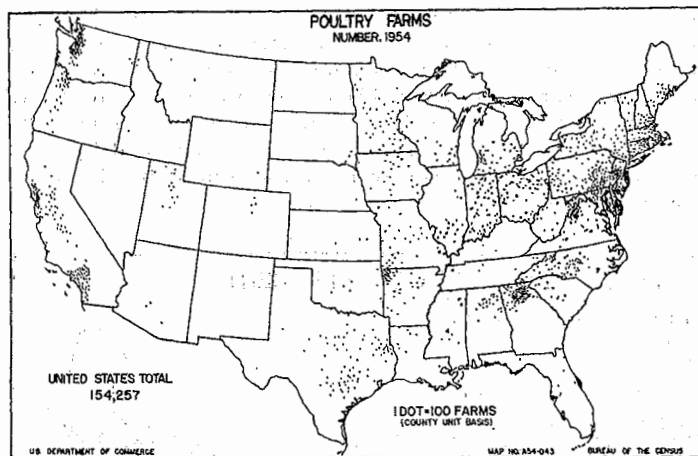


FIGURE 21.

Livestock farms other than dairy and poultry.—These farms, taken together, are the most numerous type in the United States. Over a fifth of the commercial farms (695,000) were classified as livestock farms in 1954. Farms were so classified if the total combined sales of cattle, hogs, sheep, goats, wool, mohair, goat milk, and products from animals slaughtered on the farm accounted for 50 percent or more of the total sales of farm products (provided the farm did not classify as a dairy farm).

Livestock farms show a widespread and fairly uniform distribution over the country (see map below). The areas of greatest concentration are in Iowa, northern Missouri, and western Illinois. Central Indiana, southwestern Ohio, and northeastern Nebraska show areas of almost equal concentration but of smaller geographic scope. These States comprise what is known as the Corn Belt where large quantities of feed grains are grown and the fattening of hogs and cattle is the dominant farm enterprise.

Livestock farms in other parts of the country may vary from vast ranches in the arid West, which may require 40 or more acres per animal unit, to farms in some areas of the South, which occasionally have improved pastures that will carry an animal unit on 1 or 2 acres. Because of the large acreages required per animal unit in the Western States, livestock farms are sparsely distributed even though they are the most important type from the standpoint of numbers. Many livestock farms in the Appalachian and southeastern parts of the country are small farms of a subsistence type where small sales of cattle and hogs are the main farm sales.

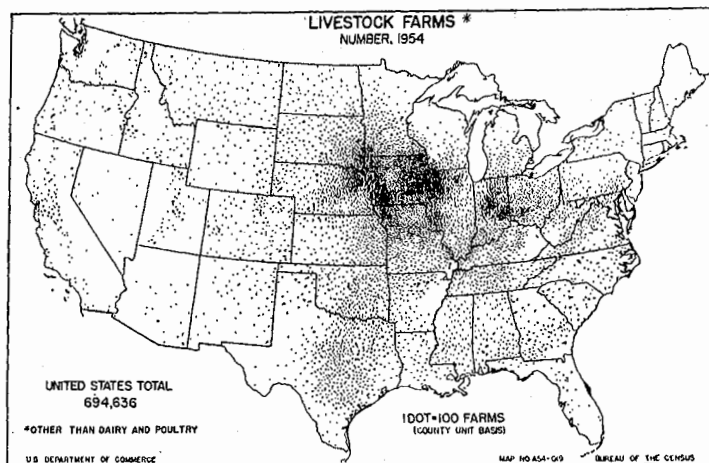


FIGURE 22.

General farms.—Farms were classified as general when none of the specified commodities or commodity groups accounted for as much as 50 percent of gross farm sales. The Census of Agriculture provides data for three types of general farms. These are (1) primarily crop, (2) primarily livestock, and (3) crop and livestock.

As a group, general farms account for 10 percent of the commercial farms. Their geographic distribution is more uniform over the United States than any other type (see map below). Relatively heavy concentrations are found in areas that are transitional between the more specialized farming areas; there general farms are likely to be less specialized versions of the major types. The combination of livestock production with the growing of grains is the most frequent reason for farms being classified as general. In the Plains States, for example, wheat production is often combined with cattle raising or fattening. Farther east, hog and beef fattening is combined with dairying and with growing corn and other feed grains. Livestock is produced along with tobacco in the burley and fire-cured tobacco country of Kentucky and Tennessee, and with cotton throughout the Southeast. More than three-fourths of the general farms were classified as primarily livestock or crop and livestock.

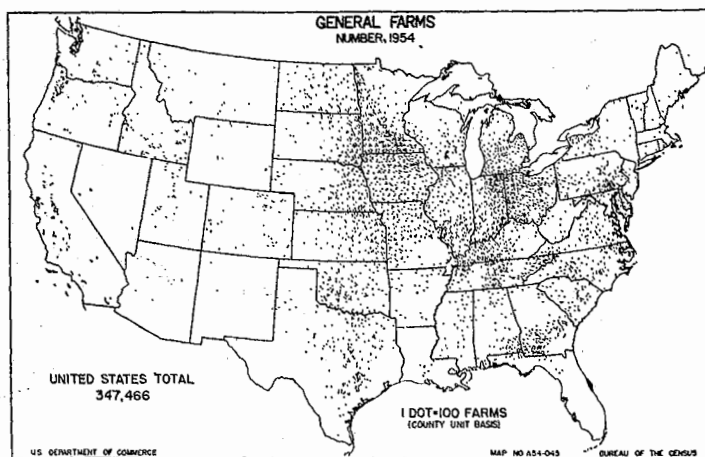


FIGURE 23.

Miscellaneous farms.—This category includes relatively unimportant types as to number, such as forest-products farms, horse farms, nurseries, and greenhouses. Taken together, these farms accounted for only 1 percent of all commercial farms. The main purpose in classifying miscellaneous farms was to exclude them from the other types in order that the classification would be more meaningful.

Type-of-Farming Areas

Any attempt to outline type-of-farming areas in the United States must necessarily be very general. It is typical in some regions that a particular type of farm predominates, but other regions are characterized by a mixture of types, none of which predominate numerically.

The accompanying map shows the type of farm that accounted for 50 percent or more of the commercial farms in each county for 1954. (See map below.) Mixed-farming counties are those in which no single type comprised as much as half the commercial farms.

On this basis, several major type-of-farming areas stand out: The dairy areas of New England and the Lake States; the tobacco areas of North Carolina and Kentucky; the cotton area which covers most of the South as well as parts of Texas, New Mexico, Arizona, and California; the livestock areas which predominate

in the West and extend into the Midwest; the cash-grain areas of the Midwest, North Dakota, Kansas, and the Northwest; and the fruit-and-nut areas of central California and the Florida peninsula. In addition to these, there are many smaller areas in which certain types of farms predominate.

But the mixed areas cover a greater geographic extent than does any specific type. These usually border the more specialized areas. In some instances they are transitional areas in which two or more major types of farming merge. In this respect, it is interesting to observe the mixed nature of farming in the Midwest, long known for its corn, hogs, and cattle feeding. With the exception of livestock areas of Iowa and Missouri and the cash-grain areas of Illinois and Indiana, this region appears as predominantly a mixed-farming area. Production of feed grains and feeding of livestock are interrelated to the extent that neither enterprise predominates in most of this region.

In reviewing the type-of-farming area maps shown here, it must be recalled that they are based upon numbers of farms having a major source of income from a particular source. For this reason, type-of-farming areas may not represent the major source of income for the area. This would be true in cases in which relatively small numbers of farms with large sales volumes were of basically different types. In most situations a cash-grain or dairy area, for example, will approximate the area outlined by the major source of income.

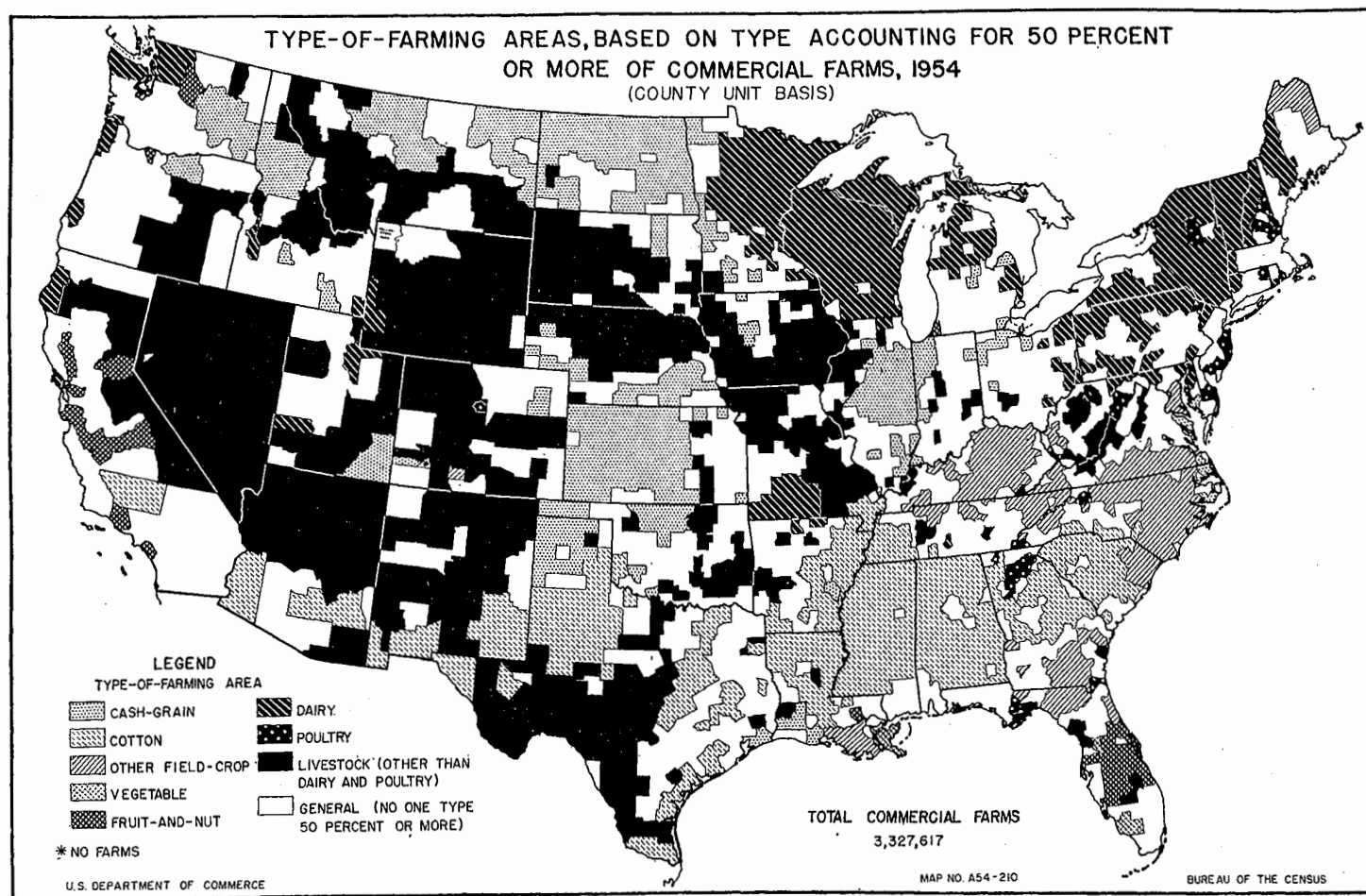


FIGURE 24.

TYPE OF FARM BY ECONOMIC CLASS

Substantial differences exist between types of farms in regard to the proportions that fall into the various economic classes. The number of each type of commercial farm by economic class is shown in table 2.

TABLE 2.—NUMBER OF FARMS IN EACH TYPE OF FARM BY ECONOMIC CLASS, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
All commercial farms	3,327,889	134,064	448,847	706,852	812,108	763,515	462,503
Cash-grain.....	537,974	21,905	110,597	160,337	129,042	82,780	33,214
Cotton.....	525,403	15,230	25,585	47,013	116,163	187,228	134,235
Other field-crop.....	367,733	5,585	15,414	47,706	114,222	117,121	67,685
Vegetable.....	32,581	3,751	4,480	5,094	6,384	6,405	6,377
Fruit-and-nut.....	82,096	10,675	15,330	16,367	16,876	15,853	6,905
Dairy.....	548,767	11,698	76,083	156,506	153,690	102,836	47,954
Poultry.....	154,251	13,137	28,554	28,582	27,605	28,923	27,450
Livestock other than dairy and poultry.....	694,888	39,835	121,287	152,413	143,072	137,490	100,791
General:							
Primarily crop.....	80,039	3,784	9,955	14,417	20,255	21,054	10,574
Primarily livestock.....	63,197	592	7,156	16,414	18,662	13,804	6,560
Crop and livestock.....	203,843	3,292	28,578	56,470	69,015	41,565	14,923
Miscellaneous.....	37,057	4,481	5,828	5,533	7,122	8,357	5,736

Class I farms (farms with a total value of farm products sold of \$25,000 or more) are not numerous, nationally. They numbered 134,064 in 1954 and comprised only 4 percent of the commercial farm numbers. Most of the Class I farms are found among types of farms that are numerically important. Livestock farms, for example, account for 21 percent of all commercial farms. About 30 percent of the Class I farms are of this type. Cash-grain and cotton farms, also numerous nationally, accounted for 16 percent and 11 percent, respectively of the Class I farms. Of these types, however, Class I farms comprise a small proportion of the number of farms. Only 3 percent of the cotton farms, and 4 percent of the cash-grain farms were classified in Class I.

In some types of farming, farms with sales of \$25,000 or more account for a sizable proportion of the farms. These are primarily highly specialized types that are not numerous nationally. Fruit-and-nut farms accounted for less than 3 percent of the commercial farms, but among farms of this type 13 percent were classified as Class I. More than 11 percent of the vegetable farms and 8 percent of the poultry farms had sales of \$25,000 or more.

Classes II, III, and IV are often referred to as the family-size farms. The value of farm products sold ranges from a lower limit of \$2,500 on Class IV farms to an upper limit of \$25,000 on Class II farms. About three-fifths of all commercial farms fall in these classes. But farms in these economic classes are much more typical of some types of farming than others.

Economic Classes II, III, and IV comprised about 75 percent of the total number of cash-grain farms, and only slightly less of the dairy farms and general farms. Substantially more than half of the farms in each of the other types were in these economic classes with the exception of cotton farms, other field-crop farms, and vegetable farms. More than 60 percent of the cotton farms, 50

percent of the other field-crop farms, and 40 percent of the vegetable farms fell in Classes V and VI (gross farm sales of less than \$2,500). These farms are often referred to as "low-production" or "low-income" farms.

TABLE 3.—PERCENT DISTRIBUTION OF FARMS IN EACH TYPE OF FARM BY ECONOMIC CLASS, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
All commercial farms	100.0	4.0	13.5	21.2	24.4	22.9	13.9
Cash-grain.....	100.0	4.1	20.6	29.8	24.0	15.4	6.2
Cotton.....	100.0	2.9	4.9	8.9	22.1	35.6	25.5
Other field-crop.....	100.0	1.5	4.2	13.0	31.1	31.8	18.4
Vegetable.....	100.0	11.5	13.8	15.6	19.6	19.9	19.6
Fruit-and-nut.....	100.0	13.0	18.7	19.9	20.6	19.3	8.5
Dairy.....	100.0	2.1	13.9	28.5	28.0	18.7	8.7
Poultry.....	100.0	8.5	18.5	18.5	17.9	18.8	17.8
Livestock other than dairy and poultry.....	100.0	5.7	17.5	21.9	20.6	19.8	14.5
General:							
Primarily crop.....	100.0	4.7	12.4	18.0	25.3	26.3	13.2
Primarily livestock.....	100.0	0.9	11.3	26.0	29.5	21.8	10.4
Crop and livestock.....	100.0	1.6	14.0	27.7	29.0	20.4	7.3
Miscellaneous.....	100.0	12.1	15.7	14.9	19.2	22.6	15.5

TABLE 4.—PERCENT DISTRIBUTION OF FARMS IN EACH ECONOMIC CLASS, BY TYPE OF FARM, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
All commercial farms	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Cash-grain.....	16.2	16.4	24.6	22.7	15.9	10.8	7.2
Cotton.....	15.8	11.4	5.7	6.7	14.3	24.5	29.0
Other field-crop.....	11.0	4.2	3.4	6.7	14.1	15.3	14.6
Vegetable.....	1.0	2.8	1.0	0.7	0.8	0.9	1.4
Fruit-and-nut.....	2.5	8.0	3.4	2.3	2.1	2.1	1.5
Dairy.....	16.5	8.7	17.0	22.1	18.9	13.5	10.4
Poultry.....	4.6	9.8	6.4	4.0	3.4	3.8	5.9
Livestock other than dairy and poultry.....	20.9	29.7	27.0	21.6	17.6	18.0	21.8
General:							
Primarily crop.....	2.4	2.8	2.2	2.0	2.5	2.8	2.3
Primarily livestock.....	1.9	0.4	1.6	2.3	2.3	1.8	1.4
Crop and livestock.....	6.1	2.5	6.4	8.0	7.3	5.4	3.2
Miscellaneous.....	1.1	3.3	1.3	0.8	0.9	1.1	1.2

To summarize, cash-grain farms, dairy farms, livestock farms, and general farms are characterized by a small proportion of very large farms or of extremely small farms, when measured in terms of gross sales. Poultry farms, fruit-and-nut farms, and vegetable farms have a relatively high proportion of operations which grossed \$25,000 or more in 1954 and somewhat fewer farms in the medium-size groups. Vegetable and poultry farms are also characterized by a fairly high proportion of small operations which had gross sales of less than \$2,500. Relatively few fruit-and-nut farms produce at this small volume of business.

Few of the cotton and other field-crop farms sold as much as \$25,000 of farm products. More than half sold less than \$2,500 of farm products. More than two-fifths of all Class V and Class VI farms were of these two types.

CHANGES IN THE STRUCTURE OF COMMERCIAL FARMING

CHANGES AFFECT FARMERS DIFFERENTLY

Agriculture is confronted with many problems of production and is undergoing basic adjustments. These problems, and the kinds of adjustments that may be needed, vary considerably by types and sizes of farms.

Changes that have affected agriculture have had different impacts upon the several types and sizes of farms. This is true for new developments in farm-production practices, changes in demand, and prices of products, as well as for the more general changes.

Improved techniques designed to increase yields and decrease labor needs in farming have varied in their adaptability to different crop and livestock enterprises and different sizes of farms. Differential rates of progress have been characteristic in the invention of machinery to mechanize completely the production of the major cash crops. Notable examples are the cash grains, which for many years have been grown and harvested almost entirely with machinery; and tobacco, which still requires a great deal of hand labor, particularly at harvest. Mechanization has been more feasible for farmers on larger acreage units and for those with land that is fairly level and in sizable tracts. Because of the high capital requirements, the financial and credit positions of farmers have also been important factors bearing on the rate of mechanization.

Farmers have not benefited equally even in the more simple practices of increasing yields. The results from use of commercial fertilizer, which have been so noticeable in humid eastern areas, have not proven as effective in areas where rainfall is more limited. Crop yields have been increased by using a wide variety of improved plants and seeds, but only a few crops have had such spectacular success as hybrid corn, which has affected the farmers in the Corn Belt, primarily.

More general changes, that have originated in the economic growth of the Nation, have also had different impact upon the various sectors of agriculture. With increasing concentration of population in cities, farmers have needed to produce the products demanded by urban tastes and customs. Substitutions of commodities have taken place. Consumers are buying less of the starchy foods in the form of bread, flour, potatoes, and rice, and are buying more meats, milk, eggs, and fresh vegetables. Vegetable oils have increased in demand for both household and industrial uses.

Rapid transportation and new processes for freezing foods have changed the locational advantages of farmers. These developments have enabled some farmers who are far from population centers to compete for what were formerly local markets. The development and production of synthetic fibers, the decline in foreign markets, and the competition of foreign agricultural producers, each has a distinct impact upon the structure of American agriculture.

Commercial farms have become fewer but they are much larger when measured by either the volume of farm sales or the acres of land in farms. The larger farms have become more numerous and there are fewer small farms. At the same time, there have been shifts in farming from one type to another. Along with the reduction in the number of commercial farms, most types of farms have decreased in actual number, but at different rates. Some types have increased as a proportion of the commercial farms. The changing structure is also reflected in adjustments made in the composition and use of farm resources.

Changes in agriculture are gradual. Most of the comparisons of changes, which follow, are based upon the Censuses of 1950 and 1954. The time period is too short to permit isolation of long-run trends or to warrant conclusions regarding the implications of these changes. Some of the changes that have occurred between 1950 and 1954 are thought to be illustrative of basic and long-run adjustments that are being made. Others may reflect only short-run variations that resulted from conditions peculiar to one or the other years under consideration.

The Censuses of 1950 and 1954 are selected as the basis of these comparisons because of the comparability of classifications used. Both Censuses provide data on the characteristics of farms grouped by economic class and by type of farm. The criteria used by the two Censuses for determining economic class and type of farm were identical. These classifications permit a more detailed examination of changes in commercial agriculture than has been possible previously.

CHANGES BY ECONOMIC CLASSES

Between 1950 and 1954 the number of commercial farms decreased by 378,523, a decrease of approximately 10 percent. The number of Class I farms increased by 30,833. This represents an increase of more than a fourth in the number of these large operations. As a proportion of the total commercial farms, however, Class I farms comprised less than 3 percent in 1950 and only 4 percent in 1954. (See table 5.)

TABLE 5.—CHANGES IN NUMBER AND PERCENT DISTRIBUTION OF COMMERCIAL FARMS, BY ECONOMIC CLASS, FOR THE UNITED STATES: 1950 to 1954

Economic class of farm	Number		Increase or decrease (—) from 1950 to 1954		Percent of farms	
	1950	1954	Number	Percent	1949	1954
Commercial farms.....	3,706,412	3,327,889	-378,523	-10.2	100.0	100.0
Class I.....	103,231	134,064	30,833	29.9	2.8	4.0
Class II.....	381,151	448,847	67,696	17.8	10.4	13.5
Class III.....	721,211	706,862	-14,350	-2.0	19.6	21.2
Class IV.....	882,302	812,108	-70,194	-8.0	23.8	24.4
Class V.....	901,316	763,515	-137,801	-15.3	24.2	22.9
Class VI.....	717,201	462,503	-254,698	-34.1	19.1	13.9

The number of farms in Class II increased by 63,000—an increase of 16 percent. Farms in this class comprised about 13 percent of the commercial farms in 1954, compared with 10 percent in 1950.

Farms in the smaller economic classes decreased in number. This decrease was relatively small for Economic Classes III and IV. While decreasing in actual number, farms in these classes comprised a slightly larger proportion of the commercial farms in 1954 than in 1950. Most of the reduction in the number of commercial farms was among the small farms producing less than \$2,500 of farm products for sale. Class V farms decreased by 132,156, a decrease of 15 percent, and Class VI farms decreased in number by 245,561, a decrease of 35 percent. These classes, taken together, accounted for 36 percent of the commercial farms in 1954 compared with 43 percent 5 years earlier.

The average prices received by farmers for all farm products sold were at approximately the same level in both 1949 and 1954. The economic classifications based on farm sales in each of these years are comparable in terms of the physical volume of farm production represented. Changes in the number of farms by economic class between 1950 and 1954 indicate the substantial increase in farm production that took place. This alone would have been sufficient to cause many farms to fall in larger economic classes. But in addition, there was a reduction in the number of farms and this land was incorporated in the remaining farms giving them a larger acreage base. The shift to larger economic classes was a combination of the increase in production per acre and per animal unit and the larger acreage base per farm.

The increase in size of farm is a part of technological progress in agriculture. The greater use of farm machinery enables a smaller work force to tend more acres and more animal units and to harvest a larger production. The increase in farm size does not necessarily indicate a shift toward large-scale farms employing large numbers of hired workers. In fact all indications are that substantial growth took place on farms operated primarily with family labor. Many of these farms acquired additional land in order to utilize their machinery more efficiently.

SPECIALIZATION IN FARMING

Changing conditions have also had their impact upon the types of farming—the commodities produced, the number of producers, and the combination of farm enterprises. A question of current interest relates to specialization in agriculture; more specifically, whether or not recent developments have encouraged farmers to specialize in one or more enterprises rather than produce several different commodities in more diversified types of farming.

A conclusive answer to this question would require a more detailed analysis than is given in this report. However, some indication of probable trends may be drawn from changes in the number and proportion of farms that produced one or more of several major commodities during the 25-year period ending in 1954. These changes are shown in table 6.

The trend of the last 25 years indicates that most major commodities are now produced by fewer farms and by a smaller proportion of the farms. This trend is much more pronounced in the

production of some commodities than others. In the case of tobacco the trend is in the opposite direction.

In interpretation of these trends one must consider recent developments in methods of production, marketing and processing, changes in consumer demand, the time period under consideration, and the types of Government programs in effect.

One of the major pressures for greater specialization in agriculture has been the need for efficient utilization of machinery and other capital equipment. Investments in farm machinery and in improved housing and facilities for livestock and poultry have not been profitable unless the enterprise was carried on in sufficient volume. In order to gain the advantages from use of new technology, many farmers have found it necessary to concentrate on one or a few enterprises rather than several.

The small change in the proportion of farms producing wheat is owing largely to the time period. Mechanization in the production of small grains was well underway prior to 1929. The changes in production techniques of the last 25 years have not been so important as those that occurred during the preceding two decades. In contrast, mechanization of cotton production has been a more recent occurrence. Its impact on the number and proportion of farms producing cotton is apparent.

The increasing number and proportion of farms producing tobacco are attributable to the lack of progress in developing labor-saving equipment to perform certain crucial operations, and the lack of more profitable alternatives to tobacco for many farmers in the producing areas. Government programs—acreage allotments and price supports—may have also contributed to the trend.

The increase in the proportion of farms selling milk is in accord with the greater consumption of fluid milk by a growing population.

Production of broilers and eggs and of vegetables for sale show noticeable trends toward greater specialization. The sale of eggs and chickens from home flocks has been supplanted by modern efficient highly specialized operations. This change reflects improvements in disease control, feeding and housing, and other developments that enable fewer workers to care for a larger number of birds. Along with developments in transportation and processing, vegetable production, which used to be centered in environs of most of the larger cities, has shifted to areas having other natural advantages.

TABLE 6.—NUMBER AND PROPORTION OF FARMS HAVING PRODUCTION OR SALES OF SPECIFIED COMMODITIES, FOR THE UNITED STATES BY SPECIFIED YEARS: 1929 TO 1954

Item	1929		1939		1949		1954	
	Number of farms	Percent of all farms	Number of farms	Percent of all farms	Number of farms	Percent of all farms	Number of farms	Percent of all farms
Corn grown for all purposes.....	4,597,949	73.1	4,456,259	73.1	3,403,965	63.2	2,844,369	59.5
Wheat threshed.....	1,208,368	19.2	1,385,774	22.7	¹ 1,147,710	¹ 21.3	^{1,2} 1,004,607	^{1,2} 21.0
Cotton produced.....	1,986,726	31.6	1,589,723	26.1	1,110,876	20.6	864,138	18.1
Tobacco raised.....	432,975	6.9	498,348	8.2	³ 531,922	³ 9.9	³ 513,346	³ 10.7
Vegetables harvested for sale other than Irish potatoes and sweet potatoes.....	627,452	10.0	462,552	7.6	346,528	6.4	279,606	5.8
Whole milk sold.....	893,431	14.2	953,898	15.6	1,096,650	20.4	934,143	19.5
Cream sold.....	(NA)	(NA)	1,490,383	24.0	862,128	16.0	540,556	11.3
Chickens sold.....	3,129,715	49.8	2,519,076	41.3	1,713,435	31.8	1,030,287	21.5
Eggs sold.....	3,872,482	61.6	(NA)	(NA)	2,420,718	45.0	1,684,531	35.2
Cattle sold.....	(NA)	(NA)	2,625,783	43.1	2,982,616	55.4	2,611,031	54.6
Hogs sold.....	(NA)	(NA)	1,842,704	30.2	2,097,807	39.0	1,423,943	29.8

NA Not available.

¹ Totals for States for which data are available.

² Includes some duplication of farms reporting different types of wheat.

³ Includes some duplication of farms reporting different types of tobacco.

CHANGES IN TYPE OF FARM

Between 1950 and 1954 there was a decrease in number of each type of farm except cash-grain farms. (See table 7.) Cash-grain farms increased by more than 100,000, or about a fourth. The greatest reduction in absolute number occurred among dairy farms and general farms, which decreased by about 150,000 each. Among general farms, those classified as primarily livestock decreased by nearly half. Other livestock farms and cotton farms, among the most numerous types nationally, decreased by 111,000 and 84,000, respectively. Fruit-and-nut farms and vegetable farms are specialized types that are not numerous nationally. Fruit-and-nut farms remained about the same in number while vegetable farms decreased by nearly a third.

TABLE 7.—CHANGES IN NUMBER AND PERCENT DISTRIBUTION OF COMMERCIAL FARMS, BY TYPE OF FARM, FOR THE UNITED STATES: 1950 to 1954

Type of farm	Number		Increase or decrease (-) from 1950 to 1954		Percent of farms	
	1950	1954	Number	Percent	1950	1954
Commercial farms	3,706,412	3,327,889	-378,523	-10.2	100.0	100.0
Cash-grain	430,389	537,074	107,585	24.8	11.6	16.2
Cotton	609,307	525,463	-83,844	-13.8	16.4	15.8
Other field-crop	400,421	367,733	-41,688	-10.2	11.0	11.1
Vegetable	46,415	32,581	-13,834	-29.8	1.3	1.0
Fruit-and-nut	82,178	82,006	-82	-0.1	2.2	2.5
Dairy	602,093	548,767	-153,326	-25.5	16.2	16.5
Poultry	175,876	154,251	-21,625	-12.3	4.7	4.6
Livestock other than dairy and poultry	806,080	694,888	-111,192	-13.8	21.7	20.9
General:						
Primarily crop	494,285	347,079	-147,206	-29.8	13.3	10.4
Primarily livestock	84,560	80,039	-4,530	-5.4	2.3	2.4
Crop and livestock	134,666	63,197	-71,469	-53.1	3.6	1.9
Miscellaneous	275,050	203,843	-71,207	-25.9	7.4	6.1
Miscellaneous	50,368	37,057	-13,311	-26.4	1.4	1.1

Changes in types of farms by economic class.—Cash-grain farms were the only type that increased numerically between 1950 and 1954. Fruit-and-nut farms remained about the same. There were decreases in the number of all other types. Decreases also occurred among farms in each of the smaller economic classes—Classes III through VI. The larger farms, Classes I and II, increased substantially.

These changes in number have brought about noticeable differences in the size structure of the individual type of farm (see table 8). There was an increase in the number of Class I farms for each type. Numerically, this increase was greatest on cash-grain farms, an increase of 8,000 Class I farms. This type accounted for more than a fourth of the total increase in Class I farms.

