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United States Census of Agriculture: 1954

Volume 1
COUNTIES AND STATE ECONOMIC AREAS
Part 14
Delaware and Maryland

Prepared under the supervision of
RAY HURLEY
Chief, Agriculture Division

FARMS • FARM CHARACTERISTICS •
LIVESTOCK and PRODUCTS • CROPS • FRUITS • VALUES •

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PREFACE

Volume I, Counties and State Economic Areas, is one of the three principal reports presenting the results of the 1954 Census of Agriculture. This volume, in 33 parts, presents the compilation of the information given by farm operators to Census enumerators in 1954.

The 1954 Census of Agriculture was taken in conformity with the Act of Congress (Title 13, United States Code) approved August 31, 1954, which includes provisions for the mid-decade censuses of agriculture.

The collection of the data was carried out by Census enumerators directed by supervisors appointed by the Director of the Census and working under the direction of Jack B. Robertson, then Chief, Field Division. Ernest R. Underwood, then special Assistant to the Director, was responsible for the recruitment of the field staff. The planning of the census and the compilation of the statistics were supervised by Ray Hurley, Chief, Agriculture Division, and Warder B. Jenkins, Assistant Chief. They were assisted by Hilton E. Robison, Orvin L. Wilhite, Hubert L. Collins, Benjamin J. Tepping, Lois Hutchison, Carl R. Nyman, J. Thomas Breen, Robert S. Overton, Merton V. Lindquist, Russell V. Oliver, Charles F. Frazier, Gladys L. Eagle, Orville M. Slye, Gaylord G. Green, Harold N. Cox, and Henry A. Tucker.

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July 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 as follows:

Part	State or States	Part	State or States	Part	State or States
1	New England States:		West North Central:		East South Central—Continued
	Maine.	8	Minnesota.	21	Alabama.
	New Hampshire.	9	Iowa.	22	Mississippi.
	Vermont.	10	Missouri.		West South Central:
	Massachusetts.	11	North Dakota and South Dakota.	23	Arkansas.
	Rhode Island.			24	Louisiana.
	Connecticut.	12	Nebraska.	25	Oklahoma.
2	Middle Atlantic States:	13	Kansas.	26	Texas.
	New York.		South Atlantic:		Mountain:
	New Jersey.	14	Delaware and Maryland.	27	Montana.
	Pennsylvania.	15	Virginia and West Virginia.	28	Idaho.
	East North Central:	16	North Carolina and South Carolina.	29	Wyoming and Colorado.
3	Ohio.			30	New Mexico and Arizona.
4	Indiana.	17	Georgia.	31	Utah and Nevada.
5	Illinois.	18	Florida.		Pacific:
6	Michigan.		East South Central:	32	Washington and Oregon.
7	Wisconsin.	19	Kentucky.	33	California.
		20	Tennessee.		

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 as illustrated by the chapter titles listed below:

Chapter	Title	Chapter	Title
I	Farms and Land in Farms.	VII	Field Crops and Vegetables.
II	Age, Residence, Years on Farm, Work Off Farm.	VIII	Fruits and Nuts, Horticultural Specialties, Forest Products.
III	Farm Facilities, Farm Equipment.	IX	Value of Farm Products.
IV	Farm Labor. Use of Fertilizer, Farm Expenditures, and Cash Rent.	X	Color, Race, and Tenure of Farm Operator.
V	Size of Farm.	XI	Economic Class of Farm.
VI	Livestock and Livestock Products.	XII	Type of Farm.

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 to be 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 subregions, (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.

DELAWARE AND MARYLAND

CONTENTS

INTRODUCTION

	Page
History and legal basis	IX
Plan of presentation of statistics	IX
Operations for 1954 Census	X
DEFINITIONS AND EXPLANATIONS	
Specified farms	XII
General Farm Information	
Date of enumeration	XII
A farm	XII
Enumeration of land located in more than one county	XIII
Farm operator	XIII
Farms reporting or operators reporting	XIII
Land owned, rented, and managed	XIII
Land area	XIV
Land in farms	XIV
Land in farms according to use	XIV
Value of land and buildings	XV
Age of operator	XV
Residence of farm operator	XV
Years on present farm (year began operation of present farm)	XV
Off-farm work and other income	XV
Specified facilities and equipment	XV
Classification of farms by class of work power	XV
Farm labor	XVI
Fertilizer and lime	XVI
Specified farm expenditures	XVI
Farm-mortgage debt	XVII
Crops	
Crops harvested	XVII
Corn	XVII
Annual legumes	XVII
Hay crops	XVII
Clover seed, alfalfa, grass, and other field seed crops	XVII
Irish potatoes and sweetpotatoes	XVII
Berries and other small fruits	XVIII
Tree fruits, nuts, and grapes	XVIII
Nursery and greenhouse products	XVIII
Value of crops harvested and value of crops sold	XVIII
Forest products	XVIII
DEFINITIONS AND EXPLANATIONS—Continued	
Irrigation	
Irrigated farms	XIX
Land irrigated	XIX
Irrigated land in farms according to use	XIX
Farms with all harvested crops irrigated	XIX
Irrigated crops harvested	XIX
Land-Use and Conservation Practices	
Land in cover crops turned under for green manure	XIX
Stripcropping	XIX
Cropland used for grain or row crops farmed on the contour	XIX
Livestock and Poultry	
Milk cows; cows milked; milk sold	XIX
Sows and gilts farrowing	XIX
Sheep and lambs and wool	XIX
Goats and mohair	XX
Bees and honey	XX
Value of livestock on farms	XX
Livestock products	XX
Sales of live animals	XX
Poultry and poultry products	XX
Sampling	
Description of the sample for the 1954 Census	XX
Adjustment of the sample	XX
Method of estimation	XX
Reliability of estimates based on the sample	XX
Differences in data presented by counties and by State economic areas	XXI
Classification of Farms	
Farms by size	XXI
Farms by tenure of operator	XXI
Farms by color or race of operator	XXII
Farms by economic class	XXII
Farms by type	XXII
Value of farm products sold	XXIII