The next largest increase in Class I farms occurred among fruit-and-nut farms. The increase of 5,000 Class I farms represented an increase to twice the number of these farms in 1950. Sizeable increases in the number of Class I farms also occurred for cotton, poultry, and other livestock farms.

The number of Class II farms increased for most types. Over half of the increase was for cash-grain farms and a fourth of the increase was for dairy farms. The decreases in Class II farms were of relatively minor proportions where they occurred.

The changes in the number of Class III farms occurred only for a few types. The decreases were virtually all for other livestock, general livestock, and general crop and livestock farms; a total decrease of 60,000 farms. This was partially offset by substantial increases for cash-grain and other field-crop farms. Changes in the number of Class III farms were slight for the remaining types.

TABLE 8.—CHANGES IN NUMBER OF FARMS, FOR EACH TYPE OF COMMERCIAL FARM, BY ECONOMIC CLASS, FOR THE UNITED STATES: 1950 to 1954

[A minus sign (-) indicates a decrease]

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
Increase or decrease, 1950 to 1954:							
Commercial farms	-378,523	30,833	67,696	-14,359	-70,104	-137,801	-254,698
Cash-grain	107,585	8,232	30,495	32,593	19,227	14,748	-3,710
Cotton	-83,844	3,093	-1,657	2,041	24,786	-8,693	-104,314
Other field-crop	-41,688	740	2,341	10,390	-95	-26,132	-28,032
Vegetable	-13,834	677	-378	-1,649	-2,864	-4,329	-5,291
Fruit-and-nut	-82	5,426	4,308	876	-2,053	-4,071	-4,568
Dairy	-53,326	1,716	14,851	2,526	-26,245	-30,581	-15,593
Poultry	-21,625	4,489	6,023	155	-6,425	-14,110	-11,767
Livestock other than dairy and poultry	-111,192	2,082	-1,618	-36,674	-33,508	-15,218	-27,156
General:							
Primarily crop	-4,530	1,455	3,015	2,053	1,184	-2,673	-9,564
Primarily livestock	-71,469	41	-715	-15,037	-23,244	-18,932	-13,582
Crop and livestock	-71,207	908	5,005	-10,569	-18,948	-23,462	-24,201
Miscellaneous	-13,311	114	26	-1,064	-2,000	-4,348	-6,030
1954 as percent of 1950:							
Commercial farms	90	130	118	98	92	85	64
Cash-grain	125	160	149	126	118	122	90
Cotton	86	136	94	105	127	96	56
Other field-crop	90	115	118	128	100	82	70
Vegetable	70	122	92	76	69	60	55
Fruit-and-nut	100	203	139	106	89	80	60
Dairy	91	117	124	102	85	77	75
Poultry	88	152	127	101	81	67	70
Livestock other than dairy and poultry	86	108	99	81	81	90	79
General:							
Primarily crop	95	162	143	117	106	80	52
Primarily livestock	47	107	91	52	45	42	33
Crop and livestock	74	142	121	84	76	64	38
Miscellaneous	74	103	100	84	78	66	49

Decreases in the number of Class IV farms took place for all types except cash-grain and cotton farms. The bulk of the decrease was for dairy farms and the livestock types listed in the preceding paragraph. Class IV cash-grain and cotton farms increased by a fifth and a fourth, respectively.

With the exception of cash-grain farms, the number of Class V farms decreased substantially for each type. The net decrease of 132,000 was a decrease of 15 percent from the number in 1950. The greatest proportionate decrease was for general livestock farms, a decrease of 60 percent.

There was a decrease of 246,000 in Class VI farms. The number of these small farms declined for each type of farm. The greatest numerical decrease was for cotton farms, a decrease of 104,000. The greatest proportionate decrease was for general livestock and general crop and livestock farms. On these types the number of Class VI farms declined to only a third their number in 1950.

Increases and decreases in some types of farms are closely related to changes in relative prices received by farmers for different commodities, and changes in cost-price relationships that affect alternative enterprises on the farm. Type of farm was based upon sales of farm products in the particular year. Farms having substantial sales from two or more commodities (or commodity groups) may have been classified in some cases as one type in 1950 and another type in 1954. This shifting between types probably accounts for a considerable part of the increase in cash-grain farms and the decrease in livestock farms and general farms between 1950 and 1954.

Along with the decrease in total commercial farm numbers, farms of most types have declined in number. But within the overall decrease there have been differences in the changes geographically.

Geographic changes in type and economic class.—The decline in the number of the smaller economic classes of farms, the increase in the larger classes, and the overall reduction in the total number of commercial farms between 1950 and 1954, is but a continuation of the trend in recent decades. The changes in the number of farms by type and their size distribution, however, is primarily useful in a description of the current 5-year period rather than for use in plotting long-run trends or making future projections. Changes in the number of farms by type as well as by economic class include shifts from one type or class into another.

The maps on the following pages show the geographic location of the changes in economic classes and types of farms. These maps show a fairly high degree of correlation in some areas between decreases in some types and classes of farms and associated increases in other types and classes. Because of the overall decline in the number of commercial farms, however, it is not always possible to distinguish between the shifts between classes and types and the complete disappearance of farms of any given type and class.

The increase in cash-grain farms between 1950 and 1954 was highly concentrated in the feed-grain sections of Indiana and Ohio, southeastern Illinois, north-central Iowa, and south-central Minnesota. In the wheat-producing areas further west, increases in cash-grain farms occurred in central Kansas and other scattered areas.

Increases also took place on the Delmarva Peninsula largely because of an increased production of soybeans. For the most part, increases in cash-grain farms in the wheat areas were compensated by decreases in adjoining areas. The acreage in wheat declined throughout the Plains. Even in Kansas, where increases in cash-grain farms occurred, the acreage of wheat declined while that of grain sorghums increased.

Increases in cash-grain farms are closely associated with decreases that occurred in general farms (primarily livestock and primarily crop and livestock) and other livestock farms. The increase in cash-grain farms in each of the midwestern and Plains areas coincided with decreases in the number of livestock and general farms. Furthermore, the increases in the former and decreases in the latter types are of approximately the same magnitude.

The shift from livestock and general to cash-grain farms between 1950 and 1954 is due largely to changes in the relative prices of grains and livestock. The prices farmers received for feed grains were higher relative to livestock prices in 1949 than in 1954. The table below shows the index of prices received by farmers for feed grains and livestock for the years 1949 to 1954. In order to show the relative change between 1949 and 1954, the index has been computed with 1949 equal to 100.

Year	Index of prices received by farmers (1949=100)	
	Feed grains and hay	Meat animals
1949.....	100	100
1950.....	109	109
1951.....	128	132
1952.....	132	114
1953.....	118	95
1954.....	116	94

In areas affected by the shift from general and livestock to cash-grain farms, feed grains and livestock are usually grown on the same farms, and income is derived from sales of both products. A change in price of one relative to the other may change the Census classification of these farms even though the farm organization remains the same. Also, during a period in which prices for feed grains are high relative to prices for livestock, more of the grain is sold, resulting first in animals being marketed at lighter weights, followed by curtailment of the production of meat animals by reduction in breeding stock. During this period sales of corn and soybeans increased substantially.

Decreases in livestock and general farms in Kentucky and Tennessee are related to increases in other field-crop farms and, in western Kentucky, to a slight increase in cash-grain farms. While the number of farms reporting sales of tobacco decreased slightly between 1949 and 1954, yields were higher in the latter year and also the value of tobacco sold. This, along with lower prices for livestock, meant that many of the farms that were classified as livestock and general in 1950, were classified in the other field-crop category in 1954.

Decreases in livestock and general farms in these States are also related to the reduction in the number of commercial farms. A high proportion of the livestock and general farms were in the smaller economic classes of farms that have been disappearing rapidly in recent decades.

The other field-crop farms (primarily tobacco and peanut farms) decreased in all areas, except for the increases in Kentucky and Tennessee. These decreases are closely related to the large reduction in Class V and VI farms in the flue-cured tobacco and peanut areas of Virginia, the Carolinas, Georgia, and Alabama. In the Georgia-Alabama area part of the decreases represent shifts from tobacco and peanuts to cotton, livestock, and general types of farming.

In central Louisiana the decrease in other field-crop farms represents a decline in sugarcane farms. There was a sharp decrease in the acreage and yield as well as the number of farmers growing sugarcane. These decreases were compensated by an almost identical increase in cotton farms.

The number of cotton farms decreased throughout most of the old Cotton Belt, extending from the Carolinas westward to east Texas. These decreases are closely related to decreases in Class VI farms. The number of these small cotton farms decreased by more than 100,000. In the old Cotton Belt, however, increases in cotton farms occurred in the Coastal Plains of the Carolinas, the southern Georgia-Alabama and the central Louisiana areas discussed previously, and throughout central and southern Mississippi. In Mississippi, the increase in cotton farms was compensated by decreases in livestock and general farms, this shift being due primarily to differences in yields and prices in respect to cotton and livestock, between 1949 and 1954.

Cotton farms increased in number in the western areas, particularly in the High Plains area of northwest Texas. There the increased numbers of cotton farms are associated with an increase in irrigation.

The number of dairy farms decreased throughout the Northeast and Lake Dairy areas. There was some shifting of type from dairy to cash-grain farms in the cash-grain dairy transition areas. For the most part, however, the decrease in dairy farms is related to fewer farms, particularly in Economic Classes IV and V and the combination of farms into larger units.

Dairy farms have a widespread distribution over the country. In addition to the major dairy regions mentioned, there are numerous smaller areas of concentration around many of the larger population centers. Many of these so-called milksheds show increases in the number of dairy farms whereas outside of these special areas, the number has declined.

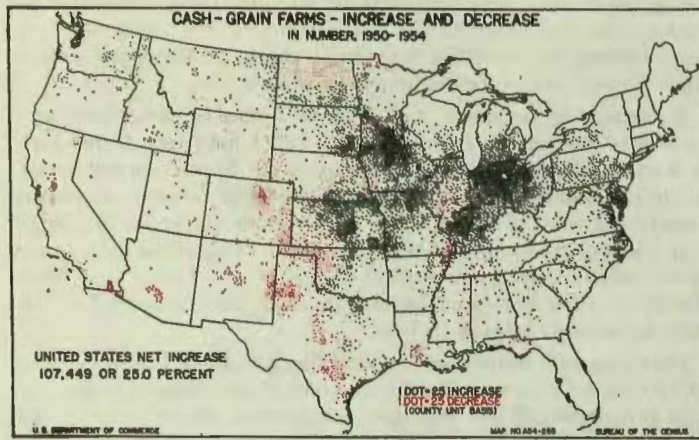


FIGURE 25.

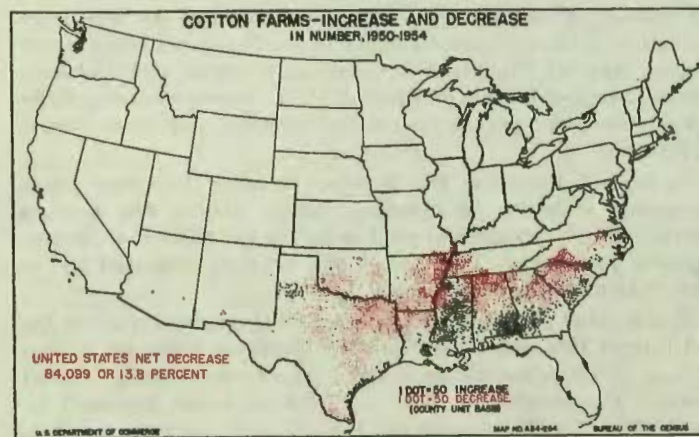


FIGURE 26.

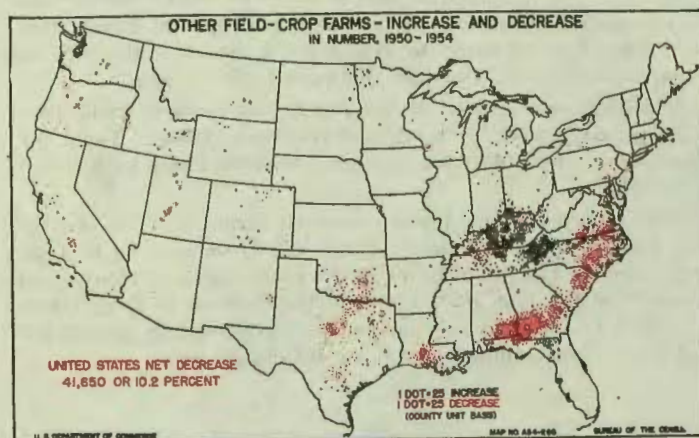


FIGURE 27.

The 5-year period ending in 1954 saw poultry farming becoming increasingly specialized and highly concentrated in specific localities. The greatest increases occurred in the Piedmont of North Carolina, Georgia, and Alabama, in central Arkansas, and east Texas. Sizable decreases in poultry farms took place in both the Pacific Coast and Middle Atlantic areas.

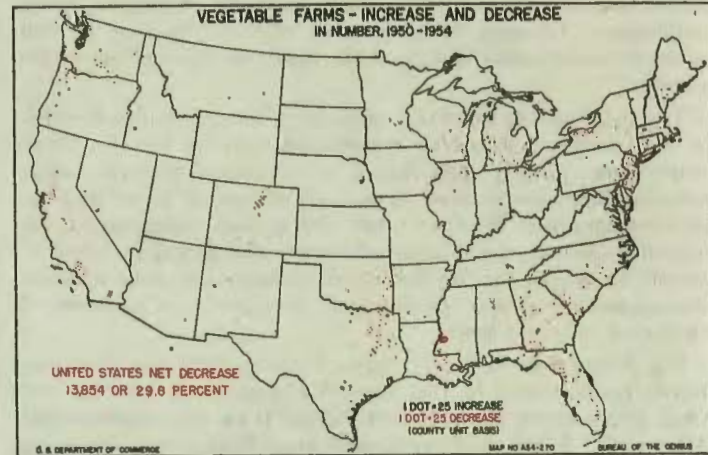


FIGURE 28.

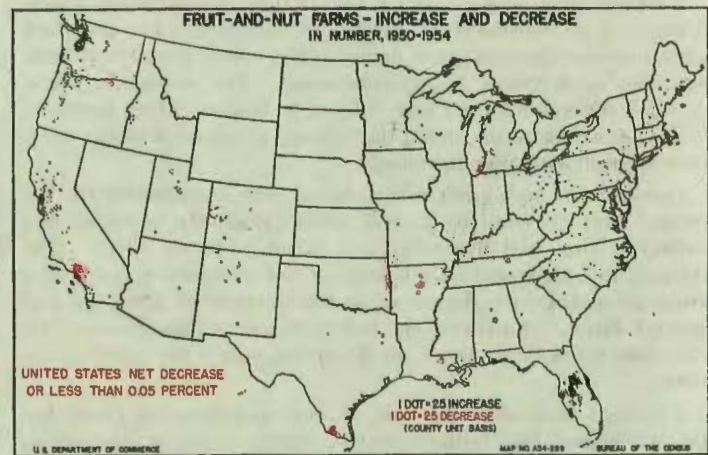


FIGURE 29.

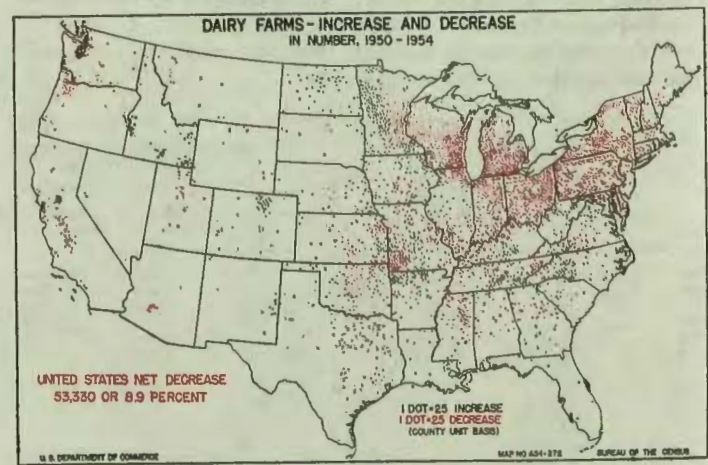


FIGURE 30.

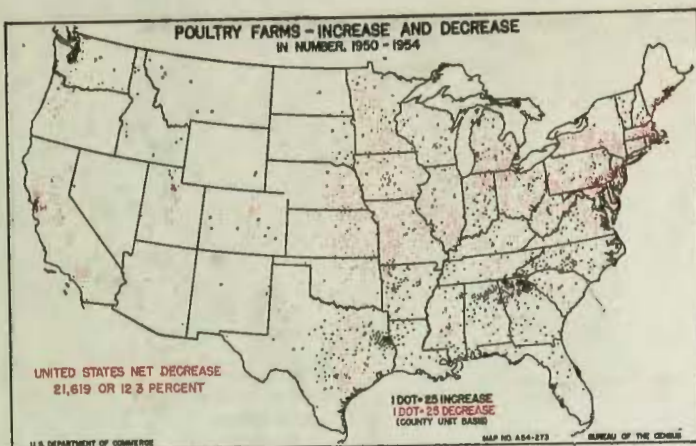


FIGURE 31.

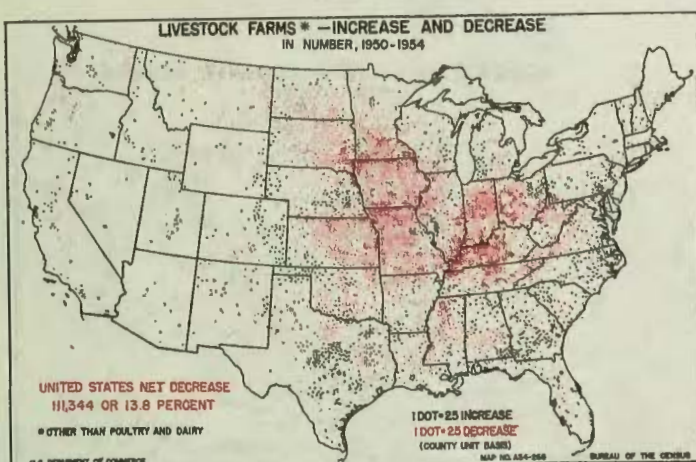


FIGURE 32.

Most of the fruit-and-nut farms are located on the Pacific Coast and the Florida peninsula. The significant change in the number of these farms was the decrease in the Los Angeles area of Southern California and the increase in central Florida. The decrease in the number of fruit-and-nut farms in Southern California was probably due to the combining of farms into larger production units. The acreage in fruit and nut trees, as well as the production, remained about the same, but was distributed among fewer farmers. In central Florida the land in fruit orchards, groves, vineyards, and planted nut trees, increased by more than a third. This is one of the few areas in which the total number of farms increased between 1950 and 1954.

The number of vegetable farms decreased by nearly a third between 1950 and 1954. This decrease was fairly general in most areas. Because of the small number of vegetable farms and their geographic dispersion, no attempt is made here to indicate the relation of these decreases to changes in other types of farms. The number of vegetable farms decreased in each economic class except Class I.

Along with changes in types of farms there were notable changes in the geographic distribution of the economic classes of farms. As mentioned, there was an increase in the number of Class I farms for each type of farm. These increases in Class I farms

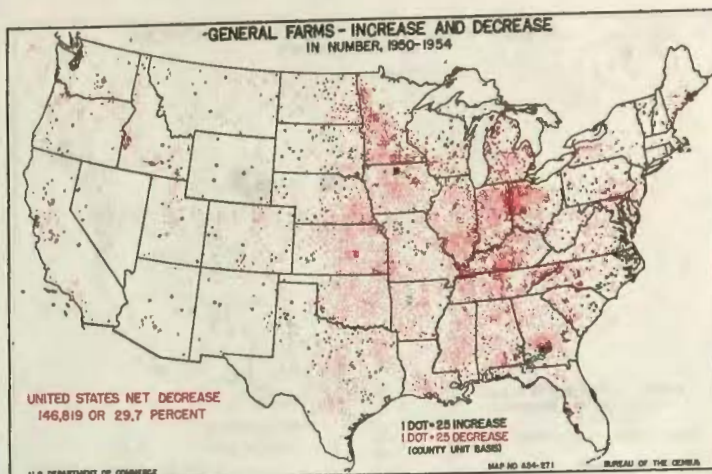


FIGURE 33.

were mostly confined to specific areas. The area of greatest increase was in northern Iowa, Illinois, and Indiana. Here they are associated closely with the increase in cash-grain farms. From the areas shown on the map it is apparent that most of the increases in Class I cash-grain farms were among those with a major source of income from sales of corn and soybeans rather than of wheat. In the wheat areas, increases in Class I farms were confined mainly to the spring-wheat area of Montana and the white-wheat area of Washington.

There was an increase in Class I cotton farms in the Mississippi Delta and the High Plains of Texas. In the Mississippi Delta the increase was due largely to a reduction in the number of cropper farms. Part of the increase represents cotton farms, formerly operated as multiple units, which decreased the number of croppers and reorganized production to use hired labor in mechanized operations.

Increases in the High Plains of Texas resulted from increased production from irrigated acreages. The irrigated land in cotton farms nearly doubled between 1950 and 1954. Despite a sharp decrease in the acreage, the production increased by nearly a third. The number of cotton farms did not change appreciably but more of them were classified in the larger economic classes.

Increases in Class I farms in other areas are associated with poultry farms, fruit-and-nut farms, and a mixture of types in the Pacific Coast States; fruit-and-nut farms in central Florida; and cash-grain (rice) farms in southern Louisiana.

Decreases in the number of Class I farms were distributed fairly generally over the United States. These were more noticeable, however, among cash-grain and general farms in the Plains area extending from Texas to Nebraska.

Changes in the geographic distribution of farms in Economic Classes II through VI are not discussed separately except as mentioned previously in relation to changes in types of farms. In general, most areas that show an increase in the larger economic classes show a corresponding decrease in the smaller economic classes. These changes are related to the combinations of small farms into larger units and to continued increases in production that have resulted from application of better farming practices. Increases in the number of farms in the smaller economic classes in specific localities are probably due largely to abnormalities in production in 1954. Sales may have been below normal because of poor yields in that particular year.

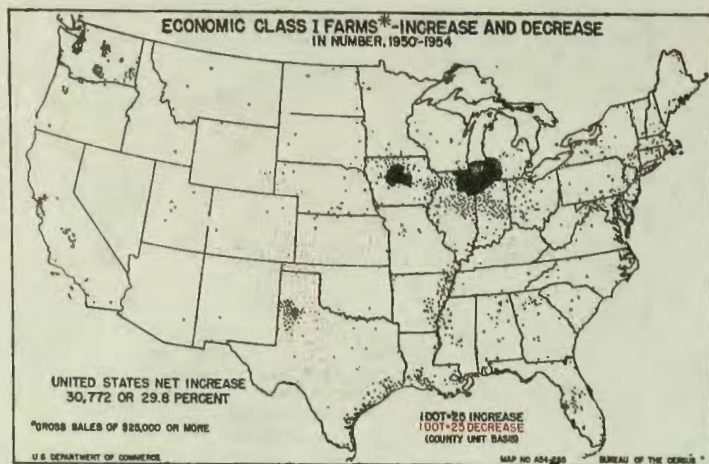


FIGURE 34.

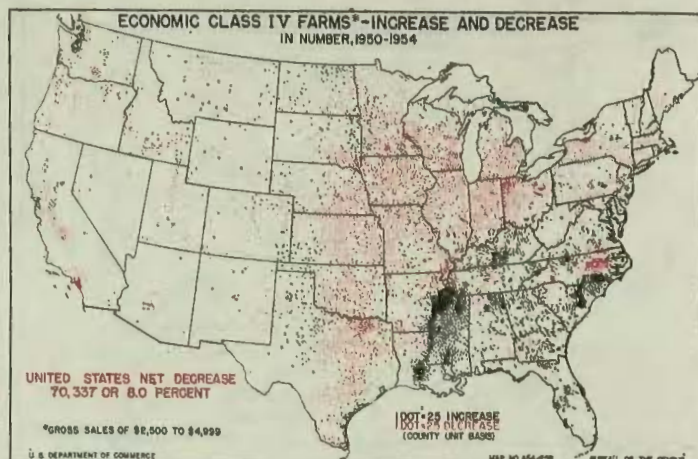


FIGURE 37.

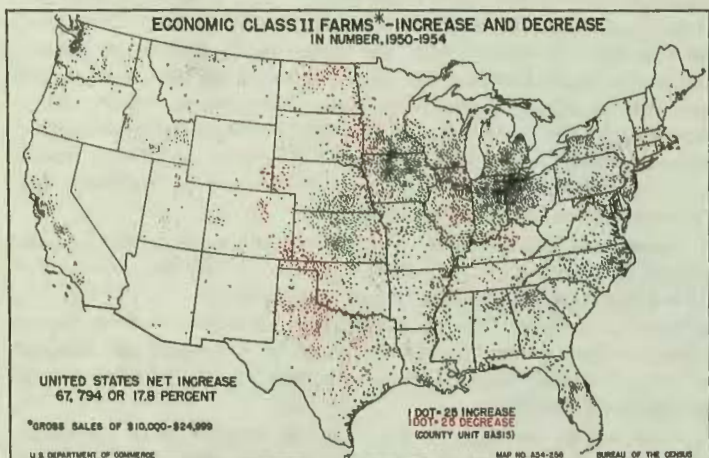


FIGURE 35.

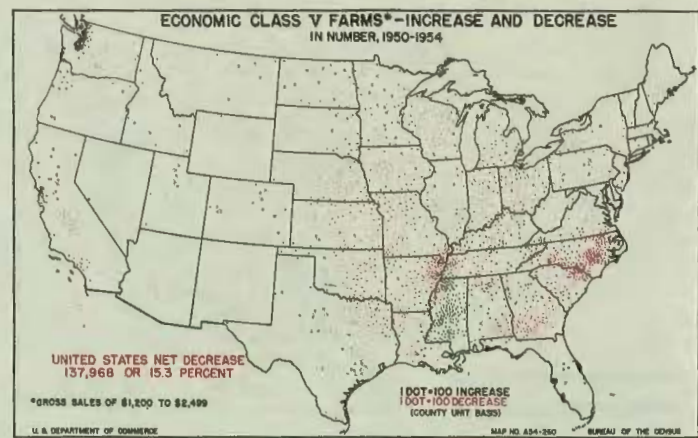


FIGURE 38.

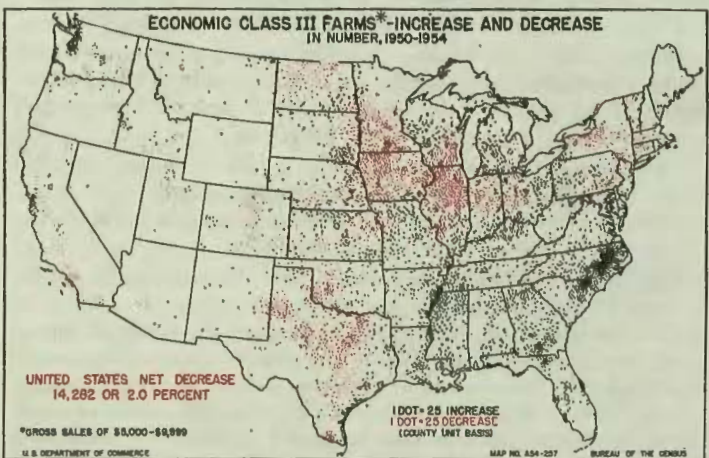


FIGURE 36.

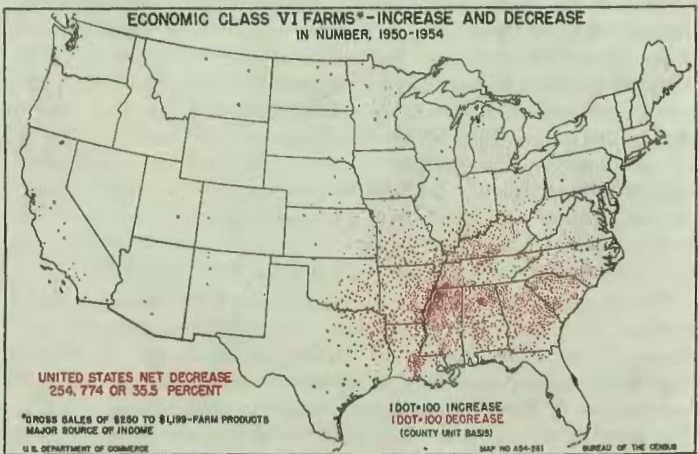


FIGURE 39.

CHANGES IN SIZE OF ACREAGE

In terms of acreage, commercial farms are becoming both larger and smaller. Farms under 10 acres and farms with more than 200 acres have increased in number. (See table 9.) Those in the size groups between 10 acres and 200 acres have decreased. Farms in these size groups, however, comprise more than 85 percent of the commercial farms.

The greatest rate of decrease among commercial farms came in the acreage-size group between 10 and 100 acres. Farms of this size which account for nearly two-fifths of all commercial farms, decreased in number by nearly a fifth between 1950 and 1954. Farms between 100 and 220 acres comprise nearly a third of the commercial farms. These decreased in number by about 10 percent, or about the same rate as the overall decrease in commercial farms.

TABLE 9.—CHANGES IN NUMBER OF FARMS BY SIZE AND PERCENT DISTRIBUTION OF COMMERCIAL FARMS BY SIZE, FOR THE UNITED STATES: 1950 to 1954

Acreage size	Number		Increase or decrease (—) from 1950 to 1954		Percent of farms	
	1950	1954	Number	Percent	1950	1954
Commercial farms	3,706,412	3,327,889	-378,523	-10.2	100.0	100.0
Under 10 acres.....	136,835	145,400	8,565	6.3	3.7	4.4
10 to 49 acres.....	762,326	622,921	-139,405	-18.3	20.6	18.7
50 to 99 acres.....	710,876	580,660	-130,216	-18.3	19.2	17.4
100 to 219 acres.....	1,162,419	1,026,664	-135,755	-11.7	31.3	30.9
220 to 499 acres.....	642,018	642,333	315	0.5	17.3	19.3
500 to 999 acres.....	174,380	182,550	8,170	4.7	4.7	5.5
1,000 acres and over.....	117,558	127,361	9,803	8.3	3.2	3.8

Farms of less than 10 acres are not numerous in commercial agriculture. They are much more common in the noncommercial farming sector where many part-time and residential farmers have small acreages. Of the 484,000 farms that are under 10 acres, 70 percent (339,000) were classified as part-time or residential farms. Among commercial farmers, less than 5 percent (145,000) had farms of less than 10 acres. These farms increased in number by 6 percent during a period in which commercial farms as a group declined by 10 percent.

The increase in the number of farms in the larger acreage size groups between 1950 and 1954 is but a continuation of a trend toward larger acreage units. Farms between 220 and 500 acres remained about the same numerically, but increased as a proportion of the commercial farms. These farms comprised a fifth of all commercial farms in 1954. Farms with more than 500 acres account for less than 10 percent of all farms. These farms increased numerically by 18,000. The greatest increase came among farms of 1,000 acres and more—an increase of 8 percent.

Change in acreage by economic class.—There was a substantial increase in the number of larger farms between 1949 and 1954 as measured by gross sales of farm products. Also, the larger acreage units increased in number. These parallel increases in size, measured by both volume of market sales and acreage, portray a much closer relationship between the two measures of size than actually exists.

The increase in the number of Class I farms between 1949 and 1954 was accompanied by increases in each of the acreage size groups (see table 10). There was an increase of nearly a fifth even in the few small units of less than 10 acres that sold farm products valued at \$25,000 or more. The bulk of the increase in the number of Class I farms was among farms of less than 500 acres. The greatest proportionate increase was among farms of 100 to 219 acres. There was an increase of 60 percent in the number of farms in this acreage-size group that grossed \$25,000 or more from sales of farm products. Numerically, the greatest increase was among farms between 220 and 500 acres. These accounted for half of the increase in Class I farms.

The number of farms in Economic Class II also increased between 1950 and 1954, an increase of 67,696. This increase took place among all acreage-size groups of farms. Most of the increase in Class II farms (over three-fourths) came among farms of 100 to 500 acres. Less than 5 percent of the increase was among farms of 500 or more acres.

Farms in each economic class below Class II (sales of less than \$10,000) decreased in number. These decreases were mostly among the intermediate acreage groups. Among these classes,

farms below 10 acres and those above 500 acres increased in number.

The decrease of nearly 400,000 farms in Economic Classes V and VI (sales of less than \$2,500) was almost entirely among farms between 10 and 220 acres. For these classes taken together, farms of less than 10 acres and farms larger than 500 acres increased in number.

TABLE 10.—NUMBER AND PERCENT DISTRIBUTION OF FARMS, 1954, AND CHANGE IN NUMBER OF FARMS, 1950 TO 1954; BY SIZE AND ECONOMIC CLASS, FOR THE UNITED STATES

Item and economic class of farm	Total	Farms by size					
		Under 10 acres	10 to 99 acres	100 to 219 acres	220 to 499 acres	500 to 999 acres	1,000 acres and over
Number of farms, 1954:							
Commercial farms.....	3,327,889	145,400	1,203,581	1,026,664	642,333	182,550	127,361
Class I.....	134,064	4,340	14,817	19,127	40,199	24,807	30,774
Class II.....	448,847	9,873	49,346	132,108	169,829	48,875	38,816
Class III.....	706,852	11,843	136,738	287,915	191,131	49,087	30,138
Class IV.....	812,108	19,735	319,005	285,790	134,865	35,805	16,908
Class V.....	763,515	46,801	410,680	203,345	76,266	18,049	8,374
Class VI.....	462,503	52,808	272,995	98,379	30,043	5,927	2,351
Percent distribution, 1954:							
Commercial farms.....	100.0	4.4	36.2	30.9	19.3	5.5	3.8
Class I.....	100.0	3.2	11.1	14.3	30.0	18.5	23.0
Class II.....	100.0	2.2	11.0	29.4	37.8	10.9	8.6
Class III.....	100.0	1.7	19.3	40.7	27.0	6.9	4.3
Class IV.....	100.0	2.4	39.3	35.2	16.6	4.4	2.1
Class V.....	100.0	6.1	53.8	26.6	10.0	2.4	1.1
Class VI.....	100.0	11.4	59.0	21.3	6.5	1.3	0.5
Increase or decrease, 1950 to 1954:							
Commercial farms.....	-378,523	8,565	-209,621	-135,755	315	8,170	9,803
Class I.....	30,833	661	4,271	5,891	13,119	5,986	905
Class II.....	67,696	1,278	10,323	27,350	25,399	2,489	857
Class III.....	-14,359	213	13,893	-22,866	-6,836	-1,512	2,749
Class IV.....	-70,194	1,439	-6,036	-52,451	-16,359	373	2,840
Class V.....	-137,801	9,429	-95,872	-46,327	-8,500	1,268	2,201
Class VI.....	-254,698	-4,455	-196,200	-47,352	-6,508	-434	251
1954 as percent of 1950:							
Commercial farms.....	89.8	106.3	81.7	88.3	100.0	104.7	108.3
Class I.....	129.9	118.0	140.5	144.5	148.4	131.8	103.0
Class II.....	117.8	114.9	126.5	126.1	117.6	105.4	102.3
Class III.....	98.0	101.8	111.3	92.6	96.5	97.0	110.0
Class IV.....	92.0	107.9	98.1	84.5	89.2	101.1	120.2
Class V.....	84.7	125.2	81.1	81.4	90.0	107.6	135.7
Class VI.....	64.5	92.2	58.2	67.5	82.2	93.2	112.0

The changes in acreage as related to economic class show that among Class I farms there has been an increase in the proportion of smaller acreage units and a decrease in the larger acreage units. On the farms with less than \$25,000 of farm products sold, the trend has been toward fewer medium-size acreage units and an increasing proportion of farms below 10 acres and above 220 acres.

Changes in the number of farms include substantial shifting of farms between economic classes and acreage-size groups. The total number of commercial farms decreased by 376,000. Most land in those farms was consolidated with other farms. The increase in production from the larger farmed acreage resulted in many farms being classified in groups of higher value of sales. At the same time, increased yields per acre and per animal unit served to increase market sales per farm. This also caused farms to shift into groups of higher value of sales. Shifts between economic classes also resulted from reorganizations of farming systems toward enterprises that were yielding a greater return per acre of land.

The increase in the number of units of smaller acreage with sales of \$25,000 or more is indication of the greater possibilities for developing fairly sizable business operations on modest acreages.

Change in acreage by type of farm.—Among most types of farms there were fewer small farms (measured in acres) and more of the larger ones. The exception was found among cash-grain farms which was the only type to grow in number during the period 1950 to 1954. While the number of farms increased in each acreage-size group for cash-grain farms, there was a greater proportionate increase in the smaller farms. This came from the shifts to cash-grain of many midwestern livestock and general farms,

TABLE 11.—NUMBER AND PERCENT DISTRIBUTION, 1954, AND CHANGE IN NUMBER OF FARMS, 1950 TO 1954; BY SIZE AND TYPE OF FARM, FOR THE UNITED STATES

Item and type of farm	Total	Farms by size					
		Under 10 acres	10 to 99 acres	100 to 249 acres	250 to 499 acres	500 to 999 acres	1,000 acres and over
Number of farms:							
Commercial farms.....	3,327,889	145,400	1,203,581	1,026,064	642,333	182,550	127,361
Cash-grain.....	537,974	1,015	92,890	170,801	174,110	63,933	35,216
Cotton.....	525,463	29,104	335,840	97,360	44,144	13,120	5,895
Other field-crop.....	367,733	31,721	233,823	74,553	22,100	4,091	1,445
Vegetable.....	32,581	2,880	20,146	5,752	2,412	822	560
Fruit-and-nut.....	82,096	10,690	53,804	10,535	4,623	1,510	964
Dairy.....	548,797	5,664	159,315	255,593	109,857	15,116	3,222
Poultry.....	154,251	40,633	76,290	26,607	8,562	1,677	582
Livestock other than dairy and poultry.....	604,888	11,232	130,057	237,889	186,476	60,101	69,133
General.....	347,079	1,285	90,395	140,860	85,470	20,452	8,599
Primarily crop.....	80,039	265	29,178	27,136	15,634	5,021	2,805
Primarily livestock.....	63,197	560	18,151	30,006	12,211	1,781	488
Crop and livestock.....	203,843	460	43,066	83,727	57,634	13,650	5,306
Miscellaneous.....	37,057	11,206	11,021	6,705	4,561	1,828	1,736
Percent distribution, 1954:							
Commercial farms.....	100.0	4.4	36.2	30.9	19.3	5.5	3.8
Cash-grain.....	100.0	0.2	17.3	31.7	32.4	11.9	6.5
Cotton.....	100.0	5.5	63.9	18.5	8.4	2.5	1.1
Other field-crop.....	100.0	8.6	63.6	20.3	6.0	1.1	0.4
Vegetable.....	100.0	8.8	61.8	17.7	7.4	2.5	1.7
Fruit-and-nut.....	100.0	13.0	65.5	12.8	5.6	1.8	1.2
Dairy.....	100.0	1.0	29.0	46.6	20.0	2.8	0.6
Poultry.....	100.0	26.3	49.5	17.2	5.6	1.0	0.4
Livestock other than dairy and poultry.....	100.0	1.6	18.7	34.2	26.8	8.6	9.9
General.....	100.0	0.4	26.0	40.6	24.6	5.9	2.5
Primarily crop.....	100.0	0.3	36.5	33.9	19.5	6.3	3.5
Primarily livestock.....	100.0	0.9	28.7	47.5	19.3	2.8	0.8
Crop and livestock.....	100.0	0.2	21.1	41.1	28.3	6.7	2.6
Miscellaneous.....	100.0	30.2	29.7	18.1	12.3	4.9	4.7
Increase or decrease, 1950 to 1954:							
Commercial farms.....	-378,523	8,565	-269,621	-135,755	315	8,170	9,803
Cash-grain.....	107,585	480	30,067	34,276	30,209	7,023	4,570
Cotton.....	-83,844	6,539	-74,838	-17,048	-990	1,450	1,049
Other field-crop.....	-41,688	12,201	-37,983	-12,688	-2,902	-383	-23
Vegetable.....	-13,834	-1,360	-10,425	-2,105	-18	54	20
Fruit-and-nut.....	-82	610	-1,321	-582	723	197	191
Dairy.....	-53,326	-799	-43,219	-20,232	8,389	1,822	613
Poultry.....	-21,625	-2,030	-16,190	-3,851	169	117	170
Livestock other than dairy and poultry.....	-111,192	-1,305	-46,513	-52,192	-13,163	-939	2,920
General.....	-147,206	-2,000	-64,115	-58,341	-21,057	-1,759	66
Primarily crop.....	-4,530	-305	-6,480	-73	1,458	641	229
Primarily livestock.....	-71,469	-1,110	-26,799	-31,046	-11,308	-1,095	-111
Crop and livestock.....	-71,207	-585	-30,836	-27,222	-11,207	-1,305	-62
Miscellaneous.....	-13,311	-4,061	-5,084	-2,992	-1,089	-312	227
1954 as percent of 1950:							
Commercial farms.....	90	106	82	88	100	105	108
Cash-grain.....	125	190	148	125	121	114	115
Cotton.....	86	129	82	85	98	112	122
Other field-crop.....	90	163	86	85	88	91	98
Vegetable.....	70	68	66	73	99	107	104
Fruit-and-nut.....	100	107	98	95	119	115	125
Dairy.....	91	89	79	93	108	114	123
Poultry.....	88	95	82	87	102	108	141
Livestock other than dairy and poultry.....	86	90	74	82	93	98	104
General.....	88	39	59	71	80	92	101
Primarily crop.....	95	46	82	100	110	115	109
Primarily livestock.....	47	34	40	49	52	62	81
Crop and livestock.....	74	44	58	75	84	91	99
Miscellaneous.....	74	73	68	69	81	85	115

types that are typically smaller in acreage than the wheat farms in the Plains and western areas.

Less than a tenth of the cash-grain farms have 500 or more acres. (See table 11.) The number of cash-grain farms with more than 500 acres increased by 15 percent. This increase, however, accounted for virtually all of the increase that took place in commercial farms of 500 to 1,000 acres and nearly half of the increase in farms of 1,000 acres and over.

Farms of less than 10 acres decreased for most types of farms but increased substantially for cotton and other field-crop farms. This increase was probably due to the reduction in acreage allotments of cotton and tobacco. Many of these farms are operated by croppers. A reduction in the allotment on a multiple-unit operation, unless accompanied by a corresponding decrease in the number of croppers, usually means that fewer acres of land are assigned to each cropper. On other field-crop farms this was the only acreage-size group that increased in number.

All of the net decrease in the number of commercial farms took place among farms that had between 10 and 220 acres. Decreases occurred in each type except cash-grain farms.

Farms of 500 acres or more increased in number for most types. The exceptions are other field-crop, livestock, and general farms. Two-thirds of the increase was among cash-grain farms. Sizable increases also occurred for cotton, dairy, and other livestock farms.

To summarize, changes in the distribution of farms by type and size show a trend toward increasing acreage in farms, for most types. This is to be expected during a period in which modern machinery has enabled a given labor force to handle a greater acreage. Cash-grain farms appear to be an exception, but this is mainly because of shifts to cash-grain from livestock and general farms in the Midwest.

CHANGES IN FARM OPERATOR CHARACTERISTICS

Along with changes in types and sizes of farms, there have been noticeable changes in the characteristics of the farm operators. These changes are shown for types and economic classes of farms in table 12. The changes in operator characteristics are interrelated with the shifts that have taken place between types, economic classes, and acreage-size groups of farms as well as the overall reduction in commercial farm numbers and the substantial migration from agriculture to nonfarm occupations. The data are more adequate for describing the characteristics in each year than for making precise estimates of changes in each particular type or economic class.

Age of operator.—By economic class of farm, the median age of farm operators increased between 1950 and 1954 for all except Class I and Class II farms. On Class VI farms (which decreased in number by 236,000), the median age increased from 53 to 58 years.

These changes reflect the movement of young men out of agriculture to part-time or full-time nonfarm jobs and fewer young men taking up farming on the smaller farms. The incomes from these smaller farms probably do not compare favorably with earnings from wages and salaries in nonfarm occupations. The decrease in median age for Class I farms (along with an identical age on Class II farms) indicates that some of the younger farmers have taken advantage of opportunities for increasing their volume of farm sales.

By type of farm, the median age of operators increased for each type except poultry farms. As each type of farm has a large proportion of the farms in the smaller economic classes, the effect of decreasing age among Class I and II farmers does not become apparent. Decreasing age among poultry farmers is related to the increasing specialization in broiler and egg production. It is probable that many younger farmers, having small acreage, have reorganized the farms for specialized poultry production.

TABLE 12.—SPECIFIED FARMS AND FARM-OPERATOR CHARACTERISTICS, BY TYPE AND BY ECONOMIC CLASS FOR COMMERCIAL FARMS, FOR THE UNITED STATES: 1950 AND 1954

Economic class and type of farm		Median age of operator (years)	Owners, part-owners, and managers (percent)	Working off farm 100 days or more (percent)	Other income greater than farm sales (percent)	Residing on farm operated—percent total residence (percent)	Farms reporting	
							Tractors, excluding garden (percent)	Tractors with no horses or mules (percent)
Commercial farms by economic class:								
All commercial farms.....	1950.....	47.6	69.1	9.1	9.1	95.2	57.9	27.4
	1954.....	49.0	71.2	13.0	10.8	93.8	71.1	45.3
Class I.....	1950.....	46.1	81.7	8.1	4.0	84.6	84.8	38.3
	1954.....	45.6	77.8	7.8	4.0	84.5	91.0	54.5
Class II.....	1950.....	45.2	71.3	6.3	4.2	93.5	88.2	43.8
	1954.....	45.2	69.5	7.4	4.4	93.0	92.4	62.8
Class III.....	1950.....	45.5	70.3	7.0	5.3	95.5	85.0	39.5
	1954.....	46.5	70.6	10.2	6.4	94.4	89.3	59.3
Class IV.....	1950.....	46.9	70.0	11.0	10.2	95.5	67.9	30.8
	1954.....	48.5	70.4	16.2	12.6	94.2	76.0	47.1
Class V.....	1950.....	47.9	67.1	17.4	20.7	95.6	41.9	20.7
	1954.....	50.3	69.9	24.4	24.3	93.0	56.3	34.4
Class VI.....	1950.....	53.3	66.4			96.5	18.5	9.3
	1954.....	58.0	75.2			95.4	32.4	18.8
Commercial farms by type:								
Cash-grain.....	1950.....	44.1	62.2	9.8	7.2	88.4	85.2	51.2
	1954.....	47.3	67.2	14.6	10.4	89.0	91.8	69.7
Cotton.....	1950.....	44.7	38.3	5.4	6.0	90.3	30.8	16.3
	1954.....	47.3	40.7	7.9	6.3	94.5	41.6	25.7
Other field-crop.....	1950.....	44.2	53.3	5.8	6.1	96.4	28.2	9.8
	1954.....	46.2	56.6	8.4	6.5	94.8	44.0	17.9
Vegetable.....	1950.....	48.6	78.5	11.5	11.1	90.4	56.9	38.9
	1954.....	50.3	82.9	15.2	13.7	87.8	74.9	55.2
Fruit-and-nut.....	1950.....	54.0	93.9	21.5	19.8	87.6	59.2	48.1
	1954.....	54.8	95.7	27.7	26.1	84.5	65.7	55.1
Dairy.....	1950.....	48.7	85.0	10.2	9.3	98.0	71.5	31.5
	1954.....	49.0	86.4	14.0	10.1	97.7	85.4	55.9
Poultry.....	1950.....	54.4	92.7	18.2	21.6	97.7	35.8	29.0
	1954.....	53.9	93.6	24.1	23.3	97.1	46.9	35.8
Livestock other than dairy and poultry.....	1950.....	49.7	78.9	9.5	9.8	94.8	67.8	24.1
	1954.....	51.0	80.4	13.4	12.4	93.1	80.6	44.7
General:								
Primarily crop.....	1950.....	47.1	71.5	9.6	10.4	93.2	57.4	27.3
	1954.....	49.2	75.4	15.8	14.9	91.2	75.9	46.4
Primarily livestock.....	1950.....	50.4	80.2	7.0	7.7	98.6	70.6	31.2
	1954.....	50.9	81.8	9.8	7.6	98.3	84.6	50.0
Crop and livestock.....	1950.....	47.6	73.6	6.7	7.3	97.7	73.7	31.6
	1954.....	48.7	75.2	10.1	8.5	97.1	88.5	54.9
Miscellaneous.....	1950.....	52.1	92.6	18.1	20.4	90.6	29.1	23.2
	1954.....	53.5	94.7	22.4	23.5	88.9	47.2	28.9

Tenure of operator.—On Class I and Class II farms, the proportion of tenancy increased. This may indicate that many of the younger farmers are renting their land and equipment, and using any cash reserves to increase the scope of their operations rather than investing in ownership. Increasing ownership among the smaller economic classes of farms is associated with the overall decline in tenancy, particularly among croppers on cotton and tobacco farms. Also, an increasing proportion of the smallest economic classes of farms are probably serving as retirement units for elderly persons who own their farms. Three-fourths of the Class VI farms were owned, in full or in part, in 1954. This is the highest proportion for any economic class except Class I.

There was an increase in the proportion of operators that were full and part owners for each type of farm. In general, this increase was smallest among types already predominantly owner operated. On the other hand, cotton and other field-crop farms—types that have a relatively high proportion of tenant operators—showed only small increases in farms operated by owners and part owners.

Off-farm work and other income.—The proportion of commercial farm operators working off their farms 100 or more days and those having a family income from off-farm sources exceeding the value of farm sales, increased substantially between 1950 and

1954. These increases took place among each economic class, except Class I, and for each type of farm. A much higher proportion of the operators on the smaller economic classes worked off the farm and had a greater off-farm income than sales from the farm.

The types of farms differ considerably in respect to the proportions of each type that reported 100 or more days of off-farm work and other income exceeding sales. For example, approximately a fourth of the fruit-and-nut and poultry farms reported these items compared with less than 10 percent of the cotton and other field-crop farms.

Residence of farm operator.—Virtually all (94 percent) of the farm operators live on the farms they operate. The proportion of nonresident landlords is highest among Class I farms, about 15 percent. The smaller economic classes show small difference in respect to residence, having only about 5 percent nonresident operators. By type of farm, the proportion of nonresident operators ranges from a high of 15 percent on fruit-and-nut farms to a low of 2 to 3 percent on dairy, poultry, and general livestock farms.

Nonresident operators increased between 1950 and 1954 among each economic class except Class I and among each of the types of farms.

CHANGES IN FARM RESOURCES

Tractors on farms.—Mechanization of farms continued between 1950 and 1954. Whereas 58 percent of the commercial farms reported a tractor (excluding garden tractors) in 1950, the proportion had increased to 71 percent in 1954. Approximately 90 percent or more of Economic Classes I, II, and III reported tractors. On the smaller economic classes, fewer farms have a tractor. The proportion of the smaller farms reporting a tractor, however, increased substantially between 1950 and 1954.

Increasing mechanization (as indicated by tractor numbers) took place for all types of farms. The increase was less for cash-grain farms than for other types because these farms were already highly mechanized. More than 90 percent reported a tractor in 1954. In general, the greatest rate of increase was among types that are comparatively low in the proportion of farms reporting tractors, such as cotton and other field-crop farms.

Noticeable also, between 1950 and 1954, was the sharp increase in the number of farms that depend upon tractors alone as a source of work power. The proportion of all commercial farms that reported a tractor and no workstock increased from 27 percent to 45 percent. The trend toward complete dependency on tractors as a source of work power is evident on each economic class and each type of farm. "Horseless farming" is more common, however, to Economic Classes II and III and among cash-grain, fruit-and-nut, vegetable, dairy, and general farms.

Land resources and market output.—Between 1949 and 1954, the value of farm products sold by commercial farmers increased by 12 percent (see table 13). This increase was accomplished on approximately the same land acreage in farms. The total land in commercial farms increased by only 1 percent. There was a slight decrease in the land that was in harvested crops and an increase in the land that was pastured. More of the land was irrigated, an increase of 16 percent. Irrigated land, however, accounted for only 3 percent of the total land in farms. In 1954, farmers valued their farmland and buildings 29 percent higher than in 1950.

The larger economic classes of farms accounted for an increasing amount of land resources and of market sales. The value of farm products sold was a third greater for Class I farms and a fifth greater for Class II farms. On Class I farms, the land in harvested crops was a fifth greater. This increase in harvested cropland among Class I farms was due largely to the greater number of cash-grain farms that were included in Class I in 1954. The acreage of land pastured on Class I farms did not change, but the acreage of land irrigated increased by nearly two-fifths.

The greatest increase in total land was among Class II farms, an increase of 12 percent. Among farms in this class, the cropland harvested, land pastured, and land irrigated each increased by more than 10 percent. The land pastured increased on the smaller economic classes of farms whereas there were decreases in both total land and land in harvested crops. The value of farm products sold was approximately the same for Economic Class III and decreased on Classes IV, V, and VI.

By type of farm, there was an increasing concentration of land resources and market sales on cash-grain farms. The value of farm products sold on cash-grain farms increased by more than two-fifths. The land in farms and the harvested cropland increased substantially, but the greatest change was in land pastured—an increase of a fourth in acreage. This increase was influenced by the shift into the cash-grain category of many farms classified in 1950 as livestock and general. A higher proportion of the cash-grain farms in 1954 were in the Midwest. These farms have a larger proportion of the land in pasture than the cash-grain farms in the Plains area farther west. There was a decrease of nearly half in the land resources contained in general livestock farms between 1950 and 1954.

By far the greatest increase in land irrigated was on cotton farms—an increase of 60 percent. This came about mostly in the western cotton-producing areas.

TABLE 13.—SPECIFIED FARM RESOURCES, PERCENT 1954 IS OF 1950, BY ECONOMIC CLASS AND BY TYPE OF FARM, FOR THE UNITED STATES

Economic class and type of farm	Number of farms (percent)	Land in farms (percent)	Cropland harvested (percent)	All land pastured (percent)	Land irrigated (percent)	Value of land and buildings (percent)	Value of all farm products sold (percent)
Economic class of farm:							
All commercial farms.....	90	101	98	105	116	120	112
Class I.....	130	104	119	100	139	167	134
Class II.....	118	112	113	112	115	145	121
Class III.....	98	103	96	110	94	119	101
Class IV.....	92	97	89	106	86	111	94
Class V.....	85	93	81	106	86	108	87
Class VI.....	64	74	58	90	75	84	68
Type of farm:							
All types.....	90	101	98	105	116	120	112
Cash-grain.....	125	119	116	124	122	153	143
Cotton.....	86	99	94	116	159	135	118
Other field-crop.....	90	88	85	99	106	120	108
Vegetable.....	70	88	90	98	102	126	104
Fruit-and-nut.....	100	124	102	117	97	149	160
Dairy.....	91	100	100	101	113	122	107
Poultry.....	88	94	85	106	82	116	124
Livestock other than dairy and poultry.....	86	101	91	104	106	125	98
General:							
Primarily crop.....	95	103	112	99	122	145	134
Primarily livestock.....	47	52	51	55	64	65	60
Crop and livestock.....	74	84	84	88	96	105	96
Miscellaneous.....	74	102	85	120	120	127	103

Notwithstanding decreases in the number of farms for most types of farms, there was an increase in irrigated land among all types except fruit-and-nut, poultry, general livestock, and general crop and livestock farms.

The value of land and buildings for commercial farms increased by 29 percent between 1950 and 1954. Part of this increase is due to improvements, such as improved pastures and new and better houses and farm buildings, made to the land. The increases also reflect increases in land values.

Between 1950 and 1954, land values rose much more than market sales for each economic class and type of farm. The increase of two-thirds in the value of land and buildings on Class I farms is associated with an increase of only a third in gross farm sales and an increase of but a fifth in the number of farms. On Class II farms, land value increased more than two-fifths; sales of farm products increased by one-fifth. On the smaller economic classes as well, there was an increase in value relative to the volume of farm sales.

Increasing land values relative to market sales took place on each type of farm with the exception of fruit-and-nut farms and poultry farms. Prices received by farmers for fruits were 12 percent higher in 1954 than in 1949; poultry and egg prices, however, were 20 percent lower. The increase in market sales relative to land value probably relates to shifts in the geographic concentration of poultry production and to developments that have encouraged more intensive production of broilers and eggs on fairly small acreages.

The increase in land values between 1950 and 1954 can be explained partly by the strong demand for land by farmers who wanted to enlarge their farms, for the increasing mechanization of farms means that more land can be handled with the same or a smaller labor force. Farmers that bought tractors and related equipment have frequently been faced with the need to enlarge their farms in order to utilize their machinery more efficiently, and provide full employment for their labor force. It is also probable that increasing land values have resulted from the growth of towns and cities and the increasing demand for land for residential and other purposes.

CHARACTERISTICS OF TYPE OF FARM BY ECONOMIC CLASS

The structure of farming today reflects the changes that have affected farmers so differently. Close attention to this structure is basic to an understanding of the problems confronting farmers and of the adjustments that are needed in a changing Nation.

Farm Operator Characteristics

Color and tenure of operator.—In 1954, 71 percent of the operators of commercial farms were owners, part owners, or managers. (See table 14.) This was an increase from 69 percent in

TABLE 14.—PROPORTION OF FARMS OPERATED BY OWNERS, PART-OWNERS, AND MANAGERS, AND CROPPERS, AND BY WHITE AND NONWHITE OPERATORS, FOR EACH TYPE OF FARM BY ECONOMIC CLASS, FOR THE UNITED STATES: 1954

Item	Total	Economic class of farm					
		I	II	III	IV	V	VI
FULL OWNERS, PART OWNERS, AND MANAGERS							
All commercial farms, total	71.2	77.8	69.5	70.6	70.4	69.9	75.2
Cash-grain	67.2	70.3	58.5	62.0	70.0	77.9	81.8
Cotton	40.7	69.8	58.6	44.7	35.9	34.0	46.2
Other field-crop	56.7	80.8	68.0	47.6	45.6	58.6	74.1
Vegetable	82.9	78.5	82.2	81.2	85.3	84.9	82.9
Fruit-and-nut	95.7	95.7	94.6	95.3	96.4	96.5	96.1
Dairy	86.4	82.2	79.7	83.3	88.5	90.9	92.4
Poultry	93.6	91.4	93.3	94.3	93.9	94.1	93.4
Livestock other than dairy and poultry	80.4	71.7	66.4	74.7	84.4	89.2	91.8
General:							
Primarily crop	75.4	80.3	71.5	69.5	72.2	78.9	84.8
Primarily livestock	81.8	82.1	69.3	72.7	84.4	89.8	94.0
Crop and livestock	75.2	77.0	64.0	67.1	77.6	85.7	88.9
Miscellaneous	94.7	95.3	92.7	93.9	94.7	95.3	96.3
White operators, total							
Cash-grain	67.3	70.2	58.5	62.0	70.1	78.1	82.5
Cotton	54.4	69.9	58.9	50.4	49.0	51.7	61.7
Other field-crop	64.0	81.7	70.0	55.2	54.9	65.7	77.8
Vegetable	85.1	79.3	83.4	84.6	86.9	87.2	85.8
Fruit-and-nut	96.4	96.5	95.7	96.1	96.5	96.9	96.5
Dairy	86.5	82.1	79.7	83.3	88.6	90.9	92.6
Poultry	93.6	91.4	93.4	94.3	94.0	94.2	93.4
Livestock other than dairy and poultry	80.4	71.7	66.4	74.7	84.5	89.3	92.2
General:							
Primarily crop	78.2	80.2	71.9	71.6	77.2	82.7	86.8
Primarily livestock	81.8	82.1	69.2	72.7	84.4	89.8	94.0
Crop and livestock	75.2	76.8	64.0	67.1	77.6	85.9	89.4
Miscellaneous	95.3	95.6	93.4	95.0	95.3	95.8	96.6
Nonwhite operators, total							
Cash-grain	28.7	75.9	60.7	24.3	20.3	23.9	41.1
Cotton	22.7	68.8	49.5	18.7	15.6	16.8	34.3
Other field-crop	30.9	64.7	30.3	16.4	20.5	35.5	67.3
All other types	68.5	78.9	74.1	60.6	57.0	67.1	76.9
CROPPERS							
All commercial farms, total	7.3	0.4	0.6	2.9	9.0	13.1	9.6
Cotton	28.7	1.4	3.5	16.5	32.5	37.6	25.0
Other field-crop	21.3	0.7	6.0	22.7	28.1	22.0	12.8
All other types	0.5	0.2	0.3	0.4	0.6	0.8	0.9
White operators, total							
Cotton	14.4	1.4	3.1	9.5	17.4	19.3	14.4
Other field-crop	14.7	0.6	4.4	14.9	18.8	16.3	9.9
All other types	0.4	0.2	0.2	0.3	0.4	0.6	0.7
Nonwhite operators, total							
Cotton	43.5	0.9	11.3	45.5	52.2	49.5	29.7
Cotton	47.5	8.9	17.0	49.0	55.7	55.4	33.1
Other field-crop	44.5	1.7	34.2	54.7	53.0	40.4	25.9
All other types	10.2	0.1	2.0	10.8	19.0	12.1	6.4

1950. All tenants (including croppers) operated 29 percent of the commercial farms.

Ownership of the land is more common among operators of some types of farms than others. More than 90 percent of the operators of fruit-and-nut and poultry farms were included in the ownership group. The lowest proportions of owners are among cotton farmers (41 percent), other field-crop farmers (57 percent), and cash-grain farmers (67 percent). On all other types of farms the ownership ranged between 75 percent and 90 percent.

For all commercial farms as a group, the highest proportion of ownership is found among Class I farms (78 percent) followed closely by Class VI farms (75 percent). This varies considerably by type of farm, however. On vegetable farms, dairy farms, poultry farms, and other livestock farms, ownership is lowest among Classes I and II.

A much higher proportion of the white operators, than of nonwhite operators, were owners, part owners, and managers, in 1954: 76 percent for white operators compared with 29 percent for nonwhite operators. Among both white and nonwhite operators, ownership was lowest among operators of cotton and other field-crop farms. Among these types of farms, ownership was lowest for the intermediate classes and highest on Class I and Class VI.

The high proportion of tenancy among cotton and other field-crop farms and among nonwhite operators is influenced by the counting of cropper units as farms. Most of the croppers (95 percent) are found among cotton and other field-crop farms. (See table 15.) Also more than 90 percent of the nonwhite operators are found among these two types of farms.

Nearly half of the nonwhite operators on cotton and other field-crop farms were croppers in 1954. They were concentrated in the smaller economic classes of farms.

TABLE 15.—PERCENT DISTRIBUTION OF FARMS IN EACH TENURE AND COLOR GROUP BY TYPE AND ECONOMIC CLASS OF FARM, FOR THE UNITED STATES: 1954

Type and economic class of farm	Owners, part-owners, and managers	All tenants	Croppers	White operators	Nonwhite operators
Type of farm:					
All types.....	100.0	100.0	100.0	100.0	100.0
Cash-grain.....	15.3	18.4	1.2	17.9	1.0
Cotton.....	9.0	32.5	62.3	10.0	67.1
Other field-crop.....	8.8	16.6	32.3	9.6	24.1
Vegetable.....	1.1	0.6	0.2	1.0	0.9
Fruit-and-nut.....	3.3	0.4	(Z)	2.7	0.8
Dairy.....	20.0	7.7	0.6	18.3	0.6
Poultry.....	6.1	1.0	0.3	5.1	0.3
Livestock other than dairy and poultry.....	23.6	14.2	0.8	23.0	1.8
General:					
Primarily crop.....	2.5	2.0	1.6	2.4	2.2
Primarily livestock.....	2.2	1.2	(Z)	2.1	0.1
Crop and livestock.....	6.5	5.3	0.6	6.7	0.7
Miscellaneous.....	1.5	0.2	0.1	1.2	0.4
Economic class of farm:					
All commercial farms.....	100.0	100.0	100.0	100.0	100.0
Class I.....	13.2	3.1	0.2	4.4	0.5
Class II.....	13.2	14.3	1.2	14.9	1.2
Class III.....	21.1	21.6	8.6	22.9	6.3
Class IV.....	24.1	25.1	30.3	24.4	24.4
Class V.....	22.5	24.0	41.3	21.2	38.8
Class VI.....	14.7	12.0	18.4	12.2	28.8

Z Less than 0.05 percent.

Residence of farm operators.—Most farm families live on the farm they operate. In 1954, only 6 percent of all commercial farm operators reported that they did not live on the farm (see table 16). The highest proportions of nonresident operators were on fruit-and-nut farms (15 percent), vegetable farms (12 percent), and cash-grain farms (11 percent). The lowest proportions of nonresident operators were on dairy, poultry, and general farms.

TABLE 16.—PERCENT OF NONRESIDENT OPERATORS FOR TYPE OF FARM BY ECONOMIC CLASS, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
All commercial farms.....	6.2	15.5	7.0	5.6	5.8	6.1	4.6
Cash-grain.....	11.0	16.2	9.0	9.0	12.1	14.2	11.6
Cotton.....	5.5	23.0	13.2	7.7	4.7	4.0	3.8
Other field-crop.....	5.2	18.0	7.2	3.9	4.1	5.7	5.5
Vegetable.....	12.2	33.8	14.6	10.1	9.2	9.1	6.0
Fruit-and-nut.....	15.5	21.1	16.9	17.2	15.4	13.2	5.4
Dairy.....	2.3	7.7	3.5	2.2	1.9	2.0	1.7
Poultry.....	2.9	8.2	3.3	2.6	2.5	2.2	1.6
Livestock other than dairy and poultry.....	6.9	12.2	6.2	5.8	7.0	8.5	5.2
General:							
Primarily crop.....	8.8	22.2	9.2	7.8	7.4	8.7	8.4
Primarily livestock.....	1.7	6.7	2.2	1.8	0.4	1.5	1.4
Crop and livestock.....	2.9	9.4	3.4	2.5	2.9	2.6	2.2
Miscellaneous.....	11.1	24.0	15.3	11.6	9.8	7.0	4.0

Among operators of each type of farm the proportion of non-residence was higher for Class I farms than for the smaller economic classes. Except for Class I, however, there is no strong relationship between residence of the operator and the value of farm sales.

A substantially higher proportion of the farmers on Class I farms lived away from their farms, where the major source of farm sales was from crops. A third of the operators of Class I vegetable farms and approximately a fifth of those on Class I cotton farms, other field-crop farms, fruit-and-nut farms, and general farms did not live on their farms in 1954. On Class I dairy and poultry farms, for example, only about 8 percent of the operators were nonresidents.

Work off the farm and other income.—The proportion of farm operators working off their farms 100 or more days, or reporting that family income from nonfarm sources exceeded the value of farm sales, was greater among the smaller economic classes of farms (see tables 17 and 18). These proportions were lowest among cotton and other field-crop farms and highest among fruit-and-nut and poultry farms. Fruit-and-nut farms also reported the highest proportion of nonresident operators and poultry farms were among the lowest.

Approximately half of the operators of Class V fruit-and-nut farms and two-fifths of those on poultry farms worked off their farms 100 or more days or had other income that exceeded farm sales. In contrast, only a tenth of the cotton and other field-crop farms so reported.

Age of operator.—The median age of operator increased with decreasing size (as measured by gross sales of farm products) for each type of farm (see table 19). On several types (cash-grain, dairy, other livestock, and general farms) the operators of Class I farms were older than those of Class II farms. The median age of Class VI farm operators was over 65 years on poultry farms and nearly 65 years on fruit-and-nut and general livestock farms.

TABLE 17.—OPERATORS WORKING OFF THE FARM 100 OR MORE DAYS AS PERCENTAGE OF OPERATORS REPORTING AS TO OFF-FARM WORK, FOR EACH TYPE OF FARM, BY ECONOMIC CLASS, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
All commercial farms.....	13.3	8.0	7.6	10.4	16.5	24.6	-----
Cash-grain.....	15.0	4.9	5.6	9.9	21.1	36.4	-----
Cotton.....	7.9	7.3	9.3	9.8	9.5	12.0	-----
Other field-crop.....	8.5	8.0	7.2	6.1	7.7	15.2	-----
Vegetable.....	15.4	8.1	9.7	14.6	23.2	31.5	-----
Fruit-and-nut.....	27.9	13.3	19.2	28.9	37.4	47.1	-----
Dairy.....	14.4	8.3	6.8	10.0	18.2	28.3	-----
Poultry.....	24.7	14.5	20.2	29.8	36.5	40.1	-----
Livestock other than dairy and poultry.....	13.7	6.1	5.3	8.6	18.4	33.9	-----
General:							
Primarily crop.....	16.0	8.2	7.9	11.6	17.8	30.4	-----
Primarily livestock.....	10.1	10.0	5.0	6.6	11.3	19.8	-----
Crop and livestock.....	10.3	5.1	4.5	6.6	12.2	20.8	-----
Miscellaneous.....	23.0	10.2	17.0	22.7	32.8	41.4	-----

TABLE 18.—PERCENTAGE OF FARMS WITH OTHER INCOME GREATER THAN THE VALUE OF FARM PRODUCTS SOLD, FOR EACH TYPE OF FARM, BY ECONOMIC CLASS, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
All commercial farms.....	10.8	4.6	4.4	6.4	12.6	24.3	-----
Cash-grain.....	10.4	1.9	2.2	4.6	14.0	33.3	-----
Cotton.....	6.3	2.8	4.4	5.8	6.5	11.3	-----
Other field-crop.....	6.5	3.1	2.9	3.4	5.3	13.4	-----
Vegetable.....	13.7	4.5	6.4	10.7	18.9	34.7	-----
Fruit-and-nut.....	26.1	7.1	13.2	24.1	36.5	53.8	-----
Dairy.....	10.1	5.4	3.6	4.8	11.5	26.2	-----
Poultry.....	23.3	9.8	16.0	25.7	34.7	45.5	-----
Livestock other than dairy and poultry.....	12.4	4.2	3.4	6.3	16.0	34.6	-----
General:							
Primarily crop.....	14.9	3.9	5.2	7.9	15.6	32.9	-----
Primarily livestock.....	7.7	7.8	1.9	2.8	8.0	19.6	-----
Crop and livestock.....	8.6	4.1	2.0	3.5	9.8	21.6	-----
Miscellaneous.....	23.6	7.5	14.7	20.9	32.7	48.5	-----

TABLE 19.—MEDIAN AGE OF OPERATOR FOR TYPE OF FARM BY ECONOMIC CLASS, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
All commercial farms.....	49.0	45.6	45.2	46.5	48.5	50.3	58.0
Cash-grain.....	47.3	44.0	43.9	45.0	49.0	50.6	59.6
Cotton.....	47.3	43.2	44.9	45.8	46.1	46.4	51.9
Other field-crop.....	46.2	44.8	44.1	44.3	43.8	40.4	54.2
Vegetable.....	50.3	44.8	47.0	47.9	50.1	51.6	57.3
Fruit-and-nut.....	54.8	50.6	52.5	54.3	55.7	55.5	63.4
Dairy.....	49.0	47.1	45.8	45.9	48.6	52.0	61.2
Poultry.....	53.9	45.7	47.7	50.4	53.3	57.0	65+
Livestock other than dairy and poultry.....	51.0	45.6	45.1	48.0	51.5	53.9	61.2
General:							
Primarily crop.....	49.2	46.3	45.0	46.4	47.7	50.7	59.4
Primarily livestock.....	50.9	46.3	43.1	45.2	50.7	56.2	64.8
Crop and livestock.....	48.7	45.7	43.6	45.2	49.2	53.0	60.0
Miscellaneous.....	53.5	50.0	50.4	51.0	52.4	54.0	61.9

Man-Equivalents of Labor Used

For the purpose of showing the amount of farm labor used on commercial farms, all labor was converted to a man-equivalent basis. This was necessary in order that meaningful comparisons might be made between the different types and sizes of farms.

Getting an estimate of the labor used is more difficult in agriculture than for most other industries. Farming, generally, is highly seasonal. Certain farming operations performed during the year, such as cultivating and harvesting, usually require more labor than is needed for the remainder of the year.

The seasonal needs for labor in farming vary between different types of farms and between farms in different geographic locations. Therefore, data on the number of workers, if based on any given week, are likely to be less representative of the annual average on some farms than on others. Many wives and children of farmers work part time at field work and chores. The farmer himself frequently does not work full time on the farm but may have a nonfarm job or business.

For these reasons, the total farm labor used was estimated in man-equivalents from use of other data obtained by the Census. As used in this report, a man-equivalent of labor is a relative measure of employment. The estimates are designed primarily toward the objective of securing rough comparability in the amount of labor used between types and sizes of farms. A man-equivalent, as used here, represents approximately a man-year of farm work, but no attempt is made to specify the exact number of days or hours represented.

Operator labor.—The farm operator was considered to be equal to 1 man-equivalent of farm labor unless he worked off the farm or was 65 years of age or older. Farm operators who worked off the farm 1 to 99 days were estimated at 0.85, those working off the farm 100 to 199 days at 0.5 and those working off the farm 200 or more days at 0.15 man-equivalents of labor. A reduction of 0.5 man-equivalents was made for each operator who was 65 years or older.

As estimated in this report, farm-operator labor per farm is a fairly constant factor in the labor force. For most types of farms his labor amounted to between 0.7 and 0.8 man-equivalents (see table 20). Operator labor on cotton and other field-crop farms was slightly higher and on fruit-and-nut farms and poultry farms was slightly lower than this range.

By economic class of farm, operator labor tended to be higher on Class I farms for most types and decreased with decreasing size of farm. For each type of farm, however, operator labor per farm was higher on Class VI than on Class V farms. This is because Class VI farms, by definition, had no operators who worked off the farm as much as 100 days. The relatively small amount of operator labor on Class VI farms is due to the higher proportion of operators who were 65 years or older.

Unpaid family labor.—The number of family members who were reported working 15 or more hours without pay during the specified calendar week (September 26–October 2 or October 24–30, depending on the date of enumeration) were estimated at 0.5 man-equivalents each. This reduction was made in recognition of the higher composition of children and elderly persons in the unpaid family labor force. Individually, these are not usually considered the equivalent of an able-bodied adult worker.

Unpaid family labor, as estimated, amounted only from one-fourth to one-half as much as the operator labor. The larger economic classes of farms naturally had the most operator labor. Unpaid family labor was most important on the intermediate sizes (Classes II, III, and IV); it ranged from one-third to one-half man-equivalents on most types. Highest in use of unpaid family labor were cotton, other field-crop, dairy, and general livestock farms. The lowest were fruit-and-nut, cash-grain, and other livestock farms.

TABLE 20.—AVERAGE MAN-EQUIVALENTS OF LABOR USED ON EACH TYPE OF FARM BY ECONOMIC CLASS, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
All commercial farms.....	1.46	5.42	1.81	1.43	1.27	1.09	1.04
Operator labor.....	0.78	0.86	0.86	0.83	0.77	0.70	0.79
Unpaid family labor.....	0.34	0.27	0.35	0.38	0.39	0.34	0.23
Hired labor.....	0.34	4.29	0.60	0.22	0.11	0.05	0.02
Cash-grain.....	1.23	3.07	1.51	1.23	1.00	0.83	0.93
Operator labor.....	0.77	0.89	0.87	0.82	0.70	0.60	0.77
Unpaid family labor.....	0.25	0.27	0.31	0.29	0.24	0.19	0.14
Hired labor.....	0.20	1.91	0.33	0.12	0.07	0.04	0.02
Cotton.....	1.70	7.76	2.51	1.93	1.68	1.40	1.21
Operator labor.....	0.86	0.90	0.87	0.87	0.87	0.84	0.86
Unpaid family labor.....	0.48	0.16	0.25	0.57	0.66	0.51	0.33
Hired labor.....	0.36	6.70	1.39	0.49	0.15	0.05	0.02
Other field-crop.....	1.51	8.59	2.42	1.79	1.50	1.21	1.07
Operator labor.....	0.85	0.86	0.87	0.89	0.88	0.80	0.83
Unpaid family labor.....	0.40	0.29	0.41	0.57	0.49	0.35	0.22
Hired labor.....	0.27	7.44	1.14	0.33	0.13	0.06	0.02
Vegetable.....	3.57	17.82	3.59	2.00	1.43	1.08	1.08
Operator labor.....	0.76	0.88	0.84	0.78	0.72	0.63	0.80
Unpaid family labor.....	0.31	0.23	0.40	0.37	0.36	0.30	0.24
Hired labor.....	2.49	16.71	2.35	0.85	0.36	0.15	0.05
Fruit-and-nut.....	2.46	9.01	2.63	1.61	1.12	0.86	0.98
Operator labor.....	0.64	0.80	0.74	0.65	0.56	0.49	0.72
Unpaid family labor.....	0.19	0.18	0.22	0.22	0.19	0.18	0.16
Hired labor.....	1.62	8.04	1.67	0.74	0.36	0.18	0.10
Dairy.....	1.44	5.36	1.97	1.46	1.25	1.05	0.99
Operator labor.....	0.77	0.86	0.86	0.83	0.76	0.66	0.75
Unpaid family labor.....	0.40	0.33	0.44	0.45	0.43	0.37	0.23
Hired labor.....	0.26	4.17	0.67	0.19	0.07	0.03	0.01
Poultry.....	1.16	2.71	1.43	1.13	0.94	0.77	0.81
Operator labor.....	0.65	0.83	0.77	0.67	0.59	0.51	0.65
Unpaid family labor.....	0.29	0.36	0.38	0.36	0.30	0.24	0.14
Hired labor.....	0.21	1.52	0.27	0.10	0.05	0.02	0.01
Livestock other than dairy and poultry.....	1.30	3.27	1.61	1.33	1.12	0.88	0.94
Operator labor.....	0.76	0.87	0.87	0.83	0.73	0.60	0.75
Unpaid family labor.....	0.26	0.28	0.32	0.31	0.27	0.21	0.16
Hired labor.....	0.28	2.12	0.42	0.19	0.12	0.07	0.03
General, primarily crop.....	1.61	7.93	2.07	1.53	1.25	1.00	0.96
Operator labor.....	0.76	0.86	0.85	0.82	0.77	0.65	0.75
Unpaid family labor.....	0.30	0.24	0.31	0.35	0.33	0.28	0.19
Hired labor.....	0.56	6.82	0.90	0.35	0.15	0.07	0.02
General, primarily livestock.....	1.29	3.79	1.69	1.42	1.26	1.05	0.91
Operator labor.....	0.79	0.82	0.88	0.86	0.79	0.68	0.70
Unpaid family labor.....	0.40	0.49	0.49	0.46	0.42	0.34	0.21
Hired labor.....	0.11	2.48	0.31	0.10	0.05	0.03	0.01
General, crop and livestock.....	1.37	4.33	1.74	1.42	1.26	1.07	1.04
Operator labor.....	0.81	0.87	0.88	0.86	0.80	0.70	0.77
Unpaid family labor.....	0.38	0.40	0.44	0.42	0.39	0.32	0.25
Hired labor.....	0.18	3.06	0.42	0.14	0.07	0.04	0.02
Miscellaneous.....	2.73	12.29	2.80	1.66	1.16	0.86	0.95
Operator labor.....	0.68	0.82	0.77	0.72	0.62	0.54	0.75
Unpaid family labor.....	0.22	0.20	0.27	0.28	0.24	0.20	0.16
Hired labor.....	1.83	11.26	1.76	0.66	0.30	0.12	0.04

Hired labor.—Man-equivalents of hired labor were computed by dividing the expenditure for hired labor by the annual cash wage reported for regular hired workers for each type of farm.

Hired labor is relatively unimportant in commercial farming as a whole. The man-equivalents of hired labor per farm totaled about 0.3 man-equivalent per farm in 1954. Only on vegetable, fruit-and-nut, and general crop farms, did hired labor exceed this amount. However, hired labor is of considerable importance on the larger economic classes of farms. The average for Class I farms of all types was more than 4 man-equivalents per farm in 1954. The average vegetable farm in Class I hired the equivalent of 17 full-time workers that year. Eight man-equivalents of hired labor were used on Class I fruit-and-nut farms and 7 man-equivalents on Class I cotton and other field-crop, and general crop farms. In contrast, Class I cash-grain and poultry farms used less than 2 man-equivalents of hired labor per farm.

Hired labor comprises a very small part of the farm labor force on farms in the smaller economic classes. For economic classes smaller than Class I it was less important than family labor on all types, with the exception of Class II cotton, vegetable, and fruit-and-nut farms. The use of hired labor decreases with decreasing size of farm for all types.

Cash Wages Paid

The land and labor resources and the value of investment for types of farms classified by economic class is useful as a measure of overall distribution of resources of production. When these resources are taken together there is a close association between the amount and value of resources and the value of farm products sold.

Both the value of investment and the value of farm products are frequently used as measures of farm size. In the purely physical sense they appear to represent fairly adequate measures. But interest in farm size also stems from concern over the human factor in farming. As farms increase in size, measured by business volume, there is a tendency for the farming to involve more work than can be handled by the farm family, and for hired labor to become an increasingly important element in the day-to-day operations. Many persons have taken the increases in size of farm to mean a trend toward large-scale farms and a corresponding increase in the use of hired labor in agriculture.

Since the economic classification has, as its largest size grouping, farms that had sales of farm products valued at \$25,000 or more, there is a tendency for these to be treated as representing large-scale operations employing much hired labor. Actually, many of these farms do employ a great deal of hired work. On many others the work is done primarily by members of the family. Furthermore, there is considerable variation by type of farm among Class I farms in the amount of hired labor employed.

Table 21 and table 22 show the number and proportion of farms reporting specified amounts paid for hired labor for types of farms by economic class. Even among Class I farms, only two-fifths reported an expenditure of \$5,000 or more. An expenditure of \$5,000 would probably represent the hiring of 2 to 3 full-time workers at current wage rates for hired labor.

By type of farm, Class I farms show striking differences in the proportion that paid \$5,000 or more for hired labor. Only a fifth of the Class I cash-grain farms hired this amount of farm labor, reflecting the outstanding progress that has been made in mechanization of the entire farming operation of the cash-grains. In contrast, other types of farming having a major source of income from crops use much more hired labor in producing \$25,000 or more of farm products for sale. On cotton, other field-crop, and fruit-and-nut farms, two-thirds to three-fourths, and on vegetable farms nearly 90 percent, of the Class I farms had \$5,000 or more expended for hired work. On these types of farms much labor is needed because many of the peak harvest operations are not completely mechanized. Much of the labor hired on these farms is seasonal.

Livestock and poultry production is associated with relatively small use of hired labor, relative to sales. Even on Class I farms only a fifth of the poultry and a fourth of the livestock farms had a labor expenditure of \$5,000 or more. About half of the dairy farmers in Class I reported an expenditure of \$5,000 or more. Dairy and poultry farms characteristically buy large quantities of feed. Many livestock farmers, particularly those engaged in cattle and hog fattening, have high expenditures for purchases of feeder cattle and pigs. On these types of farms a smaller proportion of the gross sales is net than for most specialized crop farms.

Farms with expenditures for hired labor of \$5,000 or more are not restricted to Class I farms, however. More than a fourth of the farms employing this much hired work were classified as Class II. A fairly high proportion of Class II cotton, other field-crop, vegetable, and fruit-and-nut farms, reported hiring this much farm labor.

On the smaller economic classes of farms (those with sales of farm products valued at less than \$10,000) few farms of any type reported as much as \$5,000 expended for hired labor.

TABLE 21.—PERCENTAGE OF FARMS REPORTING \$5,000 OR MORE CASH WAGES PAID, FOR EACH TYPE OF COMMERCIAL FARM, BY ECONOMIC CLASS, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
All commercial farms	2.4	40.2	4.7	0.5	0.2	(Z)	(Z)
Cash-grain.....	1.2	21.2	1.1	0.2	0.1	(Z)	(Z)
Cotton.....	2.8	70.8	13.7	0.5	(Z)	(Z)	(Z)
Other field-crop.....	1.5	64.8	10.9	0.4	(Z)	(Z)	(Z)
Vegetable.....	16.7	88.0	41.3	4.8	0.9	-----	-----
Fruit-and-nut.....	14.7	73.5	22.8	3.5	0.8	0.3	0.1
Dairy.....	1.8	51.5	4.2	0.2	(Z)	(Z)	-----
Poultry.....	1.7	17.1	1.0	0.2	0.2	-----	(Z)
Livestock other than dairy and poultry.....	1.9	21.2	2.4	0.7	0.4	0.1	(Z)
General:							
Primarily crop.....	3.8	56.5	7.5	0.8	0.2	0.1	-----
Primarily livestock.....	0.4	28.5	1.0	0.1	(Z)	-----	-----
Crop and livestock.....	1.0	34.8	2.2	0.3	(Z)	(Z)	-----
Miscellaneous.....	15.2	77.9	28.2	4.9	2.3	0.4	0.2

Z 0.05 percent or less.

TABLE 22.—PERCENTAGE DISTRIBUTION OF COMMERCIAL FARMS IN EACH TYPE, BY ECONOMIC CLASS OF FARM, BY AMOUNT OF EXPENDITURE FOR HIRED LABOR, FOR THE UNITED STATES: 1954

Economic class and expenditure for hired labor	All commercial farms	Type of farm											Miscellaneous	
		Cash-grain	Cotton	Other field-crop	Vegetable	Fruit-and-nut	Dairy	Poultry	Live-stock other than dairy and poultry	General—				
										Primarily crop	Primarily live-stock	Crop and live-stock		
All classes	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
None.....	41.6	45.1	39.0	30.5	24.8	15.2	46.0	61.1	43.1	32.1	50.8	41.9	36.8	36.8
\$1 to \$999.....	45.8	44.6	48.9	00.7	35.8	39.8	41.4	29.1	43.8	50.2	44.1	49.8	30.2	30.2
\$1,000 to \$2,499.....	7.3	0.8	6.5	5.6	14.3	18.8	7.8	5.5	8.0	9.6	3.7	5.5	10.4	10.4
\$2,500 to \$4,999.....	3.0	2.4	2.8	1.7	8.4	11.4	3.0	2.6	3.2	4.3	0.9	1.7	7.5	7.5
\$5,000 and over.....	2.4	1.2	2.8	1.5	16.7	14.7	1.8	1.7	1.9	3.8	0.4	1.0	15.2	15.2
\$5,000 to \$9,999.....	1.4	0.8	1.6	0.9	7.0	7.8	1.2	1.1	1.2	2.2	0.3	0.7	6.6	6.6
\$10,000 to \$19,999.....	0.6	0.2	0.8	0.4	5.1	4.4	0.4	0.5	0.5	0.9	0.1	0.2	5.0	5.0
\$20,000 and over.....	0.4	0.1	0.4	0.3	4.7	2.6	0.2	0.1	0.2	0.7	(Z)	0.1	3.5	3.5
Class I	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
None.....	7.0	6.4	1.0	1.7	0.3	2.1	4.5	19.6	9.5	3.6	6.9	6.8	4.0	4.0
\$1 to \$999.....	15.5	20.0	3.3	6.9	1.4	3.0	8.3	26.3	24.1	8.5	18.9	15.5	3.9	3.9
\$1,000 to \$2,499.....	18.3	27.5	9.0	10.1	3.9	7.2	13.5	20.5	24.5	13.2	23.8	21.5	5.4	5.4
\$2,500 to \$4,999.....	19.0	24.9	15.9	16.5	6.3	14.2	22.2	16.5	20.6	18.2	21.8	21.4	8.8	8.8
\$5,000 and over.....	40.2	21.2	70.8	64.8	88.0	73.5	51.5	17.1	21.2	50.5	28.5	34.8	77.9	77.9
\$5,000 to \$9,999.....	18.3	14.0	31.0	27.0	15.8	27.3	26.7	10.8	11.9	25.1	14.7	19.1	18.9	18.9
\$10,000 to \$19,999.....	13.2	5.2	24.5	21.1	32.0	26.8	17.7	4.9	6.1	15.8	10.6	10.9	30.0	30.0
\$20,000 and over.....	8.7	2.0	15.3	16.7	40.2	19.4	7.1	1.5	3.2	15.6	3.2	4.8	29.0	29.0
Class II	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
None.....	21.8	25.1	4.5	5.3	3.7	4.6	18.9	41.5	24.9	11.5	26.9	23.6	12.5	12.5
\$1 to \$999.....	42.2	52.2	16.7	25.3	8.9	16.8	37.0	40.1	48.6	33.4	61.5	49.1	17.1	17.1
\$1,000 to \$2,499.....	20.3	16.8	29.7	34.5	17.8	25.4	26.1	12.8	17.2	29.3	16.2	18.0	19.2	19.2
\$2,500 to \$4,999.....	11.1	4.8	35.4	24.0	28.3	30.4	13.8	4.6	6.9	18.3	4.4	7.1	23.1	23.1
\$5,000 and over.....	4.7	1.1	13.7	10.9	41.3	22.8	4.2	1.0	2.4	7.5	1.0	2.2	28.2	28.2
\$5,000 to \$9,999.....	4.0	0.9	12.6	10.0	32.3	18.8	3.8	0.8	2.0	6.6	0.9	2.0	20.5	20.5
\$10,000 to \$19,999.....	0.7	0.1	1.2	0.9	8.7	3.9	0.4	0.1	0.4	0.9	0.1	0.2	7.6	7.6
\$20,000 and over.....	(Z)	(Z)	(Z)	(Z)	0.3	0.1	(Z)	(Z)	(Z)	0.1	(Z)	(Z)	0.1	0.1
Class III	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
None.....	34.3	41.2	14.4	11.1	11.9	9.5	36.9	55.1	36.9	18.1	42.2	37.8	26.9	26.9
\$1 to \$999.....	51.1	52.8	42.0	65.5	27.5	36.2	50.5	37.7	51.9	57.9	52.8	54.3	35.2	35.2
\$1,000 to \$2,499.....	11.6	5.0	36.7	20.2	38.2	36.9	10.6	4.8	8.4	19.1	4.3	6.5	20.2	20.2
\$2,500 to \$4,999.....	2.4	0.8	6.4	2.8	17.6	13.9	1.8	1.2	2.2	4.2	0.6	1.0	12.9	12.9
\$5,000 and over.....	0.5	0.2	0.5	0.4	4.8	3.5	0.2	0.2	0.7	0.8	0.1	0.3	4.9	4.9
\$5,000 to \$9,999.....	0.4	0.1	0.5	0.3	4.2	3.0	0.2	0.2	0.6	0.6	0.1	0.2	3.7	3.7
\$10,000 to \$19,999.....	0.1	(Z)	0.1	0.1	0.6	0.5	(Z)	(Z)	0.1	0.2	(Z)	(Z)	1.1	1.1
\$20,000 and over.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	0.1	0.1
Class IV	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
None.....	41.6	53.8	29.9	21.4	20.9	14.8	51.1	66.7	44.8	28.8	52.7	43.7	39.4	39.4
\$1 to \$999.....	53.6	43.6	64.0	74.6	54.4	59.9	40.0	30.9	48.9	64.6	45.9	53.9	42.7	42.7
\$1,000 to \$2,499.....	4.1	2.1	5.8	3.7	20.0	21.0	2.6	1.8	4.9	5.5	1.4	2.2	12.9	12.9
\$2,500 to \$4,999.....	0.6	0.4	0.3	0.2	3.8	3.5	0.3	0.4	1.1	1.0	0.1	0.2	2.7	2.7
\$5,000 and over.....	0.2	0.1	(Z)	(Z)	0.9	0.8	(Z)	0.2	0.4	0.2	(Z)	(Z)	2.3	2.3
\$5,000 to \$9,999.....	0.1	0.1	(Z)	(Z)	0.4	0.6	(Z)	0.2	0.3	0.1	(Z)	(Z)	2.1	2.1
\$10,000 to \$19,999.....	(Z)	(Z)	(Z)	(Z)	0.5	0.1	(Z)	(Z)	0.1	0.1	(Z)	(Z)	0.2	0.2
\$20,000 and over.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
Class V	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
None.....	51.1	64.1	44.5	36.0	35.2	26.2	62.6	76.4	54.6	43.0	61.6	51.6	53.4	53.4
\$1 to \$999.....	47.3	34.6	55.0	63.3	57.9	65.8	36.6	22.7	41.8	54.8	37.9	47.4	40.7	40.7
\$1,000 to \$2,499.....	1.3	1.0	0.5	0.7	5.7	6.2	0.7	0.7	2.8	1.8	0.4	0.9	4.4	4.4
\$2,500 to \$4,999.....	0.2	0.2	(Z)	0.1	1.2	1.5	0.1	0.1	0.6	0.3	0.1	0.2	1.1	1.1
\$5,000 and over.....	(Z)	(Z)	(Z)	(Z)	(Z)	0.3	(Z)	(Z)	0.1	0.1	(Z)	(Z)	0.4	0.4
\$5,000 to \$9,999.....	(Z)	(Z)	(Z)	(Z)	(Z)	0.3	(Z)	(Z)	0.1	0.1	(Z)	(Z)	0.4	0.4
\$10,000 to \$19,999.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
\$20,000 and over.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
Class VI	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
None.....	66.1	74.2	58.6	57.8	57.6	48.2	77.3	84.6	69.5	65.6	74.8	66.7	60.5	60.5
\$1 to \$999.....	33.4	25.1	41.3	42.0	40.3	47.7	22.6	14.9	29.3	33.8	24.9	32.9	28.6	28.6
\$1,000 to \$2,499.....	0.4	0.5	0.1	0.2	1.7	2.5	0.2	0.3	1.0	0.3	0.3	0.3	1.3	1.3
\$2,500 to \$4,999.....	0.1	0.2	(Z)	(Z)	0.5	1.4	(Z)	0.1	0.2	0.2	(Z)	0.1	0.4	0.4
\$5,000 and over.....	(Z)	(Z)	(Z)	(Z)	(Z)	0.1	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	0.2	0.2
\$5,000 to \$9,999.....	(Z)	(Z)	(Z)	(Z)	(Z)	0.1	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	0.2	0.2
\$10,000 to \$19,999.....	(Z)	(Z)	(Z)	(Z)	(Z)	0.1	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
\$20,000 and over.....	(Z)	(Z)	(Z)	(Z)	(Z)	0.1	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)

Z 0.05 percent or less.

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TABLE 23.—CLASS OF WORK POWER: PERCENTAGE DISTRIBUTION OF FARMS BY TYPE AND BY SPECIFIED ECONOMIC CLASSES, FOR THE UNITED STATES: 1954

Percentage distribution by type of farm	Total	Economic class of farm			
		I	II, III, and IV	V and VI	
Total all types	100.0	100.0	100.0	100.0	
No tractor, horses or mules.....	14.9	6.9	9.1	25.1	
No tractor, and 1 or more horses and/or mules.....	14.0	2.3	6.3	27.6	
Tractor and horses and/or mules.....	25.8	36.3	29.5	18.7	
Tractor and no horses or mules.....	45.3	54.5	55.1	28.5	
Cash-grain	100.0	100.0	100.0	100.0	
No tractor, horses or mules.....	6.3	1.5	3.9	15.6	
No tractor, and 1 or more horses and/or mules.....	2.0	0.4	0.8	6.3	
Tractor and horses and/or mules.....	22.0	37.9	22.5	17.4	
Tractor and no horses or mules.....	69.7	60.1	72.8	60.7	
Cotton	100.0	100.0	100.0	100.0	
No tractor, horses or mules.....	29.3	1.7	22.4	34.7	
No tractor, and 1 or more horses and/or mules.....	29.1	0.4	12.7	40.1	
Tractor and horses and/or mules.....	15.9	37.1	22.4	11.0	
Tractor and no horses or mules.....	25.7	60.8	42.5	14.1	
Other field-crops	100.0	100.0	100.0	100.0	
No tractor, horses or mules.....	23.3	1.8	17.6	29.4	
No tractor, and 1 or more horses and/or mules.....	32.8	1.5	23.7	42.4	
Tractor and horses and/or mules.....	26.1	32.1	35.2	17.2	
Tractor and no horses or mules.....	17.8	64.6	23.5	11.0	
Vegetable	100.0	100.0	100.0	100.0	
No tractor, horses or mules.....	14.0	2.8	8.4	24.2	
No tractor, and 1 or more horses and/or mules.....	11.2	1.0	4.6	22.2	
Tractor and horses and/or mules.....	19.7	24.2	22.2	15.2	
Tractor and no horses or mules.....	55.1	72.0	64.8	38.3	
Fruit-and-nut	100.0	100.0	100.0	100.0	
No tractor, horses or mules.....	28.8	9.8	27.1	41.4	
No tractor, and 1 or more horses and/or mules.....	5.5	0.7	3.2	12.7	
Tractor and horses and/or mules.....	10.5	17.1	10.3	7.9	
Tractor and no horses or mules.....	55.1	72.4	59.4	38.0	
Dairy	100.0	100.0	100.0	100.0	
No tractor, horses or mules.....	6.5	6.8	3.1	15.1	
No tractor, and 1 or more horses and/or mules.....	8.1	2.0	3.8	19.7	
Tractor and horses and/or mules.....	29.4	39.2	31.7	23.0	
Tractor and no horses or mules.....	55.9	52.1	61.4	42.2	
Percentage distribution by type of farm	Total	Economic class of farm			
		I	II, III, and IV	V and VI	
Poultry	100.0	100.0	100.0	100.0	
No tractor, horses or mules.....	41.9	30.5	38.5	49.5	
No tractor, and 1 or more horses and/or mules.....	11.2	4.3	10.2	14.5	
Tractor and horses and/or mules.....	11.0	16.3	12.3	7.9	
Tractor and no horses or mules.....	35.8	48.9	39.0	28.1	
Livestock, other than dairy or poultry	100.0	100.0	100.0	100.0	
No tractor, horses or mules.....	8.8	2.3	4.1	18.0	
No tractor, and 1 or more horses and/or mules.....	10.7	4.4	4.8	22.1	
Tractor and horses and/or mules.....	35.9	49.0	38.9	28.3	
Tractor and no horses or mules.....	44.6	44.3	52.2	31.5	
General, primarily crop	100.0	100.0	100.0	100.0	
No tractor, horses or mules.....	10.9	2.0	6.4	18.3	
No tractor, and 1 or more horses and/or mules.....	13.2	0.4	0.8	23.8	
Tractor and horses and/or mules.....	29.5	38.0	34.6	21.2	
Tractor and no horses or mules.....	46.4	59.7	52.2	36.7	
General, primarily livestock	100.0	100.0	100.0	100.0	
No tractor, horses or mules.....	6.0	2.5	2.7	12.9	
No tractor, and 1 or more horses and/or mules.....	9.2	0.3	4.3	19.6	
Tractor and horses and/or mules.....	28.8	34.3	29.6	26.9	
Tractor and no horses or mules.....	56.0	62.8	63.4	40.6	
General, crop and livestock	100.0	100.0	100.0	100.0	
No tractor, horses or mules.....	3.6	1.1	2.2	7.4	
No tractor, and 1 or more horses and/or mules.....	7.8	0.8	2.5	21.6	
Tractor and horses and/or mules.....	33.7	46.0	34.4	31.2	
Tractor and no horses or mules.....	54.9	52.1	60.9	39.9	
Miscellaneous	100.0	100.0	100.0	100.0	
No tractor, horses or mules.....	37.9	35.2	39.3	37.0	
No tractor, and 1 or more horses and/or mules.....	14.9	2.2	9.3	26.4	
Tractor and horses and/or mules.....	18.3	17.9	19.9	16.2	
Tractor and no horses or mules.....	28.0	44.8	31.5	20.4	

Class of Work Power

Some indication of the level of mechanization practiced by types and economic classes of farms may be gained from data on class of work power. Tractors are more common to some parts of commercial agriculture than others and there remains considerable difference in the extent to which they now constitute the sole source of power.

"Horseless farming" is much more a reality on cash-grain farms than most other types (see table 23). Three-fifths of even the smaller economic classes of farms reported a tractor and no horses or mules.

In general, Class I farms of each type are highly dependent on tractors as the only source of power. The same is true for Classes II through IV for several types; namely, cash-grain, vegetable, fruit-and-nut, dairy, and general farms.

Many of the smaller economic classes of farms had neither tractors nor work stock. This was most common on fruit-and-nut farms and poultry farms. It was also common on cotton and other field-crop farms, largely influenced by the fairly high pro-

portion of cropper operators included in the smaller economic classes.

For several types of farms, cash-grain, dairy, other livestock, general livestock, and general crop and livestock farms, a higher proportion of the farms in Classes II through IV than in Class I reported tractors and no work stock.

Land in Farms

Of the total land area in the United States, encompassing about 3 million square miles, 60.8 percent is in farms. In 1954, the land in farms totaled 1,158 million acres of which 1,032.5 million acres, or 89 percent, was in commercial farms.

Nearly half of the land in commercial farms was in livestock farms and about a fifth was in cash-grain farms (see table 24). These two types, which comprise 37 percent of the commercial farm numbers, accounted for more than two-thirds of the land in commercial farms in 1954. If general livestock and general crop and livestock farms are included, the proportion of the land in farms of the livestock and cash-grain types exceeds three-fourths of the land in all commercial farms.

TABLE 24.—PERCENT DISTRIBUTION OF TOTAL LAND FOR EACH ECONOMIC CLASS, BY TYPE OF FARM, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
All commercial farms.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Cash-grain.....	19.8	12.7	25.6	28.4	20.6	13.6	9.0
Cotton.....	6.3	6.0	4.0	4.2	7.1	11.6	16.2
Other field-crop.....	3.3	1.4	1.5	2.7	5.5	7.5	8.2
Vegetable.....	0.5	0.9	0.3	0.2	0.3	0.4	0.7
Fruit-and-nut.....	0.9	1.9	0.8	0.5	0.6	0.7	0.7
Dairy.....	9.4	2.3	8.5	13.4	14.4	12.7	10.4
Poultry.....	1.2	0.8	1.1	1.0	1.2	1.6	3.1
Livestock other than dairy and poultry.....	49.2	69.6	50.1	39.8	36.6	39.1	41.2
General:							
Primarily crop.....	2.1	1.7	1.9	2.0	2.4	3.0	3.0
Primarily livestock.....	1.1	0.2	0.7	1.5	2.0	2.0	1.6
Crop and livestock.....	5.2	1.5	4.6	7.5	8.5	6.5	4.0
Miscellaneous.....	1.0	1.0	0.9	0.7	1.0	1.4	1.7

The distribution of land in farms is affected by the different land requirements for farms in different parts of the country. Many of the livestock and cash-grain farms are in western regions where, because of limited rainfall, the yields of crops and pastures are low, and considerable acreages are required to provide an efficient farm organization. On many western livestock farms 20 or more acres are required to furnish pasture for one animal unit. In much of the western plains, wheat can be grown only in alternate years. Part of the land is "fallowed" each year to accumulate enough moisture for the next year's crop.

Although less than 10 percent of the livestock farms are in the West, these comprise 40 percent of the land in all livestock farms. The western region contains only about a tenth of the total number of cash-grain farms, but a fifth of the land in such farms is in the western region. Similarly, the average acreage of livestock farms in the West is several times the acreages in northern and southern regions. Cash-grain farms in the West average more than twice as large as those in other regions.

Of the 1,032 million acres of land in commercial farms in 1954, 25 percent was in Class I farms, about 60 percent in Classes II, III, and IV, and slightly less than 15 percent in Class V and VI farms (see table 25). But among types of farms, the proportion of the commercial farmland by economic class varies considerably. Among cash-grain farms, other field-crop farms, dairy farms, general livestock, and general crop and livestock farms, a relatively small proportion of the farmland is contained in Class I farms. On the other hand, about half of the acreage in vegetable and fruit-and-nut farms falls in Class I and more than a third of the land in livestock farms.

Of all land in Class I farms more than two-thirds is in livestock farms. Cash-grain farms contain about 13 percent and cotton farms 6 percent of the acreage in all Class I farms. No other type accounts for as much as 3 percent of the acreage in Class I farms.

Nationally, two-thirds of the commercial farms and three-fifths of the land in commercial farms are in Economic Classes II, III, and IV. A much higher proportion of the acreage, around three-fourths, is found in these classes on cash-grain, dairy, general livestock and general crop and livestock farms. In contrast, less than half the acreage is found in these classes on cotton, other field-crop, vegetable, and fruit-and-nut farms.

The land contained in Economic Classes V and VI ranged from a high of one-third of the land in cotton farms to a low of 9 percent for cash-grain farms.

TABLE 25.—PERCENT DISTRIBUTION OF TOTAL LAND IN FARMS FOR EACH TYPE OF COMMERCIAL FARM, BY ECONOMIC CLASS, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
All commercial farms.....	100.0	25.2	23.4	21.4	15.8	9.9	4.4
Cash-grain.....	100.0	16.1	30.2	28.5	16.4	6.8	2.0
Cotton.....	100.0	24.1	14.8	14.2	17.7	18.3	11.1
Other field-crop.....	100.0	11.1	10.8	17.5	26.8	22.8	10.9
Vegetable.....	100.0	50.0	13.1	10.5	10.4	9.1	7.0
Fruit-and-nut.....	100.0	49.4	18.9	12.1	9.3	7.0	3.3
Dairy.....	100.0	6.1	21.1	30.5	24.1	13.4	4.8
Poultry.....	100.0	17.8	22.5	18.9	15.7	13.4	11.7
Livestock other than dairy and poultry.....	100.0	35.6	23.8	17.3	11.8	7.9	3.6
General:							
Primarily crop.....	100.0	20.2	20.9	20.3	17.9	14.4	6.3
Primarily livestock.....	100.0	4.0	15.5	28.5	28.7	17.3	6.0
Crop and livestock.....	100.0	7.3	20.8	30.6	25.6	12.4	3.4
Miscellaneous.....	100.0	26.0	21.8	14.9	15.8	14.0	7.6

Table 26 shows the average acreage per farm for types of farms by economic class. These averages disclose the wide range in acreage found within each economic class of farm and the variation by type of farm. Within each type there is a correlation between size measured in acres and size measured by value of farm products sold. A decrease in average acreage is associated with a decrease in value of products sold for each type of farm. This relation of acreage to value, by type of farm, indicates that the classification by value of products sold provides a fairly good measure of size when dealing with different types of farms under widely different production conditions.

TABLE 26.—AVERAGE SIZE OF FARM FOR EACH TYPE OF COMMERCIAL FARM, BY ECONOMIC CLASS, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
All commercial farms.....	310.3	1,939.1	537.8	311.9	201.0	134.3	97.1
Cash-grain.....	380.1	1,494.7	558.9	363.5	260.1	167.9	121.8
Cotton.....	124.4	1,031.6	376.9	196.7	99.3	63.8	54.1
Other field-crop.....	91.6	667.5	236.5	123.9	79.0	65.7	54.5
Vegetable.....	146.6	636.1	139.3	98.1	78.0	66.9	52.4
Fruit-and-nut.....	119.3	453.6	120.6	72.6	53.8	43.0	46.8
Dairy.....	177.2	568.4	269.8	189.4	152.5	126.3	97.8
Poultry.....	78.1	162.9	94.9	79.7	68.7	56.9	51.3
Livestock other than dairy and poultry.....	730.7	4,539.0	996.5	576.0	417.7	291.3	183.6
General:							
Primarily crop.....	269.0	1,147.3	452.3	303.6	190.5	147.0	128.6
Primarily livestock.....	183.0	773.1	249.9	200.7	177.9	145.1	106.3
Crop and livestock.....	234.7	1,196.7	391.9	292.0	234.1	161.1	121.6
Miscellaneous.....	278.0	597.1	385.1	276.5	228.6	172.1	136.8

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The average acreage per farm, however, tends to conceal the extreme variations in acreage that exist within each economic class. Table 27 shows the frequency distribution of the number of farms grouped by acreage size for each type of farm by economic class. Although the average acreage of land for Class I farms was more than 1,000 acres for cash-grain, cotton, livestock, general crop, and general crop and livestock farms, most of the farms are considerably smaller. More than half of the Class I farms in each of these types have from 220 to 999 acres. A majority of Class I vegetable and fruit-and-nut farms have less than 220 acres, and more than half of the Class I poultry farms have less than 100 acres. Half of the Class I farms of under 10 acres were poultry farms in 1954. Nearly half of the Class I farms of 1,000 or more acres were livestock farms and almost a third were cash-grain farms.

Among farms in the median range in value of products sold (Classes II, III, and IV), certain acreage-size groups tend to predominate. Most of the cash-grain, livestock, and general farms in Classes II, III, and IV, are in the groups between 100 and 500

acres. Cotton and other field-crop farms are heavily concentrated in the acreage-size groups between 10 and 220 acres. Over half of the dairy farms fall in the size group between 100 and 220 acres, while a majority of poultry and fruit-and-nut farms have less than 50 acres.

A higher proportion of Economic Classes V and VI are in the smaller acreage groups for each type of farm. However, the relationship between acreage and value of sales is not so direct as might be expected. For each type of farm, except cash-grain farms, the modal acreage-size group (the one containing the largest number of farms) is the same for Class V and VI farms as for Classes II, III, and IV. This indicates the wide variation in the quality of land and the proportion that is suitable for growing crops and grasses even among farms of basically the same type of farming. It is also related to differences in the extent to which these groups of farmers have taken advantage of new techniques that are aimed to increase yields per crop acre and per animal unit.

TABLE 27.—NUMBER OF FARMS IN SPECIFIED ACREAGE-SIZE GROUPS FOR EACH TYPE OF COMMERCIAL FARM BY ECONOMIC CLASS, FOR THE UNITED STATES: 1954

Economic class and acreage size	All commercial farms	Number of farms by type											
		Cash-grain	Cotton	Other field-crop	Vegetable	Fruit-and-nut	Dairy	Poultry	Live-stock other than dairy or poultry	General—			Miscellaneous and unclassified
										Primarily crop	Primarily live-stock	Crop and live-stock	
All classes	3,327,889	537,974	525,463	367,733	32,581	82,096	548,767	154,251	694,888	80,039	63,197	203,843	37,057
Under 10 acres.....	145,400	1,015	29,104	31,721	2,880	10,660	5,664	40,633	11,232	265	560	460	11,206
10 to 49 acres.....	622,921	26,731	230,445	143,547	13,311	39,436	44,210	46,461	45,054	11,267	4,861	10,761	6,837
50 to 99 acres.....	580,060	66,159	615,395	90,276	6,835	14,368	115,105	29,829	85,003	17,911	13,290	32,305	4,184
100 to 219 acres.....	1,026,604	170,801	97,360	74,553	5,752	10,535	255,593	20,607	237,889	27,136	30,006	83,727	6,705
220 to 499 acres.....	642,333	174,119	44,144	22,100	2,412	4,623	109,857	8,562	186,476	15,634	12,211	57,634	4,561
500 to 999 acres.....	182,550	63,933	13,120	4,091	822	1,510	15,116	1,577	60,101	5,021	1,781	13,650	1,828
1,000 acres and over.....	127,361	35,216	5,895	1,445	569	964	3,222	582	69,133	2,805	488	5,306	1,736
Class I	134,064	21,995	15,239	5,585	3,751	10,675	11,098	13,137	39,835	3,784	592	3,292	4,481
Under 10 acres.....	4,340	5	15	180	10	55	370	2,102	233	50	20	10	1,670
10 to 49 acres.....	7,693	21	80	340	295	1,666	616	3,292	424	50	20	30	1,190
50 to 99 acres.....	7,124	21	80	340	585	2,366	564	2,019	672	50	20	30	377
100 to 219 acres.....	19,127	454	1,392	1,297	1,020	3,254	2,059	3,118	5,224	460	101	335	413
220 to 499 acres.....	40,199	5,385	5,589	1,813	930	1,830	4,309	1,805	15,297	1,244	291	1,313	393
500 to 999 acres.....	24,807	6,630	4,593	1,198	463	853	2,602	548	5,817	1,036	115	789	163
1,000 acres and over.....	30,774	9,500	3,570	767	448	651	1,178	253	12,168	994	65	815	376
Classes II, III, and IV	1,967,807	399,976	188,761	177,342	15,958	48,573	386,279	84,741	416,772	44,627	42,232	144,063	18,483
Under 10 acres.....	41,451	35	435	5,486	710	4,090	1,104	20,330	2,510	5	60	40	6,046
10 to 49 acres.....	225,573	3,810	59,529	66,975	6,891	26,675	15,474	24,591	10,962	3,505	1,151	2,745	3,265
50 to 99 acres.....	279,516	31,296	39,971	43,376	3,785	9,131	67,061	17,240	34,840	8,665	7,145	15,470	1,536
100 to 219 acres.....	705,813	133,096	50,310	43,089	3,112	5,541	197,732	16,259	153,475	16,446	22,455	61,701	2,597
220 to 499 acres.....	495,825	153,254	28,893	15,357	1,077	2,307	91,880	5,217	126,418	11,092	9,747	48,380	2,203
500 to 999 acres.....	133,767	53,794	7,479	2,448	284	544	11,161	844	39,375	3,380	1,336	11,529	1,093
1,000 acres and over.....	85,862	24,691	2,144	611	99	285	1,867	260	48,692	1,534	338	4,198	1,143
Classes V and VI	1,226,018	116,003	321,463	184,806	12,872	22,848	150,790	56,373	238,281	31,628	20,373	56,488	14,093
Under 10 acres.....	99,609	980	28,609	26,235	2,160	6,515	4,190	18,201	8,489	260	500	420	2,990
10 to 49 acres.....	389,655	22,916	170,901	76,392	6,125	11,095	28,120	18,678	33,668	7,762	3,710	8,005	2,382
50 to 99 acres.....	294,020	34,842	65,344	46,560	2,465	2,871	47,480	10,570	49,491	9,196	6,125	16,806	2,271
100 to 219 acres.....	301,724	37,251	45,658	30,167	1,620	1,740	55,802	7,230	70,190	10,230	7,450	21,691	3,695
220 to 499 acres.....	106,309	15,480	9,662	4,930	405	486	13,068	1,540	44,761	3,298	2,173	7,941	1,965
500 to 999 acres.....	23,976	3,509	1,048	445	75	113	1,353	185	14,409	605	330	1,332	572
1,000 acres and over.....	10,725	1,025	181	77	22	28	177	69	8,273	277	85	293	218

Cropland Harvested

About 322 million acres were in harvested crops in 1954. This was slightly less than a third of the total land in farms. The proportion of the land that was in harvested crops varied among types of farms and between economic classes within each type (see table 28). Approximately half or more of the total land was in harvested crops on cash-grain, cotton, vegetable, and general farms. Between a third and two-fifths of the land in other field-crop, fruit-and-nut, and dairy farms, was harvested cropland—only a fourth of the land in poultry farms and 15 percent of the land in livestock farms.

TABLE 28.—CROPLAND HARVESTED AS A PERCENT OF TOTAL LAND IN FARMS FOR EACH TYPE OF FARM, BY ECONOMIC CLASS OF FARM, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
All commercial farms.....	31.1	18.8	35.8	40.0	36.2	28.7	21.3
Cash-grain.....	54.5	47.5	57.8	58.2	54.1	47.2	36.7
Cotton.....	50.6	54.3	57.1	54.7	52.4	45.8	33.9
Other field-crop.....	36.3	40.4	48.1	40.6	36.4	28.5	20.8
Vegetable.....	46.9	51.4	54.5	47.3	39.5	33.5	27.8
Fruit-and-nut.....	37.0	36.2	41.9	41.5	35.4	30.6	23.2
Dairy.....	38.1	32.0	42.7	42.2	37.9	30.2	22.0
Poultry.....	26.0	30.6	28.7	26.8	25.6	22.7	17.1
Livestock other than dairy and poultry.....	15.4	7.5	19.4	23.3	20.5	15.4	12.7
General:							
Primarily crop.....	41.6	46.7	47.6	42.2	40.6	33.8	24.3
Primarily livestock.....	46.8	31.9	58.4	54.6	46.3	35.7	24.4
Crop and livestock.....	47.0	35.6	53.4	52.8	45.9	36.7	26.7
Miscellaneous.....	8.2	10.2	7.1	7.4	7.8	7.7	7.7

For most types of farms the larger farms and the smaller farms have less of the land in harvested crops. This results in a slightly higher proportion of the cropland than of the total land being found among the medium-sized Classes II, III, and IV farms. Four-fifths or more of the cropland is accounted for by these classes for cash-grain, dairy, general livestock, and general crop and livestock farms (see table 29). Half or more of the cropland is found on Classes II, III, and IV farms for each of the other types, with the exception of vegetable and fruit-and-nut farms. For these two types, half or more of the cropland is in Class I farms. About 70 percent is accounted for by Classes I and II together. Economic Classes V and VI account for a smaller proportion of the cropland than of the total land in farms for each type of farm.

Cash-grain farms and livestock farms accounted for a third and a fourth, respectively, of the harvested cropland (see table 30). Cotton farmers and dairy farmers each used about a tenth of the cropland. With the exception of general crop and livestock farms which accounted for 8 percent of the cropland, no other type accounted for as much as 4 percent. Cash-grain farms and livestock farms taken together accounted for more than half of the cropland harvested in each Economic Classes I through IV and two-fifths of the cropland in Class V and Class VI farms. On Class VI farms, however, a higher proportion of the cropland was accounted for by cotton farms.

The average acreage of cropland harvested per farm is largest on cash-grain farms and lowest on poultry farms (see table 31). Except for cash-grain farms, livestock farms and general crop and livestock farms had a larger average acreage in crops harvested than any of the types that had a major source of income from sales of crops.

TABLE 29.—PERCENT DISTRIBUTION OF TOTAL ACREAGE OF CROPLAND HARVESTED FOR EACH TYPE OF COMMERCIAL FARM BY ECONOMIC CLASS, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
All commercial farms.....	100.0	15.2	26.9	27.4	18.4	9.1	3.0
Cash-grain.....	100.0	14.0	32.1	30.4	16.3	5.9	1.3
Cotton.....	100.0	25.8	16.7	15.3	18.3	16.5	7.4
Other field-crop.....	100.0	15.0	14.3	19.6	26.8	17.9	6.8
Vegetable.....	100.0	54.8	15.2	10.6	8.8	6.5	4.2
Fruit-and-nut.....	100.0	48.3	21.4	13.6	8.9	5.7	2.1
Dairy.....	100.0	5.1	23.7	33.8	24.0	10.6	2.8
Poultry.....	100.0	20.9	24.8	19.5	15.5	11.7	7.7
Livestock other than dairy and poultry.....	100.0	17.4	29.9	26.1	15.6	7.9	3.0
General:							
Primarily.....	100.0	22.6	23.9	20.6	17.5	11.7	3.7
Primarily livestock.....	100.0	2.7	19.3	33.2	28.4	13.2	3.2
Crop and livestock.....	100.0	5.5	23.6	34.3	25.0	9.7	1.9
Miscellaneous.....	100.0	32.2	19.0	13.4	15.0	13.2	7.2

TABLE 30.—PERCENT DISTRIBUTION OF TOTAL ACREAGE OF CROPLAND HARVESTED FOR EACH ECONOMIC CLASS, BY TYPE OF FARM, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
All commercial farms.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Cash-grain.....	34.7	31.9	41.4	38.5	30.7	22.3	15.6
Cotton.....	10.3	17.4	6.4	5.7	10.2	18.6	25.8
Other field-crop.....	3.8	3.8	2.0	2.7	5.5	7.5	8.0
Vegetable.....	0.7	2.5	0.4	0.3	0.3	0.5	1.0
Fruit-and-nut.....	1.1	3.6	0.9	0.6	0.5	0.7	0.8
Dairy.....	11.5	3.9	10.1	14.2	15.0	13.4	10.8
Poultry.....	1.0	1.3	0.9	0.7	0.8	1.2	2.5
Livestock other than dairy and poultry.....	24.3	27.8	27.1	23.2	20.7	21.0	24.5
General:							
Primarily crop.....	2.8	4.1	2.5	2.1	2.6	3.6	3.5
Primarily livestock.....	1.7	0.3	1.2	2.0	2.6	2.4	1.8
Crop and livestock.....	7.9	2.9	6.9	9.9	10.7	8.4	5.1
Miscellaneous.....	0.3	0.6	0.2	0.1	0.2	0.4	0.6

TABLE 31.—AVERAGE ACREAGE OF CROPLAND HARVESTED PER FARM FOR EACH TYPE OF COMMERCIAL FARM, BY ECONOMIC CLASS, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
All commercial farms.....	102	398	201	129	76	41	23
Cash-grain.....	207	710	323	211	141	79	45
Cotton.....	63	560	215	108	52	29	18
Other field-crop.....	33	329	114	50	29	19	11
Vegetable.....	69	327	76	46	31	22	15
Fruit-and-nut.....	44	164	51	30	19	13	11
Dairy.....	67	163	115	80	58	38	22
Poultry.....	20	50	27	21	18	13	9
Livestock other than dairy and poultry.....	113	341	193	134	86	45	23
General:							
Primarily crop.....	112	536	215	128	77	50	31
Primarily livestock.....	86	246	146	110	82	52	26
Crop and livestock.....	124	426	209	154	107	59	32
Miscellaneous.....	23	61	27	20	18	13	11

Value of Land and Buildings

Differences in the land—its quality, productiveness, and location, the proportion suitable for crops, and the improvements made to the land—are reflected in the average values per acre. Table 32 shows the average value of land and buildings per acre for each type of farm by economic class. The highest value per acre for any type of farm is for fruit-and-nut farms. This is true when comparison is made within each economic class. Relatively high values per acre are also shown for vegetable farms and poultry farms.

TABLE 32.—AVERAGE VALUE PER ACRE OF LAND AND BUILDINGS FOR EACH TYPE OF COMMERCIAL FARM, BY ECONOMIC CLASS, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
All commercial farms.....	83.16	73.30	97.03	89.87	79.23	73.80	82.48
Cash-grain.....	102.53	108.96	118.02	99.07	84.12	84.46	74.26
Cotton.....	111.11	175.10	138.43	108.52	89.56	73.54	54.76
Other field-crop.....	117.98	180.60	153.53	134.09	114.15	88.76	70.36
Vegetable.....	264.18	289.65	333.48	274.67	213.60	176.51	136.64
Fruit-and-nut.....	432.28	392.21	511.31	495.18	446.16	442.74	260.56
Dairy.....	105.34	184.23	134.52	107.26	85.41	70.93	61.60
Poultry.....	174.72	210.45	194.97	167.77	158.78	164.79	118.95
Livestock other than dairy and poultry.....	50.15	33.87	59.72	60.38	57.33	56.17	51.23
General:							
Primarily crop.....	113.25	173.49	127.99	96.71	88.46	85.70	65.14
Primarily livestock.....	107.68	122.12	153.38	124.15	90.11	76.83	67.66
Crop and livestock.....	96.68	117.54	130.06	99.92	77.24	70.77	60.79
Miscellaneous.....	112.68	171.24	119.54	102.25	80.28	84.19	61.39

On fruit-and-nut farms the land value reflects the substantial investment in orchards, vineyards, and planted nut trees. Both fruit-and-nut and vegetable farms are highly specialized types which require fairly exacting soil and climatic conditions. Many are in areas that have access to irrigation and irrigation facilities. Water rights tend to be reflected in land values. Many vegetable farms are in low-lying tracts that have been reclaimed and drained at considerable expense per acre. Poultry farms reflect the large investment in buildings, to house and care for laying hens and broilers, associated with a relatively small acreage.

The lowest values per acre are found on livestock farms. These values are influenced by the large number of cattle ranches in semiarid western regions which have large acreages with a low carrying capacity per animal unit.

Values per acre tend to decrease with decreasing size as measured by gross sales. The exception is noticeable among Class I farms. For about half of the types, the values per acre on Class II farms exceed those on Class I farms.

The distribution of the value of land and buildings among types of farms is more nearly equal than the distribution by economic class, for there is a tendency for types of farms with smaller acreage requirements to have land of higher value (see table 33). But within each type of farm a greater concentration of value than of acreage is shown for the larger economic classes.

The average value of land and buildings per commercial farm was greatest on cash-grain and fruit-and-nut farms and lowest on cotton, other field-crop, and poultry farms (see table 34). On each type of farm the average value of land and buildings per farm increases directly with increasing size of farm as measured by gross sales. The range of value is from less than \$10,000 per farm on Class VI farms to more than \$100,000 per farm on Class I farms. But among farms in each economic class there are considerable differences in value.

TABLE 33.—PERCENT DISTRIBUTION OF VALUE OF LAND AND BUILDINGS BY TYPE AND ECONOMIC CLASS OF COMMERCIAL FARMS, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
Percent distribution in each type of farm by economic class:							
All commercial farms.....	100.0	22.2	27.4	23.2	15.1	8.8	3.8
Cash-grain.....	100.0	17.1	34.8	27.6	13.4	5.6	1.4
Cotton.....	100.0	37.1	18.0	13.5	13.9	11.9	5.5
Other field-crop.....	100.0	16.8	14.0	19.9	26.7	17.1	6.6
Vegetable.....	100.0	54.0	16.4	10.9	8.4	6.1	3.6
Fruit-and-nut.....	100.0	45.0	22.4	19.9	9.6	7.1	2.0
Dairy.....	100.0	11.2	26.8	30.8	19.4	8.9	2.8
Poultry.....	100.0	21.5	25.2	18.2	14.3	12.7	8.0
Livestock other than dairy and poultry.....	100.0	24.2	28.5	21.0	13.5	8.9	3.8
General:							
Primarily crop.....	100.0	30.7	23.5	17.3	13.9	10.8	3.7
Primarily livestock.....	100.0	4.5	22.1	33.1	24.1	12.4	3.8
Crop and livestock.....	100.0	8.9	27.9	31.6	20.4	9.1	2.1
Miscellaneous.....	100.0	38.6	22.7	13.2	11.1	10.3	4.1
Percent distribution in each economic class of farm by type:							
All commercial farms.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Cash-grain.....	23.3	18.0	29.4	27.6	20.9	15.0	10.3
Cotton.....	8.0	13.3	5.2	4.6	7.6	11.6	14.5
Other field-crop.....	4.5	3.4	2.4	3.8	7.4	8.6	8.9
Vegetable.....	1.3	3.4	0.8	0.6	0.8	0.9	1.5
Fruit-and-nut.....	4.2	9.0	3.5	2.5	2.6	3.3	2.6
Dairy.....	13.2	6.5	12.9	17.4	16.9	13.3	10.9
Poultry.....	2.5	2.5	2.3	1.9	2.2	3.4	5.7
Livestock other than dairy and poultry.....	31.1	35.1	32.5	28.1	7.3	30.6	35.2
General:							
Primarily crop.....	2.7	3.7	2.3	2.0	2.5	3.3	3.0
Primarily livestock.....	1.6	0.3	1.3	2.2	2.5	2.1	1.7
Crop and livestock.....	0.3	2.5	6.8	8.5	8.5	6.5	4.1
Miscellaneous.....	1.2	2.2	1.0	0.7	0.9	1.4	1.6

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TABLE 34.—AVERAGE VALUE OF INVESTMENT IN LAND AND BUILDINGS, LIVESTOCK INVENTORY, MACHINERY, AND TOTAL INVESTMENT FOR EACH TYPE OF COMMERCIAL FARM, BY ECONOMIC CLASS, FOR THE UNITED STATES: 1954

Item and type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
		Average value (dollars)					
Land and buildings per farm:							
All commercial farms.....	25,429	134,169	51,510	27,992	15,880	9,829	6,096
Cash-grain.....	40,064	163,664	67,673	37,193	22,397	14,402	9,289
Cotton.....	12,979	171,142	49,386	20,700	8,593	4,570	2,949
Other field-crop.....	10,440	109,421	34,934	16,071	8,788	5,727	3,819
Vegetable.....	38,327	192,184	44,822	25,699	16,490	11,334	7,329
Fruit-and-nut.....	46,252	162,497	55,059	33,462	23,021	18,071	11,555
Dairy.....	18,501	95,312	35,751	20,122	12,960	8,977	6,248
Poultry.....	13,890	33,764	18,041	13,091	10,890	9,347	6,854
Livestock other than dairy and poultry.....	36,363	142,449	58,179	34,774	23,895	16,541	9,790
General:							
Primarily crop.....	29,296	189,291	55,109	28,682	15,998	12,280	8,190
Primarily livestock.....	19,896	84,875	39,913	24,609	15,944	11,389	7,768
Crop and livestock.....	25,499	128,384	50,626	29,421	18,109	11,440	7,474
Miscellaneous.....	28,033	85,411	40,345	25,416	17,038	13,624	8,394
Livestock inventory per farm:							
All commercial farms.....	3,154	15,021	5,986	3,697	2,178	1,327	867
Cash-grain.....	2,279	6,421	3,606	2,479	1,559	851	505
Cotton.....	844	5,074	2,031	1,264	795	551	443
Other field-crop.....	761	3,918	2,269	1,206	685	527	378
Vegetable.....	871	3,054	850	737	589	491	378
Fruit-and-nut.....	607	2,560	740	450	321	248	258
Dairy.....	3,434	15,039	6,034	3,872	2,634	1,801	1,111
Poultry.....	1,537	4,068	2,261	1,551	1,197	877	596
Livestock other than dairy and poultry.....	7,520	35,327	11,544	7,197	4,860	3,162	1,899
General:							
Primarily crop.....	1,741	7,290	3,312	2,094	1,307	790	522
Primarily livestock.....	3,451	13,502	6,320	4,374	3,029	2,058	1,235
Crop and livestock.....	3,496	15,726	6,124	4,101	2,772	1,766	1,152
Miscellaneous.....	1,207	2,376	1,537	1,280	1,125	808	570
Machinery and equipment per farm:							
All commercial farms.....	4,291	15,049	8,444	5,304	3,232	1,999	1,064
Cash-grain.....	6,393	19,323	9,738	6,380	4,588	3,128	1,897
Cotton.....	2,091	18,798	7,231	3,488	1,679	1,025	574
Other field-crop.....	1,991	19,337	7,461	3,039	1,655	1,144	606
Vegetable.....	6,016	24,260	8,036	4,711	3,289	2,309	1,411
Fruit-and-nut.....	4,641	14,433	5,871	3,544	2,429	1,955	1,144
Dairy.....	4,528	15,302	8,685	5,180	3,481	2,421	1,230
Poultry.....	2,496	6,394	3,502	2,519	1,992	1,626	984
Livestock other than dairy and poultry.....	5,338	14,068	8,937	6,002	4,180	2,829	1,528
General:							
Primarily crop.....	4,835	22,992	9,442	5,410	3,209	2,280	1,419
Primarily livestock.....	4,336	15,203	8,385	5,666	3,644	2,535	1,370
Crop and livestock.....	5,136	19,745	9,098	6,056	4,168	2,671	1,641
Miscellaneous.....	3,940	11,381	5,491	3,615	2,808	1,916	1,220
Total investment per farm:							
All commercial farms.....	32,874	164,839	65,940	36,993	21,290	13,155	8,027
Cash-grain.....	48,736	189,408	81,017	46,052	28,544	18,381	11,691
Cotton.....	15,914	194,984	58,648	25,452	11,067	6,146	3,966
Other field-crop.....	13,192	132,676	44,664	20,316	11,128	7,398	4,803
Vegetable.....	45,214	219,498	53,708	31,147	20,368	14,134	9,118
Fruit-and-nut.....	51,590	179,490	61,670	37,456	25,771	20,274	12,957
Dairy.....	26,463	125,653	50,420	29,144	19,075	13,199	8,589
Poultry.....	17,923	44,216	23,804	17,161	14,079	11,849	8,434
Livestock other than dairy and poultry.....	49,221	191,834	78,660	48,033	32,935	22,632	13,217
General:							
Primarily crop.....	35,872	219,573	67,923	36,186	20,514	15,350	10,131
Primarily livestock.....	27,683	111,080	54,618	34,709	22,617	15,982	10,373
Crop and livestock.....	34,131	163,855	65,848	39,578	25,049	16,877	10,167
Miscellaneous.....	33,180	99,168	47,373	30,311	20,071	16,347	10,184
Percent distribution							
Total investment per farm:							
All commercial farms.....	100.0	21.0	27.1	23.7	15.7	9.2	3.4
Cash-grain.....	100.0	16.2	34.2	28.1	14.1	5.9	1.5
Cotton.....	100.0	34.7	17.6	13.7	14.8	13.2	6.1
Other field-crop.....	100.0	16.0	14.1	19.9	25.8	17.5	6.6
Vegetable.....	100.0	53.2	16.6	11.1	8.8	6.4	3.8
Fruit-and-nut.....	100.0	44.6	22.5	14.0	9.7	7.2	2.1
Dairy.....	100.0	10.3	25.4	31.8	20.1	9.2	2.8
Poultry.....	100.0	21.6	25.6	18.3	14.3	12.5	7.7
Livestock other than dairy and poultry.....	100.0	23.7	28.3	21.4	13.8	9.0	3.8
General:							
Primarily crop.....	100.0	29.2	23.6	17.9	14.5	11.1	3.7
Primarily livestock.....	100.0	4.2	21.9	33.2	24.5	12.5	3.7
Crop and livestock.....	100.0	8.3	27.1	31.8	21.2	9.4	2.2
Miscellaneous.....	100.0	37.8	22.5	13.3	11.6	10.6	4.3

Value of Livestock

The value of livestock on farms was ascertained by multiplying the numbers of each kind of livestock and poultry by the average values per head. Except for regional differentials in values per head, the computed values assume equal value per head among livestock and poultry for each type and class of farm.

The value of livestock per farm is much greater on those types with a major source of income from sales of livestock and livestock products. Livestock were valued at more than \$7,000 on other livestock farms and at more than \$3,000 on dairy, general livestock, and general crop and livestock farms. A relatively small investment in livestock is shown for types of farms that have a major source of sales from crops.

Estimated Value of Machinery

To give a more complete picture of the total investment on farms, the value of machinery was estimated for each type and economic class. The total value of machinery and equipment on farms for the United States (as estimated by the Agricultural Marketing Service and the Agricultural Research Service, U. S. Department of Agriculture) was used as an overall guide. The U. S. Department of Agriculture estimated the value of machinery and equipment on farms at \$15.9 billion in 1954, of which \$3.7 billion was in automobiles, \$1.9 billion in motortrucks, \$3.2 billion in tractors, and \$7.2 billion in other machinery and equipment. This value was distributed among types and economic classes of farms on the basis of numbers of automobiles, trucks, tractors, and other specified items of machinery reported by the 1954 Census of Agriculture.

Each item of farm equipment reported by the Census was assigned a weighting factor equivalent to its average new retail price. These factors were adjusted to reflect differences in age of machines on the basis of age differentials reported for automobiles, trucks, and tractors; by economic class in the Census of 1950. The adjustment made for age of machine is shown below. The age differential for tractors was applied to the weighting factor for each item of tractor equipment.

Economic class	Automobiles	Trucks	Tractors
	(Index, commercial farms=100)		
All commercial farms.....	100	100	100
Class I.....	156	136	122
Class II.....	140	119	111
Class III.....	117	99	101
Class IV.....	93	94	95
Class V.....	77	92	95
Class VI.....	61	84	94
Other farms.....	82	98	94

The factors were then adjusted to further reflect a size of machine differential for each type and economic class as related to the average acreage in farms. An index of value differentials by acreage size of farm was computed from a report by the U. S.

Department of Agriculture that relates size of tractor in belt horsepower to acreage size of farm.² The weighting factor for each item except automobiles was adjusted by the index that is shown below.

Acreage size	Index of values (all farms=100)
All farms.....	100
Under 100 acres.....	85
100 to 199 acres.....	92
200 to 399 acres.....	100
400 to 599 acres.....	104
600 to 999 acres.....	108
1,000 acres and over.....	112

The appropriate weighting factors, as adjusted for age and size of machine, were multiplied by the number of each specified machine. The product was then adjusted to agree with the estimate by the U. S. Department of Agriculture of value for the United States of automobiles, separately, and of all other machinery and equipment. Of the total value of machinery and equipment on farms in 1954, it was estimated that \$14,280 million (90 percent) was on commercial farms.

The average investment per commercial farm in machinery and equipment ranges from less than \$2,000 on cotton and other field-crop farms to more than \$6,000 on cash-grain and vegetable farms. By economic class, the range is from \$1,000 on Class VI farms to more than \$15,000 on Class I farms.

There are even greater differences between economic classes of farms for certain types of farms. Class VI cotton and other field-crop farms were estimated to have an investment in machinery of about \$600 compared with nearly \$20,000 on Class I farms for these types. On the smaller economic classes of cotton and other field-crop farms, however, the value of investment in machinery and equipment is somewhat incomplete because of the inclusion of cropper farms. Croppers are particularly numerous among these types. It is customary for most of the machinery used on cropper farms to be owned by the landlord and kept on his "home farm." For landlords who farm on a commercial scale, their home farms are likely to fall in larger economic classes than do the individual cropper units.

The range in machinery value between economic classes of poultry farms is much less than among the other types of farms. It ranges upward from \$1,000 on Class VI farms to \$6,000 on Class I farms. The items of equipment used for estimating value of machinery are basically field-crop equipment. As such, they are probably less representative of equipment used on poultry farms than of most other types. Values of machinery estimated for the larger economic classes of poultry farms are lower than for similar classes among other types. This may be affected somewhat by the procedure for estimating value. But values shown do not appear unreasonable in view of the somewhat different nature of capital investment on poultry farms. Much of the machinery is used as installations in poultry housing and becomes incorporated into the value of land and buildings. The same is probably true of dairy farms also.

² Brodell, Albert, and Kendall, Albert R., *Fuel and Motor Oil Consumption and Annual Use of Farm Tractors*, FM-72, BAE, USDA, 1950.

Total Value of Investment

Total values of farm investment are always of interest. When the investment in land and buildings, livestock, and machinery are combined, the total investment per commercial farm was nearly \$33,000 in 1954. Highest investment per commercial farm is shown for cash-grain, fruit-and-nut, and livestock farms,

TABLE 35.—PERCENTAGE OF TOTAL INVESTMENT BY SOURCE FOR EACH TYPE OF COMMERCIAL FARM, BY ECONOMIC CLASS, FOR THE UNITED STATES: 1954

Source of investment	Total	Economic class of farm					
		I	II	III	IV	V	VI
All commercial farms.....	100	100	100	100	100	100	100
Value of land and buildings.....	78	82	78	76	75	75	76
Value of livestock.....	9	9	9	10	10	10	11
Value of machinery.....	13	9	13	14	15	15	13
Cash-grain.....	100	100	100	100	100	100	100
Value of land and buildings.....	82	86	83	80	78	78	79
Value of livestock.....	5	3	5	5	6	6	4
Value of machinery.....	13	10	12	14	16	17	16
Cotton.....	100	100	100	100	100	100	100
Value of land and buildings.....	83	88	85	82	78	75	75
Value of livestock.....	5	2	3	5	7	9	11
Value of machinery.....	12	9	12	13	15	16	14
Other field-crop.....	100	100	100	100	100	100	100
Value of land and buildings.....	80	84	79	80	79	78	80
Value of livestock.....	6	3	5	6	6	7	8
Value of machinery.....	15	14	16	15	15	15	12
Vegetable.....	100	100	100	100	100	100	100
Value of land and buildings.....	85	87	84	83	81	81	81
Value of livestock.....	2	1	2	2	3	3	4
Value of machinery.....	13	12	15	15	16	16	16
Fruit-and-nut.....	100	100	100	100	100	100	100
Value of land and buildings.....	91	91	90	90	90	90	90
Value of livestock.....	1	1	1	1	1	1	2
Value of machinery.....	8	7	9	9	9	9	8
Dairy.....	100	100	100	100	100	100	100
Value of land and buildings.....	70	76	71	69	68	68	72
Value of livestock.....	13	12	12	13	14	14	13
Value of machinery.....	17	12	17	18	18	18	15
Poultry.....	100	100	100	100	100	100	100
Value of land and buildings.....	77	77	76	77	77	79	80
Value of livestock.....	9	9	9	9	8	7	8
Value of machinery.....	14	14	14	14	14	14	13
Livestock other than dairy and poultry.....	100	100	100	100	100	100	100
Value of land and buildings.....	74	76	75	72	73	73	74
Value of livestock.....	15	17	14	15	15	14	15
Value of machinery.....	11	7	11	13	13	13	12
General, primarily crop.....	100	100	100	100	100	100	100
Value of land and buildings.....	82	87	82	80	79	80	81
Value of livestock.....	5	3	5	6	6	6	5
Value of machinery.....	13	10	13	15	15	15	14
General, primarily livestock.....	100	100	100	100	100	100	100
Value of land and buildings.....	72	77	72	71	71	71	73
Value of livestock.....	12	11	12	13	13	13	12
Value of machinery.....	16	12	16	16	16	16	14
General, crop and livestock.....	100	100	100	100	100	100	100
Value of land and buildings.....	75	80	77	74	72	72	74
Value of livestock.....	10	9	9	10	11	11	11
Value of machinery.....	15	11	14	15	17	17	15
Miscellaneous.....	100	100	100	100	100	100	100
Value of land and buildings.....	86	88	87	85	82	84	83
Value of livestock.....	3	2	3	4	5	5	5
Value of machinery.....	11	10	10	11	13	11	12

with about \$50,000 each. Lowest investment is shown for cotton and other field-crop and poultry farms.

The lower average investment for cotton and other field-crop farms results from the relatively large proportion of these types that is made up of the smaller economic classes of farms. Much greater similarity exists between types of farms in the same economic class. For example, Class I cotton farms with a total investment of nearly \$200,000 per farm are among the highest in capital requirements. Among each type of farm, except poultry, the total investment on Class I farms was \$100,000 or more.

Capital investment is fairly similar among types of farms if comparisons are made by economic class. The notable departures from this are the lower capital requirements shown for poultry farms and, among the smaller economic classes, the extremely low capital investment on cotton and other field-crop farms. It is to be remembered that data for these two types are influenced by the inclusion of croppers. In general, however, the lower capital investment is related to the small acreage in these farms and the relatively low land values per acre.

The total capital investment in commercial farming, as estimated here, was \$110 billion, in 1954. The bulk of this (78 percent) was represented in the value of land and buildings. Livestock and machinery comprised 9 percent and 13 percent, respectively, of the total. (See table 35.)

Land and buildings represented a slightly higher proportion of the total investment on farms having a major source of income from crops than on farms of the livestock types.

For each type of farm, land and buildings represented a greater proportion of the total investment on the larger economic classes. Although total investment was much less on the smaller economic classes, more of it was in livestock and machinery.

The distribution of total investment by economic class and by type of farm is shown in table 36. Slightly more than a fifth of the total investment is on Class I farms. Although these farms produced about one-third of all farm products sold in 1954, in terms of numbers, they accounted for only 4 percent of the commercial farms. On Class I farms, the proportion of the total investment for land and buildings was larger than for either livestock or machinery.

The intermediate economic classes (II, III, and IV) taken together accounted for about two-thirds of the total investment. They had approximately an equal value of land and buildings and livestock and more than 70 percent of the value of machinery.

Economic Classes V and VI, which comprised a third of the farm numbers, accounted for only 13 percent of the total investment. A slightly higher proportion of the livestock value and machinery value, than of land and buildings, was on these farms.

Two types of farms, cash-grain and livestock, accounted for more than half of the total investment. If the investment on dairy farms is added, two-thirds of the total investment was on these three types. They accounted for approximately two-thirds of the value of land and buildings and machinery and four-fifths of the value of livestock. Other livestock farms alone made up half of the total livestock investment.

TABLE 36.—PERCENT DISTRIBUTION OF TOTAL INVESTMENT BY ECONOMIC CLASS AND BY TYPE OF FARM, FOR THE UNITED STATES: 1954

Economic class and type of farm	Value of investment			
	Total	Land and buildings	Livestock inventory	Machinery and equipment
All commercial farms (million dollars).....	110,545	85,768	10,497	14,280
Percent distribution by economic class:				
All classes.....	100.0	100.0	100.0	100.0
Class I.....	21.0	22.2	19.2	14.7
Class II.....	27.1	27.3	25.6	26.5
Class III.....	23.7	23.1	24.9	26.3
Class IV.....	15.7	15.1	16.9	18.4
Class V.....	9.2	8.8	9.7	10.7
Class VI.....	3.4	3.3	3.8	3.4
Percent distribution by type of farm:				
All types.....	100.0	100.0	100.0	100.0
Cash-grain.....	23.3	24.6	11.7	24.1
Cotton.....	8.0	8.5	4.2	7.7
Other field-crop.....	4.5	4.7	2.7	5.1
Vegetable.....	1.3	1.5	0.3	1.4
Fruit-and-nut.....	4.2	5.0	0.5	2.7
Dairy.....	13.2	11.9	17.9	17.4
Poultry.....	2.5	2.5	2.3	2.7
Livestock other than dairy and poultry.....	31.1	29.6	49.8	26.0
General:				
Primarily crop.....	2.7	2.9	1.3	2.7
Primarily livestock.....	1.6	1.4	2.1	1.9
Crop and livestock.....	6.3	6.1	6.8	7.3
Miscellaneous.....	1.2	1.4	0.4	1.0

Value of Farm Products Sold

The total value of farm products sold from commercial farms amounted to \$24.3 billion in 1954. The distribution of gross sales of farm products among types of farms is more equitable than that of land resources or the value of investment. For example, cash-grain farms, which contained more than a third of the harvested cropland, produced only a fifth of the farm products sold. Livestock farms, with half the land in farms, produced only a fourth of the farm products sold. On the other hand, dairy, cotton, and other field-crop farms, and the less numerous highly specialized farm types such as vegetable, fruit-and-nut, and poultry, accounted for substantially more of the gross sales than the amount or value of farm resources.

By economic class of farm, however, a much greater proportion of gross sales than of farm resources is shown for the larger economic classes. Class I farms accounted for nearly three-fourths of the gross sales from vegetable farms and two-fifths that from fruit-and-nut farms. (See table 37.) About two-fifths of the gross sales from cotton, poultry, livestock, and general crop farms was from Class I farms. In contrast, more than three-fourths of the gross sales from dairy, general livestock, and general crop and livestock farms, was sold from the medium-size Classes II, III, and IV.

The average value of farm products sold per commercial farm is shown in table 38. The average commercial farm grossed slightly more than \$7,000 in 1954. This average ranged from about \$4,000 on other field-crop farms to \$16,000 on vegetable farms.

TABLE 37.—PERCENT DISTRIBUTION OF GROSS SALES FOR EACH TYPE OF FARM BY ECONOMIC CLASS, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
All commercial farms.....	100.0	32.0	27.5	20.9	12.4	5.8	1.4
Cash-grain.....	100.0	22.3	36.4	26.1	11.1	3.6	0.6
Cotton.....	100.0	40.8	15.1	12.2	15.2	12.7	4.0
Other field-crop.....	100.0	20.8	14.4	20.7	26.6	14.1	3.4
Vegetable.....	100.0	72.6	13.2	6.9	4.3	2.2	0.8
Fruit-and-nut.....	100.0	59.3	20.8	10.8	5.9	2.7	0.5
Dairy.....	100.0	16.4	30.1	31.0	16.1	5.4	1.0
Poultry.....	100.0	43.7	30.2	14.2	7.0	3.7	1.2
Livestock other than dairy and poultry.....	100.0	37.8	30.2	18.1	8.7	4.1	1.1
General:							
Primarily crop.....	100.0	42.0	22.8	16.1	11.7	6.1	1.3
Primarily livestock.....	100.0	6.8	29.7	34.1	20.2	7.6	1.6
Crop and livestock.....	100.0	12.3	31.7	31.8	17.1	6.1	1.0
Miscellaneous.....	100.0	65.1	18.0	7.7	5.2	3.1	0.9

TABLE 38.—AVERAGE VALUE OF FARM PRODUCTS SOLD PER FARM BY TYPE AND ECONOMIC CLASS, FOR THE UNITED STATES: 1954

Item and type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
Value of farm products sold per farm:	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
All commercial farms.....	7,302	57,997	14,883	7,178	3,703	1,851	756
Cash-grain.....	8,346	45,582	14,776	7,315	3,846	1,911	779
Cotton.....	4,902	69,744	15,429	6,787	3,418	1,765	769
Other field-crop.....	4,344	59,586	14,939	6,917	3,716	1,924	806
Vegetable.....	16,053	101,301	15,468	7,037	3,492	1,737	687
Fruit-and-nut.....	14,409	65,099	16,083	7,806	4,108	2,041	798
Dairy.....	6,529	50,130	14,178	7,099	3,744	1,886	785
Poultry.....	9,634	49,400	15,727	7,359	3,808	1,878	666
Livestock other than dairy and poultry.....	8,828	58,114	15,246	7,296	3,745	1,834	698
General:							
Primarily crop.....	7,365	65,432	13,478	6,579	3,411	1,708	735
Primarily livestock.....	5,436	39,659	14,268	7,145	3,714	1,886	812
Crop and livestock.....	6,244	47,502	14,129	7,165	3,689	1,877	825
Miscellaneous.....	13,189	70,983	15,117	6,845	3,536	1,830	749

The averages by economic class show the extreme range in size of business that characterizes farming in the United States. Class I farms are 50 to 100 times as large in business volume as Class VI farms. The two extremes would compare Class I vegetable farms with gross sales of more than \$100,000 and Class VI vegetable farms with gross sales of less than \$700.

Since the economic classification (based on the value of farm sales) groups farms within fairly narrow intervals of value, a close similarity is found in the average sales for each type by economic class. The exception is for Class I farms which contain all farms with gross sales of \$25,000 or more. The effect of the open-end value grouping is apparent in the averages for Class I which range from less than \$40,000 to more than \$100,000.

Gross Sales Per Acre

The value of farm products sold per acre of total land in farms is shown for types and economic classes of farms in table 39. For commercial farms as a group, the sales per acre averaged \$24 in 1954. The average for all commercial farms is weighted heavily by cash-grain and other livestock farms. Many of these farms are located in semiarid western regions where production per acre is relatively low. The average sale per acre was \$12 for livestock farms and \$22 for cash-grain farms in 1954.

Gross sales per acre were highest on vegetable, fruit-and-nut, and poultry farms, averaging more than \$100 per acre. All other types ranged between \$25 and \$50 per acre.

Gross sales per acre decreased with decreasing size of farm. For commercial farms as a group, Class I farms had sales per acre about 4 times greater than Class VI farms. For some types of farms, however, the differential between the larger and smaller economic classes was much greater.

TABLE 39.—VALUE OF ALL FARM PRODUCTS SOLD PER ACRE OF TOTAL LAND IN FARMS, BY TYPE OF COMMERCIAL FARM BY ECONOMIC CLASS OF FARM, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of arm					
		I	II	III	IV	V	VI
	Dol-lars	Dol-lars	Dol-lars	Dol-lars	Dol-lars	Dol-lars	Dol-lars
All commercial farms.....	24	30	28	23	18	14	8
Cash-grain.....	22	31	26	20	15	11	6
Cotton.....	40	68	41	35	34	28	14
Other field-crop.....	47	89	63	56	47	29	15
Vegetable.....	110	159	111	72	45	26	13
Fruit-and-nut.....	121	145	133	108	76	47	17
Dairy.....	37	99	53	37	25	15	8
Poultry.....	123	303	166	92	55	34	13
Livestock other than dairy and poultry.....	12	13	15	13	9	6	4
General:							
Primarily crop.....	27	57	30	22	18	12	6
Primarily livestock.....	30	51	57	36	21	13	8
Crop and livestock.....	24	40	36	25	16	12	7
Miscellaneous.....	47	119	39	25	15	11	5

Yield of Corn Per Acre Harvested

Yields of corn per acre by type and economic class of farm substantiate the differentials in gross productivity shown previously. Corn is the most widely grown crop in the United States. Its acreage surpasses that of any other crop. It is a relatively important crop on most types and economic classes of farms. Most farmers do not sell corn, except for incidental sales; they grow it for feed. Thus, for most types of farms, corn has relatively small influence in determining either the type or the economic class. Exceptions, of course, are the cash-grain and general farms on which corn is an important cash crop. The yield of corn in a particular year influences the number of livestock purchased, fed, and sold on livestock farms.

The yield of corn per acre harvested is shown for each type of farm, by economic class, in table 40. The average yield for all commercial farms was 40 bushels per acre in 1954. As would be expected, yields were higher than average on types of farms on which corn for feed or for sale was an important enterprise—cash-grain, dairy, other livestock, general livestock, and general crop and livestock farms. Yields were lowest on cotton, other field-crop, and general crop farms.

On each type of farm, however, yields of corn were highest on Economic Class I farms and decreased for each successively

smaller economic class. Yields on Class VI farms were approximately half those realized on Class I farms.

TABLE 40.—YIELD PER ACRE OF CORN HARVESTED FOR GRAIN, BY TYPE OF COMMERCIAL FARM AND BY ECONOMIC CLASS OF FARM, FOR THE UNITED STATES: 1954

Type of Farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
	Bushels	Bushels	Bushels	Bushels	Bushels	Bushels	Bushels
All commercial farms.....	40	54	50	41	31	24	18
Cash-grain.....	45	58	52	42	36	32	26
Cotton.....	14	23	17	16	14	12	10
Other field-crop.....	23	41	31	25	22	21	20
Vegetable.....	34	47	41	35	30	23	18
Fruit-and-nut.....	36	42	38	35	34	26	19
Dairy.....	48	55	55	50	43	33	25
Poultry.....	38	49	40	34	33	31	26
Livestock other than dairy and poultry.....	45	57	51	42	34	28	22
General:							
Primarily crop.....	27	42	35	28	22	20	17
Primarily livestock.....	47	63	58	50	39	33	26
Crop and livestock.....	41	54	52	41	31	25	21
Miscellaneous.....	23	25	30	21	21	20	17

Gross Sales Per \$100 of Capital Investment

For commercial agriculture as a whole, gross sales averaged \$22 in 1954 for each \$100 of capital invested in land, buildings, livestock, and machinery (see table 41). At this rate it takes approximately 4 years of gross farm sales to equal in value the capital invested in agriculture.

TABLE 41.—VALUE OF ALL FARM PRODUCTS SOLD PER \$100 OF CAPITAL INVESTED IN LAND AND BUILDINGS, LIVESTOCK, AND MACHINERY, BY TYPE OF COMMERCIAL FARM BY ECONOMIC CLASS OF FARM, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
All commercial farms.....	22	35	23	19	17	14	9
Cash-grain.....	17	24	18	16	13	10	7
Cotton.....	31	36	26	27	31	29	19
Other field-crop.....	33	45	33	34	33	26	17
Vegetable.....	36	46	29	23	17	12	8
Fruit-and-nut.....	28	37	20	21	18	10	6
Dairy.....	25	40	28	24	20	14	9
Poultry.....	54	112	66	43	27	16	8
Livestock other than dairy and poultry.....	18	30	19	15	11	8	5
General:							
Primarily crop.....	21	30	20	18	17	11	7
Primarily livestock.....	20	36	26	21	16	12	8
Crop and livestock.....	18	29	21	18	15	12	8
Miscellaneous.....	40	72	32	23	17	11	7

Sales per unit of investment were highest on poultry farms. In general, sales per unit of investment were higher on farms having a major source of income from crops than from livestock types. Cash-grain farms were the only notable exception to this; they averaged only \$17 per unit of investment.

Sales per unit of investment decrease with decreasing size. The differentials are large for some types. Class I poultry farms, for example, had sales per unit of investment nearly 15 times greater than Class VI farms of this type. In contrast, the differentials between economic classes of cotton farms were relatively small.

Gross Sales per Man-Equivalent

Gross farm sales per man-equivalent amounted to \$5,000 for all commercial farms in 1954 (see table 42). These ranged from a high of more than \$8,000 for poultry farms to a low of about \$3,000 on cotton and other field-crop farms. Cash-grain and livestock farms, which had the lowest sales per acre, were among the highest types in sales per man-equivalent.

TABLE 42.—VALUE OF ALL FARM PRODUCTS SOLD PER MAN-EQUIVALENT OF LABOR USED, BY TYPE OF COMMERCIAL FARM BY ECONOMIC CLASS OF FARM, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
All commercial farms	<i>Dollars</i> 5,001	<i>Dollars</i> 10,701	<i>Dollars</i> 8,223	<i>Dollars</i> 5,020	<i>Dollars</i> 2,916	<i>Dollars</i> 1,608	<i>Dollars</i> 727
Cash-grain.....	6,785	14,848	9,785	5,947	3,846	2,302	838
Cotton.....	2,919	8,988	6,147	3,617	2,035	1,261	636
Other field-crop.....	2,877	6,937	6,173	3,864	2,477	1,580	753
Vegetable.....	4,497	5,685	4,300	3,518	2,442	1,608	636
Fruit-and-nut.....	5,857	7,292	6,115	4,848	3,668	2,373	814
Dairy.....	4,534	9,353	7,197	4,862	2,995	1,796	793
Poultry.....	8,305	18,229	10,998	6,512	4,051	2,439	822
Livestock other than dairy and poultry.....	6,791	17,772	9,470	5,486	3,344	2,084	743
General:							
Primarily crop.....	4,575	8,251	6,511	4,300	2,729	1,708	766
Primarily livestock.....	4,214	10,404	8,443	5,032	2,948	1,796	892
Crop and livestock.....	4,558	10,970	8,120	5,046	2,928	1,754	793
Miscellaneous.....	4,831	5,774	5,309	4,123	3,048	2,128	788

Sales per man-equivalent were highest on Class I farms for each type. They decreased substantially for each successively smaller economic class. For each type of farm the differential between economic classes is fairly similar. Each successively smaller economic class had gross sales per man-equivalent only half to two-thirds that of the economic class above it. Gross sales per man-equivalent for Class I farms was 10 to 20 times greater than for Class VI farms.

Limitations of Relating Sales to Resources

Comparisons of gross productivity per unit of farm resources do not take account of farm expenses. The proportion of farm sales that is net varies by type of farm as well as between economic classes within each type. The effect of these variations is probably more important between types of farm, however, than between classes of the same type. Farm expenses and the proportion they comprise of gross farm sales are discussed later in this report.

In addition, sales per unit of resources between economic classes of farms are affected by classification on the basis of sales in the particular year. They may have been higher or lower than normal because of chance factors.

In view of the wide differentials between economic classes of farms shown in the preceding tables, it is reasonable to conclude that resources are used to greater efficiency on the larger economic classes. The precise amount of these differentials, however, cannot be determined from the existing data.

Investment per Man-Equivalent

Differences in gross productivity per worker between types and economic classes of farms may be partly attributable to differences in the amount of other resources at the disposal of workers on these farms. The capital investment discussed previously, provides an indication of the total nonlabor resources. The capital investment per farm was divided by the man-equivalents per farm to provide the data shown in table 43.

The investment per man-equivalent worker for commercial agriculture as a whole was about \$22,000 in 1954. For cash-grain and livestock farms the average was nearly \$40,000. The lowest average investment per worker was on cotton and other field-crop farms, an average of less than \$10,000.

By economic class of farm, the highest investment per worker was on Classes I and II. This was true for all types except vegetable farms. For vegetable farms the investment per worker was highest in Class III.

Investment per worker decreased with decreasing size of farm; the lowest investment was found on Class VI farms. The exception is that investment per worker was higher on Class II than on Class I for all types except cash-grain and cotton farms.

Class II farms are mostly family operated. That is, the farm operator and members of his family comprise most of the labor force. These farms as a group typify the large, up-to-date, highly mechanized family farms. Many Class I farms also are operated primarily with family labor, but included in this group are larger farms that hire most of the farm work done.

Apparently Class II farms have reached sufficient size to achieve reasonably efficient use of most modern innovations designed to increase output and decrease labor needs. The income and credit positions of families on Class II farms have probably been sufficient to enable them to make profitable investments in productive land, modern buildings, and other capital items. Workers on these farms have capital resources to work with that are equal to or greater than that of workers on Class I farms.

TABLE 43.—CAPITAL INVESTMENT IN LAND AND BUILDINGS, LIVESTOCK AND MACHINERY PER MAN-EQUIVALENT OF LABOR USED, BY TYPE OF COMMERCIAL FARM BY ECONOMIC CLASS OF FARM, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
All commercial farms	<i>Dollars</i> 22,516	<i>Dollars</i> 30,413	<i>Dollars</i> 30,431	<i>Dollars</i> 25,869	<i>Dollars</i> 16,764	<i>Dollars</i> 12,009	<i>Dollars</i> 7,718
Cash-grain.....	30,623	61,696	53,654	37,441	28,541	22,146	12,571
Cotton.....	9,361	25,127	23,366	13,188	6,588	4,390	3,278
Other field-crop.....	8,736	15,445	18,466	11,350	7,419	6,114	4,480
Vegetable.....	12,665	12,318	14,960	15,574	14,243	13,087	8,443
Fruit-and-nut.....	20,972	19,921	23,449	23,265	23,010	23,574	13,221
Dairy.....	18,377	23,443	25,594	19,962	15,260	12,570	8,676
Poultry.....	15,451	16,316	16,640	15,187	14,978	15,388	10,412
Livestock other than dairy and poultry.....	37,862	58,665	48,867	36,115	29,406	25,005	14,061
General:							
Primarily crop.....	22,281	27,680	32,813	23,651	16,411	15,350	10,553
Primarily livestock.....	21,460	29,309	32,318	24,443	17,950	15,221	11,399
Crop and livestock.....	24,013	37,542	37,844	27,872	19,880	14,838	9,776
Miscellaneous.....	12,164	8,000	16,919	18,260	18,078	19,008	10,720

TOTAL FARM EXPENSES

Data on total farm expenses are available from a farm expenditure survey taken in the spring of 1956 by the Bureau of the Census and the Agricultural Marketing Service which has provided needed information on the production expenses of farmers. In this survey a sample of approximately 6,600 farmers answered detailed questions covering their farm expenses for the calendar year 1955. For an explanation of the sample design and procedure and for an estimate of the sampling error, see volume III, part 11.

One tabulation obtained from the survey was by type of farm and by selected economic classes of farms. The average per farm of the major categories of farm expenses by type of farm are shown in table 44. These farm expenses relate to 1955. Other data on farm and farm-operator characteristics contained in this report are from the 1954 Census of Agriculture and relate to 1954.

For this reason direct comparison of the two sets of data would not be meaningful. Also, the farm expenses obtained in the survey included expenses incurred for family living that ordinarily would not be charged against the farm business. (See footnotes to table 44.) In addition, the production expenses for cropper farms obtained in the survey were included in the economic class in which the landlord's home farm was tabulated.

Data from the survey are useful primarily in showing the relative magnitude of categories of farm expenses for different types and sizes of farms and the proportions these categories comprise of total farm expenses. These relationships may also be useful in examination of the specified expense items obtained by the 1954 Census of Agriculture. An attempt is made later in this report to indicate the extent to which the Census specified expense items are representative of total farm expenses for the different types and economic classes of farms.

TABLE 44.—CASH FARM EXPENDITURES: AVERAGE PER FARM BY TYPE OF FARM BY ECONOMIC CLASS, FOR THE UNITED STATES: 1955

Expenditure by economic class of farm	All commercial farms	Type of farm											Miscellaneous	
		Cash-grain	Cotton	Other field-crop	Vegetable	Fruit-and-nut	Dairy	Poultry	Live-stock other than dairy and poultry	General—				
										Primarily crop	Primarily live-stock	Crop and live-stock		
ALL CLASSES														
Total expenditures.....	Dollars 7,086	Dollars 6,797	Dollars 5,090	Dollars 4,923	Dollars 15,387	Dollars 10,948	Dollars 0,086	Dollars 10,817	Dollars 8,705	Dollars 7,242	Dollars 5,710	Dollars 5,525	Dollars 12,371	
Cash wages.....	764	466	1,191	956	4,227	3,228	444	429	504	1,273	251	393	4,414	
Machine hire and customwork.....	165	213	146	138	172	127	151	64	175	266	169	183	70	
Livestock and poultry purchased.....	763	550	182	140	149	142	322	1,380	1,929	331	406	510	111	
Feed for livestock and poultry.....	1,222	487	158	211	213	270	1,520	6,292	1,756	274	1,351	765	289	
Seeds, plants, and trees.....	244	310	177	271	966	213	171	76	228	366	193	237	1,746	
Commercial fertilizer and liming materials.....	385	459	359	550	1,515	747	254	131	346	663	265	372	514	
Petroleum products, farm business share ¹	602	833	491	486	905	627	511	410	626	713	563	585	789	
Repair and other operating costs for motor vehicles and farm machinery ²	434	645	356	328	747	492	352	220	463	460	362	417	380	
Marketing costs.....	331	187	416	284	2,741	1,620	297	192	239	443	212	230	921	
Miscellaneous current operating expense, not included elsewhere ³	488	448	387	382	1,328	1,243	451	432	541	671	389	385	988	
Property taxes, farm business share ⁴	227	276	74	114	466	393	228	149	318	183	219	101	309	
Interest, farm business share ⁵	162	173	121	107	225	171	167	141	215	136	127	133	151	
Construction and land improvement ⁶	373	356	242	301	879	521	338	419	461	417	323	356	755	
Purchase of motor vehicles, farm machinery and equipment ⁷	926	1,385	799	646	854	1,145	884	482	904	1,046	880	768	934	
CLASSES I AND II														
Total expenditures.....	18,352	12,871	16,243	26,231	34,376	24,545	16,356	25,287	20,791	22,223	12,912	12,309	24,976	
Cash wages.....	2,615	1,173	4,453	7,674	10,551	7,895	1,935	1,267	1,597	4,709	1,078	1,280	10,502	
Machine hire and customwork.....	304	335	450	585	342	201	230	107	271	736	218	290	45	
Livestock and poultry purchased.....	2,509	1,099	523	780	237	386	918	3,155	6,057	1,159	896	1,618	209	
Feed for livestock and poultry.....	3,336	860	295	607	340	481	5,042	15,502	4,241	532	3,243	1,664	180	
Seeds, plants, and trees.....	572	597	557	1,630	1,600	310	369	115	428	1,019	375	433	3,749	
Commercial fertilizer and liming materials.....	961	1,023	1,115	2,631	3,803	1,611	665	202	683	1,664	803	902	960	
Petroleum products, farm business share ¹	1,143	1,387	1,291	1,501	1,430	1,157	883	655	1,083	1,730	914	930	1,222	
Repair and other operating costs for motor vehicles and farm machinery ²	947	1,210	1,080	1,379	1,432	1,024	718	347	906	1,349	727	760	483	
Marketing costs.....	955	390	1,434	1,766	7,336	4,268	765	431	529	1,850	458	555	1,957	
Miscellaneous current operating expense, not included elsewhere ³	1,327	903	1,502	2,733	2,844	2,895	1,192	980	1,223	2,345	894	847	2,046	
Property taxes, farm business share ⁴	491	450	243	657	752	843	449	278	652	463	381	339	524	
Interest, farm business share ⁵	375	270	360	526	400	336	364	328	483	342	157	317	300	
Construction and land improvement ⁶	891	736	821	1,666	1,476	1,142	844	901	896	1,279	822	820	1,695	
Purchase of motor vehicles, farm machinery and equipment ⁷	1,926	2,438	2,020	2,096	1,743	1,996	1,982	1,019	1,742	2,747	1,946	1,554	1,192	
CLASSES III THROUGH VI														
Total expenditures.....	4,196	4,740	2,725	2,831	6,926	4,776	4,384	5,046	4,835	3,444	4,718	4,000	4,927	
Cash wages.....	290	226	496	297	1,409	1,109	197	94	227	402	137	194	819	
Machine hire and customwork.....	130	172	82	94	87	93	138	45	144	147	163	180	84	
Livestock and poultry purchased.....	315	377	109	87	110	31	223	672	580	121	338	262	53	
Feed for livestock and poultry.....	680	360	129	172	157	188	944	2,621	944	209	1,090	563	354	
Seeds, plants, and trees.....	160	212	96	138	683	169	138	60	163	201	168	102	564	
Commercial fertilizer and liming materials.....	237	267	199	346	496	354	186	103	235	332	191	254	250	
Petroleum products, farm business share ¹	464	645	321	387	671	386	449	312	477	455	515	507	533	
Repair and other operating costs for motor vehicles and farm machinery ²	303	454	202	225	442	251	291	170	318	235	312	340	319	
Marketing costs.....	172	119	199	138	694	418	220	97	145	86	178	157	310	
Miscellaneous current operating expense, not included elsewhere ³	273	295	129	152	651	495	328	211	319	246	319	279	362	
Property taxes, farm business share ⁴	150	217	38	61	338	188	191	98	200	112	197	168	182	
Interest, farm business share ⁵	107	140	67	65	106	97	123	66	127	85	123	91	58	
Construction and land improvement ⁶	237	227	119	167	612	239	255	226	318	198	255	252	258	
Purchase of motor vehicles, farm machinery and equipment ⁷	669	1,020	540	502	460	758	701	268	629	615	732	591	781	

¹ Expenditures minus tax refunds. Includes expenditures attributable to uses other than farm business.

² Includes repairs, replacement parts, accessories, registration fees and insurance on vehicles. Includes expenditures attributable to uses other than farm business.

³ Medicine, disinfectants, pesticides, electricity, telephone service, insurance, hand tools, and miscellaneous farm business expenses (management services, recordkeeping, legal fees, advertising expenses, etc.).

⁴ Includes some property taxes on furniture and other household goods attributable to family living expenses.

⁵ Includes interest on debt contracted for family living expenses.

⁶ Excludes expenditures by landlords, excludes expenditures for construction and repair of operator's dwelling except for multi-unit tenant farms.

⁷ Purchase cost minus value of trade-in and sales. Includes expenditures attributable to uses other than farm business.

FARMERS AND FARM PRODUCTION

Cash wages.—The expenditure for hired labor amounted to \$764 for the average commercial farm in 1955 and comprised about a tenth of the total farm expenses. Cash wages were a much more important expense on some types of farms than others. In general, cash-grain farms and types of farms having a major source of income from livestock products had relatively small expense for hired labor, amounting to 7 percent or less of the total expenses. (See table 45.) On farms with a major source of income from crops (except cash-grain farms) cash wages ranged from nearly a fifth to a fourth or more of the total farm expenses.

The farm expenses have been tabulated into two economic class groups—Classes I and II, which combine all farms with sales of farm products valued at \$10,000 or more, and Classes III, IV, V, and VI, a combination of commercial farms that had sales of farm products valued at less than \$10,000.

Cash wages comprised a higher proportion of total expenses on the larger economic classes of farms than on the smaller classes—14 percent and 7 percent, respectively, for all types taken together. A similar relationship existed between the two size groups for each type individually.

TABLE 45.—CASH FARM EXPENDITURES AS A PERCENTAGE OF TOTAL FARM EXPENDITURES, BY TYPE OF FARM, BY ECONOMIC CLASS OF FARM, FOR THE UNITED STATES: 1955

Expenditure by economic class of farm	All commercial farms	Type of farm											
		Cash-grain	Cotton	Other field-crop	Veg-etable	Fruit-and-nut	Dairy	Poul-try	Live-stock other than dairy and poultry	General—			Mis-cella-neous
										Pri-marily crop	Pri-marily live-stock	Crop and live-stock	
ALL CLASSES													
Total expenditures.....	Percent 100.0	Percent 100.0	Percent 100.0	Percent 100.0	Percent 100.0	Percent 100.0	Percent 100.0	Percent 100.0	Percent 100.0	Percent 100.0	Percent 100.0	Percent 100.0	Percent 100.0
Cash wages.....	10.8	6.9	23.4	19.4	27.5	29.5	7.3	4.0	6.4	17.6	4.4	7.1	35.7
Machine hire and customwork.....	2.3	3.1	2.9	2.8	1.1	1.2	2.5	0.6	2.0	3.7	3.0	3.3	0.6
Livestock and poultry purchased.....	10.8	8.2	3.6	3.0	1.0	1.3	5.3	12.8	22.0	4.6	7.1	9.2	0.9
Feed for livestock and poultry.....	17.2	7.2	3.1	4.3	1.4	2.5	25.1	58.2	20.0	3.8	23.7	13.8	2.3
Seeds, plants, and trees.....	3.4	4.6	3.5	5.5	6.3	1.9	2.8	0.7	2.6	5.1	3.4	4.3	14.1
Commercial fertilizer and liming materials.....	5.4	6.8	7.0	11.2	9.8	6.8	4.2	1.2	3.9	9.2	4.6	6.7	4.2
Petroleum products, farm business share ¹	8.5	12.3	9.6	9.9	5.9	5.7	8.4	3.8	7.1	9.8	9.9	10.6	6.4
Repair and other operating costs for motor vehicles and farm machinery ²	6.1	9.5	7.0	6.7	4.9	4.5	5.8	2.0	5.3	6.4	6.3	7.5	3.1
Marketing costs.....	4.7	2.8	8.2	5.8	17.8	14.8	4.9	1.8	2.7	6.1	3.7	4.2	7.4
Miscellaneous current operating expense, not included elsewhere ³	6.9	6.6	7.6	7.8	8.6	11.4	7.4	4.0	6.2	9.3	6.8	7.0	8.0
Property taxes, farm business share ⁴	3.2	4.1	1.5	2.3	3.0	3.6	3.7	1.4	3.6	2.5	3.8	3.5	2.5
Interest, farm business share ⁵	2.3	2.5	2.4	2.2	1.5	1.6	2.6	1.3	2.5	1.9	2.2	2.4	1.2
Construction and land improvement ⁶	5.3	5.2	4.7	6.1	5.7	4.8	5.6	3.9	5.3	5.8	5.7	6.4	6.1
Purchase of motor vehicles, farm machinery and equipment ⁷	13.1	20.4	15.7	13.1	5.6	10.5	14.5	4.5	10.3	14.4	15.4	13.9	7.5
CLASSES I AND II													
Total expenditures.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Cash wages.....	14.2	9.1	27.4	29.3	30.7	32.2	11.8	5.0	7.7	21.2	8.3	10.4	42.0
Machine hire and customwork.....	1.7	2.6	2.8	2.2	1.0	0.8	1.4	0.4	1.3	3.3	1.7	2.4	0.2
Livestock and poultry purchased.....	13.7	8.5	3.2	3.0	0.7	1.6	5.6	12.5	29.1	5.2	6.9	13.1	0.8
Feed for livestock and poultry.....	18.2	6.7	1.8	2.3	1.0	2.0	30.8	61.3	20.4	2.4	25.1	13.5	0.7
Seeds, plants, and trees.....	3.1	4.6	3.4	6.2	4.7	1.3	2.3	0.5	2.1	4.6	2.9	3.5	15.0
Commercial fertilizer and liming materials.....	5.2	7.9	6.9	10.0	11.1	6.6	4.1	0.8	3.3	8.8	6.2	7.3	3.8
Petroleum products, farm business share ¹	6.2	10.8	7.9	5.7	4.2	4.7	5.4	2.6	5.2	7.8	7.1	7.6	4.9
Repair and other operating costs for motor vehicles and farm machinery ²	5.2	9.4	6.6	5.3	4.2	4.2	4.4	1.4	4.4	6.1	5.6	6.2	1.9
Marketing costs.....	5.2	3.0	8.8	6.7	21.3	17.4	4.7	1.7	2.5	8.3	3.5	4.5	7.8
Miscellaneous current operating expense, not included elsewhere ³	7.2	7.0	9.8	10.4	8.3	11.8	7.3	3.9	5.9	10.6	6.9	6.9	8.2
Property taxes, farm business share ⁴	2.7	3.5	1.5	2.5	2.2	3.4	2.7	1.1	3.1	2.1	3.0	2.8	2.1
Interest, farm business share ⁵	2.0	2.1	2.3	2.0	1.4	1.4	2.2	1.3	2.3	1.5	1.2	2.6	1.2
Construction and land improvement ⁶	4.9	5.7	5.1	6.4	4.3	4.7	5.2	3.6	4.3	5.8	6.4	6.7	6.4
Purchase of motor vehicles, farm machinery and equipment ⁷	10.5	18.9	12.4	8.0	5.1	8.1	12.1	4.0	8.4	12.4	15.1	12.6	4.8
CLASSES III THROUGH VI													
Total expenditures.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Cash wages.....	6.9	4.8	18.2	10.5	20.3	23.2	4.5	1.9	4.7	11.7	2.9	4.9	16.6
Machine hire and customwork.....	3.1	3.6	3.0	3.3	1.4	1.9	3.1	1.0	3.0	4.3	3.5	4.0	1.7
Livestock and poultry purchased.....	7.5	8.0	4.0	3.1	1.6	0.6	5.1	13.3	12.0	3.5	7.2	6.6	1.1
Feed for livestock and poultry.....	16.2	7.6	4.7	6.1	2.3	3.9	21.5	51.9	19.5	6.1	23.1	14.1	7.2
Seeds, plants, and trees.....	3.8	4.5	3.5	4.9	9.9	3.5	3.1	1.2	3.4	5.8	3.6	4.8	11.4
Commercial fertilizer and liming materials.....	5.6	5.6	7.3	12.2	7.2	7.4	4.2	2.0	4.9	9.6	4.0	6.4	5.1
Petroleum products, farm business share ¹	11.1	13.6	11.8	13.7	9.7	8.1	10.2	6.2	9.9	13.2	10.9	12.7	10.8
Repair and other operating costs for motor vehicles and farm machinery ²	7.2	9.6	7.4	7.9	6.4	5.3	6.6	3.4	6.6	6.8	6.6	8.5	6.5
Marketing costs.....	4.1	2.5	7.3	4.9	10.0	8.8	5.0	1.9	3.0	2.5	3.8	3.9	6.3
Miscellaneous current operating expense, not included elsewhere ³	6.5	6.2	4.8	5.4	9.4	10.4	7.5	4.2	6.6	7.1	6.8	7.0	7.3
Property taxes, farm business share ⁴	3.8	4.6	1.4	2.2	4.0	3.9	4.4	1.9	4.3	3.3	4.2	4.0	3.7
Interest, farm business share ⁵	2.6	3.0	2.5	2.3	1.5	2.0	2.8	1.3	2.6	2.5	2.6	2.3	1.2
Construction and land improvement ⁶	5.6	4.8	4.4	5.9	8.8	5.0	5.8	4.5	6.6	5.7	5.4	6.3	5.2
Purchase of motor vehicles, farm machinery and equipment ⁷	15.9	21.7	10.8	17.7	6.6	15.9	16.0	5.3	13.0	17.9	15.5	14.8	15.9

¹ Expenditures minus tax refunds. Includes expenditures attributable to uses other than farm business.

² Includes repairs, replacement parts, accessories, registration fees and insurance on vehicles. Includes expenditures attributable to uses other than farm business.

³ Medicine, disinfectants, pesticides, electricity, telephone service, insurance, hand tools, and miscellaneous farm business expenses (management services, recordkeeping, legal fees, advertising expenses, etc.).

⁴ Includes some property taxes on furniture and other household goods attributable to family living expenses.

⁵ Includes interest on debt contracted for family living expenses.

⁶ Excludes expenditures by landlords, excludes expenditures for construction and repair of operator's dwelling except for multi-unit tenant farms.

⁷ Purchase cost minus value of trade-in and sales. Includes expenditures attributable to uses other than farm business.

Of the total cash wages paid in commercial agriculture, cotton farms accounted for slightly more than a fifth—a larger proportion than any other type (see table 46). The next highest users of hired labor were livestock farms other than dairy and poultry which accounted for slightly less than a fifth of the cash wages paid.

Machine hire.—The expenditure for machine hire was relatively small for each type and size of farm. It amounted to \$165 for commercial farms as a group and accounted for only 2 percent of the total expenses. By type of farm there was small variation. For each type of farm, however, machine hire was a higher proportion of total expenses on the smaller economic classes of farms. Operators of the smaller farms frequently have insufficient acreage to utilize certain items of farm machinery efficiently. This indicates a tendency on the part of many to hire machine work done on a custom basis.

Purchase of livestock and poultry.—About three-fifths of the total expenditures for livestock and poultry purchases by commercial farmers in 1955 was accounted for by livestock farms other than dairy and poultry—an average of nearly \$2,000 per farm. On farms of this type the purchase of livestock and poultry was the largest single expense item and it amounted to more than a fifth of the total farm expenses. On other types of farms the proportion of this expense to total expenses ranged from 13 percent for poultry farms to only 1 percent for vegetable and fruit-and-nut farms.

Among types of farms having a major source of income from crops, the expense for purchase of livestock and poultry was largest on cash-grain farms. This is an indication of the importance of livestock feeding as a secondary farm enterprise for farmers who raise and sell grains, especially feed grains.

For most types of farms there are no appreciable differences between the larger and smaller farms in the proportion of total farm expenses comprised by the purchase of livestock and poultry. The exception is found among livestock farms other than dairy and poultry. On the larger economic classes for this type 29 percent of the total farm expense was for purchase of livestock and poultry compared with only 12 percent on the smaller economic classes.

Many more of the larger livestock farms purchase cattle and hogs and feed them for resale. In fact, this causes some of them to be classified in the larger economic classes even though the net income is no more than that of some farmers in the smaller economic classes who raise a larger part of their livestock.

Feed for livestock and poultry.—This is the largest single expense item for commercial farmers. Their feed bill amounted to about \$1,200 per commercial farm in 1955 and made up 17 percent of the total expenses. The heaviest users of purchased feed were dairy, poultry, and other livestock farms. The three types taken together accounted for four-fifths of the feed purchased by commercial farmers.

Feed purchased was by far the most important expense for poultry farmers, comprising 58 percent of their total expenses. A fourth of the total expenses of dairy and general livestock farmers and a fifth of the total expenses of other livestock farmers went for feed.

For poultry, dairy, and other livestock farms the expenditure for feed comprised a greater proportion of the total expenses on the larger economic classes of farms. For other types (on which feed was not an important expense item) the smaller economic classes had greater proportionate expenses for feed.

Seeds, plants, and trees.—The expenditure for seed, plants, and trees made up only 3 percent of the total farm expenses. This ranged from less than 1 percent on poultry farms to about 6 percent on vegetable farms. There was small variation between the larger and smaller economic classes of farms in this respect.

Commercial fertilizer and liming materials.—The average commercial farmer spent \$385 for fertilizer and lime in 1955. This represents less than 6 percent of the total expenses. The largest expenditure was made by vegetable farmers who averaged \$1,500 each, followed by fruit-and-nut farmers who spent \$750 each. As a proportion of total expenses, however, the largest share (11 percent) was spent on fertilizer and lime by other field-crop farmers.

Of the total commercial fertilizers and liming material purchased, about a fifth each was used on cash-grain farms and livestock farms other than dairy and poultry. Between 10 and 15 percent each was used on cotton, other field-crop, and dairy farms. These 5 types accounted for about four-fifths of the fertilizers and liming material used.

TABLE 46.—PERCENT DISTRIBUTION OF EACH EXPENDITURE BY TYPE OF FARM, FOR THE UNITED STATES: 1955

Expenditure by economic class of farm	All commercial farms	Type of farm											
		Cash-grain	Cotton	Other field-crop	Vegetable	Fruit-and-nut	Dairy	Poultry	Livestock other than dairy and poultry	General—			Miscellaneous
										Primarily crop	Primarily livestock	Crop and livestock	
Total expenditures.....	100.0	16.4	9.5	5.5	2.0	3.7	15.7	7.7	28.7	2.3	1.7	5.1	1.6
Cash wages.....	100.0	10.4	20.5	10.0	5.0	10.2	10.6	2.8	17.1	3.8	0.7	3.4	5.4
Machine hire and customwork.....	100.0	22.0	11.7	6.6	1.0	1.0	16.7	2.0	24.6	3.6	2.2	7.3	0.4
Livestock and poultry purchased.....	100.0	12.5	3.1	1.6	0.2	0.5	7.7	9.1	58.6	1.0	1.2	4.4	0.1
Feed for livestock and poultry.....	100.0	6.8	1.7	1.4	0.2	0.6	22.8	26.0	33.3	0.5	2.4	4.1	0.2
Seeds, plants, and trees.....	100.0	21.7	9.5	8.9	3.6	2.1	12.8	1.6	21.7	3.4	1.7	6.4	6.7
Commercial fertilizer and liming materials.....	100.0	20.3	12.3	11.4	3.6	4.7	12.1	1.7	20.8	3.9	1.5	6.4	1.2
Petroleum products, farm business share.....	100.0	23.6	10.7	6.4	1.4	2.5	15.5	3.4	24.1	2.7	2.0	6.4	1.2
Repair and other operating costs for motor vehicles and farm machinery.....	100.0	25.4	10.8	6.0	1.6	2.7	14.8	2.6	24.7	2.4	1.8	6.3	0.8
Marketing costs.....	100.0	9.6	16.5	6.8	7.5	11.8	16.4	2.9	16.7	3.0	1.4	4.6	2.6
Miscellaneous current operating expense, not included elsewhere.....	100.0	15.7	10.4	6.2	2.5	6.2	16.8	4.5	25.7	3.1	1.7	5.2	1.9
Property taxes, farm business share.....	100.0	20.7	4.3	4.0	1.9	4.2	18.4	3.3	32.5	1.8	2.1	5.6	1.3
Interest, farm business share.....	100.0	18.2	9.8	5.3	1.3	2.6	17.8	4.4	30.8	1.9	1.7	5.4	0.9
Construction and land improvement.....	100.0	16.2	8.5	6.4	2.1	3.4	16.6	5.6	28.5	2.5	1.9	6.3	1.9
Purchase of motor vehicles and farm machinery and equipment.....	100.0	25.5	11.4	5.6	0.8	3.0	17.4	2.6	22.6	2.5	2.1	5.5	0.9

Fuel, repairs, and other operating costs for motor vehicles and farm machinery.—Operating costs for motor vehicles and farm machinery amounted to more than \$1,000 per commercial farm and comprised nearly 15 percent of the total farm expenses in 1955. This proportion ranged from 22 percent on cash-grain farms to only 6 percent on poultry farms. Two types of farms, cash-grain and livestock farms other than dairy and poultry accounted for more than a third each of the total expenditure for operating costs.

For each type of farm the operating costs were a greater proportion of the total expenses on the smaller economic classes of farms than on the larger ones. The data are influenced by the inclusion of fuel and upkeep for the family automobile, an item found on most farms in 1955. Operating costs for automobiles would tend to be greater, relative to other machinery expenses for the smaller farms than for the larger ones. However, the data are probably indicative of the problems encountered by many operators of small farms in utilizing machinery efficiently. In general, they have lagged behind the operators of larger farms in their use of machinery. But even at their present levels of mechanization the smaller farms spent more proportionately for operation of machinery than the larger ones.

Marketing costs.—These amounted to only 5 percent of the total farm expenses for commercial farms as a group. Marketing costs were a more important expense item for vegetable farms and fruit-and-nut farms than other types. These costs comprised 18 percent and 15 percent, respectively, of the total farm expenses. Cotton farmers also had relatively high marketing costs amounting to 8 percent of all expenditures.

Miscellaneous farm operating expenses.—These include a number of expense items not included elsewhere. The major items are expenses for medicine and disinfectants, pesticides, electricity, telephone service, insurance, hand tools, and miscellaneous farm business expenses (management services, recordkeeping, legal fees, advertising expenses, etc.).

These expenses comprised 7 percent of the total cash farm expenses in 1955 for commercial farms as a group. They were a fairly constant proportion of the total expenses for most types ranging from a high of 11 percent on fruit-and-nut farms to a low of 4 percent on vegetable farms.

Property taxes and interest.—About 6 percent of the total cash expenses of commercial farmers were for these expenses. There was small variation between the types and economic classes of farms in this respect.

Capital expenditures.—The total expenditures for 1955 included two items of capital expenditure: (1) Payment for construction and land improvement and (2) purchase of motor vehicles and farm machinery. These items are not generally included in current farm operating expenses. Their costs are more properly spread over a period of years.

The capital expenditure items are included here with the total cash expenses, largely as a matter of convenience. However, the purchase of capital equipment is largely for replacement of existing equipment. It is probable that the total cash outlay for capital equipment by farmers in any one year approximates the cost that might be attributed to depreciation of all capital equipment on farms for the 1-year period. It is an overstatement of depreciation to the extent that these purchases represent an increase in the total investment of farmers.

The cost for construction and land improvements made up about 5 percent of the total cash expenses of commercial farmers. This was a fairly constant proportion of the total expenses for

each type of farm. The proportion of total expenses that were for construction and land improvement was slightly greater on the smaller than on the larger economic classes for most types of farms.

The purchase of motor vehicles and farm machinery was one of the largest cash expenses of commercial farmers in 1955, comprising 13 percent of the total cash expenses. This expense varied considerably by type of farm. It amounted to a fifth of the total expenses of cash-grain farmers and was the largest single expense. Each type of farm reported 10 percent or more of the total cash expenses for purchase of motor vehicles and farm machinery except vegetable farms and poultry farms.

The proportion of total expenses that went for purchase of motor vehicles and farm machinery was much greater on the smaller economic classes of farms than on the larger ones—half again to twice as much for most types of farms.

Total Motor Vehicle and Machinery Expenses

When the costs for purchase of motor vehicles and farm machinery are added to the expenses for fuel, repairs, and other operating costs, it is apparent that these comprised the major cash expenditure of commercial farmers in 1955. The expenses for purchase and operation of motor vehicles and farm machinery are shown as a proportion of the total cash expenses in table 47. These costs made up 28 percent of the total cash expenses of commercial farmers. They comprised from a fourth to two-fifths of the total on all except vegetable, fruit-and-nut, and poultry farms.

TABLE 47.—EXPENSES FOR PURCHASE AND OPERATION OF MOTOR VEHICLES, FARM MACHINERY, AND EQUIPMENT¹ AS A PERCENTAGE OF TOTAL FARM EXPENDITURE, BY TYPE AND ECONOMIC CLASS OF COMMERCIAL FARM, FOR THE UNITED STATES: 1955

Type of farm	Total	Economic class of farm	
		I and II	III through VI
	Percent	Percent	Percent
All commercial farms	27.7	21.9	34.2
Cash-grain.....	42.1	39.2	44.9
Cotton.....	32.3	27.0	39.0
Other field-crop.....	29.7	19.0	39.3
Vegetable.....	16.3	13.4	22.7
Fruit-and-nut.....	20.7	17.0	29.3
Dairy.....	28.7	21.9	32.8
Poultry.....	10.2	8.0	14.0
Livestock other than dairy and poultry.....	22.7	18.0	29.5
General:			
Primarily crop.....	30.6	26.2	37.9
Primarily livestock.....	31.6	27.8	33.0
Crop and livestock.....	32.0	26.4	36.0
Miscellaneous.....	17.0	11.6	33.2

¹ Purchase of motor vehicles, farm machinery and equipment, petroleum products, and repairs, and other operating costs.

On the smaller economic classes the proportions were even higher, accounting for a third or more of the total expenses for most types of farms. In Economic Classes III through VI motor vehicle and machinery costs amounted to 45 percent of the total cash farm expenses for cash-grain farmers and 39 percent for cotton and other field-crop farmers.

Census Specified Expenses

The 1954 Census of Agriculture obtained data on the following farm expenditure items: Hired labor, machine hire, feed for livestock and poultry, gasoline and other petroleum fuel and oil, and commercial fertilizers and liming material. The individual expense items obtained by the Census for type by economic class of farm are not shown separately in this chapter but appear in volume III, part 8, of the Census of Agriculture.

The average per farm of the total specified expenses and the proportion they comprise of the total value of farm products sold are shown for each type of farm by economic class in table 48. By type of farm the average expenditure ranged from about \$1,300 for other field-crop farms to over \$7,000 for vegetable and poultry farms. The specified farm expenses amounted to 37 percent of the value of farm products sold for commercial farms as a group, but this varied considerably by type of farm—from a fourth on cash-grain farms to nearly three-fourths on poultry farms. Also, the specified expenses were higher, relative to sales, on the smaller economic classes of farms for most types. This is influenced by the higher proportion of the farm products produced on these farms that are consumed in the home rather than sold.

TABLE 48.—SPECIFIED FARM EXPENSES, AVERAGE PER FARM AND AS A PERCENTAGE OF THE TOTAL VALUE OF FARM PRODUCTS SOLD, BY TYPE OF FARM BY ECONOMIC CLASS, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
Specified expenses per farm: ¹							
All commercial farms.....dollars..	2, 074	21, 368	5, 251	2, 558	1, 380	752	380
Cash-grain.....do.....	2, 076	9, 956	3, 356	1, 865	1, 168	756	433
Cotton.....do.....	1, 583	23, 461	5, 496	2, 237	943	472	249
Other field-crop.....do.....	1, 330	23, 912	5, 149	1, 963	945	502	235
Vegetable.....do.....	7, 548	47, 144	7, 510	3, 269	1, 626	894	409
Fruit-and-nut.....do.....	4, 689	21, 491	4, 997	2, 475	1, 358	777	449
Dairy.....do.....	2, 905	26, 393	6, 269	2, 904	1, 564	893	451
Poultry.....do.....	7, 100	35, 095	11, 588	5, 035	3, 043	1, 462	582
Livestock other than dairy and poultry.....dollars..	3, 116	17, 734	4, 992	2, 723	1, 705	1, 029	527
General:							
Primarily crop.....do.....	2, 719	24, 260	4, 718	2, 344	1, 293	721	350
Primarily livestock.....do.....	2, 250	19, 400	5, 365	2, 706	1, 660	984	504
Crop and livestock.....do.....	2, 176	16, 365	4, 517	2, 354	1, 435	871	461
Miscellaneous.....do.....	4, 598	25, 674	4, 730	2, 120	1, 213	643	337
Specified expenses as a percent of the value of farm products sold:							
All commercial farms.....percent..	36.6	36.8	35.3	35.6	37.3	30.6	50.3
Cash-grain.....do.....	24.9	21.8	22.7	25.5	30.4	29.6	53.6
Cotton.....do.....	32.0	33.6	35.6	33.0	27.6	26.7	32.4
Other field-crop.....do.....	30.6	40.1	34.5	28.4	25.4	26.1	29.2
Vegetable.....do.....	47.1	46.5	48.6	46.5	46.6	51.5	59.5
Fruit-and-nut.....do.....	32.5	32.7	31.1	31.7	33.1	38.1	56.3
Dairy.....do.....	44.5	52.6	44.2	40.9	41.8	47.3	57.5
Poultry.....do.....	73.7	71.0	73.7	76.6	79.9	77.8	87.4
Livestock other than dairy and poultry.....percent..	35.3	30.5	32.7	37.3	46.5	56.1	75.5
General:							
Primarily crop.....do.....	30.9	37.1	35.0	35.6	37.9	42.2	47.6
Primarily livestock.....do.....	41.4	48.9	37.6	37.9	44.7	52.2	62.1
Crop and livestock.....do.....	34.8	34.5	32.0	32.9	28.9	46.4	55.9
Miscellaneous.....do.....	34.9	36.2	31.4	31.0	34.3	33.1	45.0

¹ Includes the following expenses: Cash wages, machine hire, feed for livestock and poultry, fuel and other petroleum products, and commercial fertilizer and liming materials.

Relation of Census Specified Expenses to Total Farm Expenses

The 1954 Census of Agriculture obtained specified farm expenses for the year 1954. Data from the Farm Expenditure Survey relate to 1955. Because of the different years involved the two series of data may not be compared directly. However, in the light of data from the Farm Expenditure Survey it is possible to make a meaningful evaluation of the Census specified expenses to appraise how representative they are of total expenses. For this purpose, the categories of expenses from the Farm Expenditure Survey which correspond to the Census specified items have been computed as a proportion of total current cash expenses (exclusive of capital expenditures). These percentages for types of farms by specified economic classes are shown in table 49.

On the basis of relationships from the Farm Expenditure Survey, the farm expenses obtained by the 1954 Census of Agriculture comprised slightly more than half of the total cash farm expenses of commercial farmers. The Census specified expenses accounted for a high of approximately three-fourths of the total expenses for poultry farmers and nearly three-fifths for those of cotton, other field-crop, dairy, and general livestock farmers. In contrast, these expenses amounted to less than half of the total expenses of cash-grain and other livestock producers.

There was little difference in this respect between the two size groups for most types of farms. Notable exceptions are dairy farms and other livestock farms. Among dairy farms the Census specified expenses accounted for a greater proportion of total expenses for the larger economic classes. This was due partly to the higher expenditure for feed reported by the larger farms. For other livestock farms the Census specified expenses comprised a greater proportion of total expenses on the smaller economic classes. This was partly because the Census specified expenses did not include the expense for purchase of livestock and poultry. As mentioned previously, this was a much more important expense on the larger than on the smaller economic classes of farms.

TABLE 49.—SPECIFIED GROUP OF FARM EXPENSE ITEMS AS A PERCENTAGE OF THE TOTAL CASH FARM EXPENSES, BY TYPE OF FARM BY ECONOMIC CLASS, FOR THE UNITED STATES: 1955¹

Type of farm	Total	Economic class of farm		
		I and II	III through VI	
	Percent	Percent	Percent	
All commercial farms.....				
Cash-grain.....	54.2	53.8	54.7	
Cotton.....	48.6	49.3	47.9	
Other field-crop.....	57.8	56.8	59.3	
Vegetable.....	58.9	57.8	60.0	
	51.5	52.8	48.3	
Fruit-and-nut.....				
Dairy.....	53.9	53.0	56.4	
Poultry.....	59.3	64.7	55.8	
Livestock other than dairy and poultry.....	73.9	75.9	69.8	
	46.8	43.4	52.2	
General:				
Primarily crop.....	55.2	53.1	58.7	
Primarily livestock.....	57.7	61.7	56.2	
Crop and livestock.....	52.2	51.0	53.1	
Miscellaneous.....	56.9	58.2	52.4	

¹ The following expenses, cash wages, machine hire, feed for livestock and poultry, fuel and other petroleum products, and commercial fertilizer and liming materials, were divided by the total cash farm expenses (excluding those for construction, land improvement, and purchase of motor vehicles, farm machinery and equipment).

Estimated Value Added

It is not possible with existing data to make precise determinations of productivity and returns for types and economic classes of commercial farms. There are several important limitations. Foremost of these is that the specified farm expenses obtained in the Census of 1954 are not equally representative of total expenses for different types and economic classes of farms. An additional limitation is that data on farm sales obtained by the Census are not complete, largely because of omissions by farmers in the reporting of sales of livestock and livestock products. Still another limitation relates to the fact that the classifications of farms by type and by economic class are based on the value of farm products sold in the particular year 1954. Thus, a farm's type or economic class is affected by any abnormalities in yields or sales from inventories as well as the relative price relationships between commodities in 1954.

Notwithstanding these limitations, an attempt has been made here to estimate differences between types and economic classes of farms in the value of farm products sold minus the cost of the material and contract services used in producing the products. This is an approximation of the value added by agriculture and will be referred to hereafter as value added.

The estimate of value added was made in order to provide additional insight into the structural differences in farming. Technological changes in farming have brought about a substantial increase in farm production but this has been accompanied by larger cash costs in farming. Farmers now purchase many materials for use in further production that they formerly produced for themselves. The value of products sold is not a satisfactory measure of the relative productivity of a given type or size of farm because only a part of this value is actually created within the farm. Value added, as used here, attempts to correct for the widely different input-output relationships that exist in respect to types and sizes of farms. It is thought that the estimate of value added may be useful for a broad appraisal of productivity differentials within the various segments of commercial agriculture.

In developing the estimate of value added, the Census specified expenses (excluding cash wages) were expanded to reflect several additional expense items. The expansion was made on the basis of data from the Farm Expenditure Survey, discussed previously. The adjusted expenses for each type and economic class of farm were then subtracted from the total value of farm products sold.

The Census expense items—machine hire, feed for livestock and poultry, gasoline and other petroleum fuel and oil, and commercial fertilizer and liming materials—were expanded to include expenditures for the following items: Livestock and poultry, seeds, plants and trees, and repairs and other operating costs for motor vehicles and farm machinery. The factor used in expanding the Census expense items was the percentage the former 4 items comprised of the larger category of 7 items as determined by data from the Farm Expenditure Survey. These percentages for each type of commercial farm are as follows:

Type of farm	Expansion factor	Type of farm	Expansion factor
	Percent		Percent
All commercial farms.....	62.5	All commercial farms—Con.	
Cash-grain.....	56.8	Livestock other than dairy	52.6
Cotton.....	61.8	and poultry.	
Other field-crop.....	64.9	General, primarily crop.	62.3
Vegetable.....	60.2	General, primarily livestock.	71.0
Fruit-and-nut.....	67.7	General, crop and livestock.	62.1
Dairy.....	74.3	Miscellaneous.....	42.7
Poultry.....	80.4		

The totals of the Census expense items (excluding cash wages) for each type of farm by economic class were divided by the percentages shown in the previous table. The expanded expenditure data were then subtracted from the value of farm products sold.

It will be noted that the farm expenses, as adjusted, do not include several items commonly included in current cash expenses; namely, marketing charges, interest, taxes, and other miscellaneous expenses. Interest and taxes are quite properly excluded from the value added concept. These are charges to capital and do not represent materials used in further production. Marketing cost and other miscellaneous farm expenses would normally be deducted.

Marketing costs were omitted because of the possible duplication of this expense in the value of farm products sold. The total value of farm products, as reported by the Census, has some of the marketing charges deducted. Farmers, in reporting their sales of farm products are likely to report the value received after freight, handling, and commission charges have been deducted. Under the procedure employed by the Census of Agriculture, each farmer was asked to report the value of livestock, livestock products, vegetables, horticultural specialties, and forestry products sold. It is believed that the values reported for these products tend to have a large part of the marketing costs deducted. On the other hand, for field crops and fruits and nuts, each farmer reported the quantity sold and the market value was computed as part of the office procedure by applying average unit prices. Values computed on this basis would more nearly represent market values before any deduction.

Miscellaneous farm expenses (not included elsewhere) were excluded from the estimate because this category is composed of a large variety of minor items. Some of these include expenses not attributable to the farm business; others are capital and management services whose inclusion would be questionable. It was believed that exclusion of this category would not affect greatly the comparability of the estimates between types and economic classes of farms.

The value added per farm is shown in table 50. Value added, as estimated here, amounted to \$4,088 per commercial farm in 1954. This was 56 percent of the gross value of farm products sold. By type of farm, value added was highest for vegetable and fruit-and-nut farms, averaging about \$12,000 per farm. These types were also highest in the average value of farm products sold. (See table 26 for comparisons.) Poultry farms, also among the highest in the average value of farm products sold, were lowest in the value added, averaging only \$1,300 per farm. Most other types ranged between \$3,000 and \$5,000 in value added.

TABLE 50.—ESTIMATED VALUE ADDED PER FARM BY TYPE OF FARM BY ECONOMIC CLASS, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
All commercial farms.....	4,088	37,155	8,347	3,760	1,837	817	217
Cash-grain.....	5,302	34,601	10,010	4,431	2,015	709	96
Cotton.....	3,536	52,864	10,906	4,726	2,373	1,168	421
Other field-crop.....	3,090	45,018	10,408	4,888	2,651	1,317	501
Vegetable.....	11,553	76,956	10,551	4,336	1,960	739	160
Fruit-and-nut.....	12,146	57,036	13,510	6,273	3,146	1,421	417
Dairy.....	3,303	25,581	7,493	3,679	1,819	765	210
Poultry.....	1,324	9,432	1,966	604	151	114	(¹)
Livestock.....	3,936	32,230	7,309	2,813	943	144	(¹)
General:							
Primarily crop.....	4,742	47,787	8,716	3,909	1,814	769	250
Primarily livestock.....	2,556	19,128	7,568	3,606	1,506	576	135
Crop and livestock.....	3,297	30,729	8,164	3,812	1,607	606	142
Miscellaneous.....	10,749	62,101	12,051	4,873	2,079	849	164

¹ Expenses exceeded the value of farm products sold.

Among farms in each economic class there is much greater variation between types in the value added than in the total value of farm products sold. Value added, as a proportion of total sales, varies considerably between types of farms for each economic class (see table 51). It is highest on fruit-and-nut farms for each economic class of farm. In general, value added was a higher proportion of the gross sales for farms with a major source of income from sales of field crops and vegetables than for livestock types. It comprised the lowest proportion of gross sales on poultry farms.

Value added was a greater proportion of farm sales on the larger than on the smaller economic classes of farms for each type. This is influenced to a large extent by the measure of value added being based upon farm products sold rather than the total value of products produced. On the smaller economic classes of farms a substantial part of the production is consumed on the farm.

TABLE 51.—ESTIMATED VALUE ADDED AS A PERCENT OF THE TOTAL VALUE OF FARM PRODUCTS SOLD, BY TYPE OF FARM BY ECONOMIC CLASS: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent	Per-cent
All commercial farms.....	56.0	64.1	56.1	52.4	49.6	44.1	28.7
Cash-grain.....	64.6	75.9	67.7	60.6	52.4	37.1	12.3
Cotton.....	71.3	75.8	70.7	69.6	69.4	66.2	54.7
Other field-crop.....	71.1	75.6	68.7	70.7	71.3	68.4	62.2
Vegetable.....	72.0	76.0	68.3	61.6	56.1	42.5	23.3
Fruit-and-nut.....	84.3	86.8	84.0	80.4	76.6	69.6	52.3
Dairy.....	50.6	50.9	52.8	51.8	48.6	40.6	26.7
Poultry.....	13.7	19.1	12.6	8.2	4.0	6.1	(1)
Livestock.....	44.6	55.4	47.9	38.6	25.2	7.8	(1)
General:							
Primarily crop.....	64.4	73.0	64.7	59.4	53.2	45.0	34.0
Primarily livestock.....	47.0	48.2	53.0	50.5	40.5	30.5	16.6
Crop and livestock.....	52.8	64.7	57.8	53.2	43.6	32.3	17.2
Miscellaneous.....	81.5	87.6	79.7	71.2	58.8	46.4	21.9

¹ Expenses exceeded the value of farm products sold.

Value added per man-equivalent.—When converted to a man-equivalent basis, value added becomes a reasonably good measure of labor productivity. At prevailing levels of prices for farm products and costs of materials used in further production, it is a measure of efficiency in the use of labor resources. Value added per man-equivalent amounted to \$2,800 for commercial farms as a group. (See table 52.) It was highest on fruit-and-nut and cash-grain farms, averaging \$4,900 and \$4,400, respectively.

TABLE 52.—ESTIMATED VALUE ADDED PER MAN-EQUIVALENT BY TYPE OF FARM, BY ECONOMIC CLASS, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
All commercial farms.....	2,800	6,855	4,612	2,629	1,446	750	209
Cash-grain.....	4,384	11,271	6,029	3,602	2,015	864	103
Cotton.....	2,080	6,812	4,345	2,449	1,412	834	348
Other field-crop.....	2,046	5,241	4,301	2,731	1,767	1,088	468
Vegetable.....	3,236	4,318	2,941	2,168	1,371	684	148
Fruit-and-nut.....	4,939	6,330	5,136	3,896	2,809	1,652	425
Dairy.....	2,204	4,763	3,803	2,520	1,455	729	212
Poultry.....	1,141	3,480	1,375	534	161	148	(1)
Livestock.....	3,028	9,856	4,540	2,115	842	104	(1)
General:							
Primarily crop.....	2,945	6,026	4,211	2,555	1,451	769	260
Primarily livestock.....	1,981	5,047	4,478	2,539	1,195	549	148
Crop and livestock.....	2,407	7,097	4,692	2,684	1,275	566	136
Miscellaneous.....	3,937	5,053	4,304	2,936	1,792	987	173

¹ Expenses exceeded the value of farm products sold.

Most other types of farms ranged between \$2,000 and \$3,000 value added per man-equivalent. The exception was poultry farms with about \$1,100 per man-equivalent.

Value added per man-equivalent was highest for Class I farms of each type and decreased with each successively smaller economic class. On Classes V and VI farms it was far below the average for commercial farms as a group.

Value added per \$1,000 of capital investment.—This is a measure of efficiency in the use of capital resources. The value added was divided by the total investment in land and buildings, machinery and equipment, and livestock inventory. This is expressed in terms of value added for each \$1,000 of total capital investment in table 53.

In general, farms with a major source of income from fruits and nuts, vegetables, and field crops had a higher product added per unit of capital used than types with a major source of income from livestock and livestock products. The exception was cash-grain farms.

TABLE 53.—ESTIMATED VALUE ADDED PER \$1,000 OF CAPITAL INVESTMENT IN LAND AND BUILDINGS, MACHINERY AND LIVESTOCK INVENTORY, BY TYPE OF FARM BY ECONOMIC CLASS, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
All commercial farms.....	124	225	127	102	86	62	27
Cash-grain.....	110	183	124	96	71	39	8
Cotton.....	222	271	186	189	214	195	106
Other field-crop.....	238	339	231	244	241	188	100
Vegetable.....	257	351	197	139	98	52	18
Fruit-and-nut.....	235	318	219	170	122	70	32
Dairy.....	127	203	149	126	95	58	24
Poultry.....	74	213	83	35	11	10	(1)
Livestock.....	80	168	93	59	29	6	(1)
General:							
Primarily crop.....	132	218	128	108	86	50	25
Primarily livestock.....	92	172	139	104	65	36	13
Crop and livestock.....	97	188	124	96	64	38	14
Miscellaneous.....	326	626	256	161	99	52	16

¹ Expenses exceeded the value of farm products sold.

Cash-grain farms, among the highest in value added per man-equivalent, were among the lowest in value added per unit of total investment. Cotton and other field-crop farms were among the lowest in value added per man-equivalent but were relatively high in value added per capital investment. For fruit-and-nut farms the value added was relatively high on both bases. It was relatively low on both bases for dairy, poultry, and other livestock farms.

By economic class of farm the value added per unit of total investment is highest on Class I farms and decreases with each successively smaller economic class. For most types, however, the differences between economic classes are relatively small compared to the substantial differences between these classes in the value added per man-equivalent.

Due to the limitations involved in making these estimates, no precise conclusion may be drawn regarding the specific amounts of value added per man-equivalent or per dollar of investment. However, it appears reasonable to conclude that (1) value added per man-equivalent and per dollar of investment is extremely low on the smaller economic classes of farms; low in relation to agriculture as a whole and also in relation to that obtained in nonfarm sectors of the economy and (2) for any given type of farm their amounts are directly associated with the size of the farm business.

Home Facilities

The measures of value added, discussed previously, are useful primarily in showing efficiency differentials in agriculture. They are not measures of farm income. However, due to the small volume of sales (and lesser amounts of value added) on the smaller economic classes of farms, it is probable that incomes from farming are fairly low.

An indirect measure of income is found in the levels of living of farm-operator families as indicated by home facilities. The data and discussion which follow relate some of these to types and economic classes of farms.

Electricity.—Most of rural America had electricity in the homes in 1954—nearly 94 percent of all commercial farms. (See table 54.) More than 90 percent of each type of farm except cotton reported electricity. Among farms of each type the proportion reporting electricity decreased with decreasing size of farm (measured by gross sales of farm products). Even on Class VI farms, however, more than four-fifths of each type reported electricity, except cotton farms, of which about three-fourths had electricity in the homes.

TABLE 54.—PERCENT OF FARMS REPORTING ELECTRICITY BY TYPE OF FARM BY ECONOMIC CLASS, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
All commercial farms.....	93.8	97.5	97.9	97.4	95.6	91.2	84.2
Cash-grain.....	94.2	97.3	97.6	96.1	94.1	89.5	84.4
Cotton.....	86.8	97.1	97.1	96.2	92.0	86.4	76.3
Other field-crop.....	91.8	97.5	98.1	97.5	95.3	90.4	82.2
Vegetable.....	94.1	92.7	96.9	96.9	95.8	94.1	89.3
Fruit-and-nut.....	93.6	96.5	94.2	94.0	92.5	92.8	91.6
Dairy.....	97.3	99.3	98.6	99.1	98.3	95.7	89.0
Poultry.....	97.6	98.9	99.3	98.3	97.8	97.5	94.3
Livestock other than dairy and poultry.....	95.0	97.3	98.0	97.2	95.6	93.2	88.8
General:							
Primarily crop.....	93.4	98.1	97.8	96.9	95.0	91.5	83.7
Primarily livestock.....	95.3	100.0	99.9	96.2	96.5	95.8	86.5
Crop and livestock.....	97.0	98.4	98.8	98.4	99.2	93.1	80.9
Miscellaneous.....	94.5	98.1	96.7	96.9	95.1	93.5	87.7

Index of home facilities.—The 1954 Census of Agriculture obtained information relating to whether certain facilities and conveniences were in the farm home. The existence of these facilities in farm homes provides a general indication of levels of household living. As a means of comparing the relative extent to which operator families on different types and economic classes of farms have been able to have these home conveniences, they have been summarized into an index of home facilities. (See table 55.)

The index is based on the following items: Telephone, television, piped running water, home freezer, and automobile. Electricity in the home was not included since several of the other items are directly related to the availability of electricity there and it is known that electricity is now available in most of the farm-operator homes. The automobile is not thought of as a household

facility in the same sense as the other items. As a means of transportation, however, it represents a convenience that is important in indicating relative levels of living.

In computing the index, the sum of the farms reporting each item for each type and class of farm was divided by the total number of farms in the group. On this basis the highest possible score (if each farm in the group reported each item) was 5. The score obtained for each type and economic class of farm was then divided by the score for all commercial farms; thus, the index is constructed to show each type and economic class of farm as a percentage of the average for all commercial farms.

TABLE 55.—INDEX OF SPECIFIED HOME FACILITIES, COMMERCIAL FARMS BY ECONOMIC CLASS AND TYPE, FOR THE UNITED STATES: 1954

[Total commercial farms=100¹]

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
All commercial farms.....	100	153	145	124	96	75	52
Cash-grain.....	117	153	143	123	106	98	74
Cotton.....	48	147	122	83	51	36	24
Other field-crop.....	60	152	132	89	62	50	32
Vegetable.....	116	145	150	134	119	104	107
Fruit-and-nut.....	125	150	140	130	120	113	87
Dairy.....	121	166	157	140	117	94	65
Poultry.....	120	152	135	125	119	115	92
Livestock other than dairy and poultry.....	110	155	147	129	113	101	71
General:							
Primarily crop.....	97	154	137	111	90	81	63
Primarily livestock.....	115	165	152	133	112	96	73
Crops and livestock.....	111	160	149	127	105	87	63
Miscellaneous.....	114	147	139	128	113	101	71

¹ Index based on farms reporting 1 or more of the following items of specified facilities and equipment: Telephone, television set, piped running water, home freezer, and automobile.

With the exception of cotton and other field-crop farms, each type of farm was above or approximately equal to the average for all commercial farms. The indexes of 48 on cotton farms and 60 on other field-crop farms indicate that these farms reported only about half as many of the specified facilities as most other types.

Within each type of farm the level of home conveniences was related to economic class of farm. This is to be expected since the economic classification based upon gross sales may indicate roughly relative levels of income. Home facilities and conveniences depend largely upon the incomes the families on these farms have at their disposal. For most types of farms the operators on Class V and Class VI farms reported only one-fourth to one-third as many of the specified items.

The fact of fewer home facilities on cotton and other field-crop farms is due chiefly to the much larger proportion of these types that fall in the smaller economic classes. Classes I and II cotton and other field-crop farms have an index that is fairly similar to the commercial farm average for these classes. For Classes III through VI, however, the indexes for cotton and other field-crop farms were substantially below the indexes for these classes among other types.