Item	Delaware	Maryland
Chapter A—STATISTICS FOR THE STATE		
State Table—	Page	Page
1.—Farms, acreage, and value: Censuses of 1920 to 1954	3	101
2.—Farms and farm acreage according to use, by size of farm: Censuses of 1920 to 1954	4	102
3.—Farms and land in farms, by color and tenure of operator: Censuses of 1920 to 1954	10	108
4.—Farms and farm characteristics, by color and tenure of operator: Census of 1954	12	110
5.—Farm operators by color, residence, off-farm work, age, and years on present farm: Censuses of 1920 to 1954	30	128
6.—Farms by class of work power and specified facilities and equipment: Censuses of 1920 to 1954	30	128
7.—Farm labor and specified farm expenditures: Censuses of 1920 to 1954	31	129
8.—Hired farm labor and wage rates by economic class: Census of 1954	32	130
9.—Hired farm labor and wage rates by color and tenure of operator: Census of 1954	34	132
10.—Hired farm labor and wage rates by type of farm: Census of 1954	40	138
11.—Date of enumeration: Censuses of 1954, 1950, and 1945	42	140
12.—Comparability of data on livestock and poultry: Censuses of 1920 to 1954	43	141
13.—Livestock and livestock products: Censuses of 1920 to 1954	44	142
14.—Farms reporting specified number of cattle on hand: Censuses of 1954 and 1950; farms reporting specified number of livestock on hand or sold alive: Census of 1954	46	144
15.—Nursery, greenhouse, and forest products: Censuses of 1920 to 1954	47	145
16.—Specified crops harvested: Censuses of 1920 to 1954	48	146
17.—Farms reporting by specified acres, quantity harvested, and quantity sold for specified crops: Census of 1954	52	151
18.—Sampling reliability of estimated totals for county, economic area, and State by number of farms reporting, by levels	54	153
19.—Indicated level of sampling reliability of estimated county, economic area, and State totals for specified items	54	153

CONTENTS

Item	Delaware	Maryland
Chapter B—STATISTICS FOR COUNTIES	Page	Page
Map of the State showing counties, county seats, and principal cities	59	157
County Table—		
1.—Farms, acreage, value, and farm operators: Censuses of 1954 and 1950	60	158
2.—Farms by color and tenure of operator: Censuses of 1954 and 1950	61	160
2a.—Farms by tenure, by color of operator: Census of 1954	62	162
3.—Farms by size of farm and by type of farm: Censuses of 1954 and 1950	63	164
4.—Value of farm products sold by source: Censuses of 1954 and 1950	64	166
5.—Farms by economic class, by class of work power, off-farm work and other income, and facilities and equipment: Censuses of 1954 and 1950	65	168
6.—Farm labor and specified farm expenditures: Censuses of 1954 and 1950; and use of commercial fertilizer: Census of 1954	66	170
7.—Livestock and livestock products: Censuses of 1954 and 1950	67	172
8.—Nursery, greenhouse, and forest products: Censuses of 1954 and 1950	69	178
9.—Specified crops harvested: Censuses of 1954 and 1950	70	180
Chapter C—STATISTICS FOR STATE ECONOMIC AREAS		
Map of the State showing State economic areas	77	193
Economic Area Table--		
1.—Farms, acreage, value, and use of commercial fertilizer, by economic class of farm: Censuses of 1954 and 1950	78	194
2.—Farm facilities, off-farm work, work power, farm labor, and farm expenditures, by economic class of farm: Censuses of 1954 and 1950	80	202
3.—Livestock on hand, livestock sold, and specified crops, by economic class of farm: Censuses of 1954 and 1950	82	210
4.—Farms, acreage, value, and use of commercial fertilizer, by type of farm: Censuses of 1954 and 1950	84	218
5.—Farm facilities, off-farm work, work power, farm labor, and farm expenditures, by type of farm: Censuses of 1954 and 1950	86	226
6.—Livestock on hand, livestock sold, and specified crops, by type of farm: Censuses of 1954 and 1950	88	234
7.—Farms, acreage, value, and use of commercial fertilizer, by tenure of operator: Censuses of 1954 and 1950	90	242
8.—Farm facilities, off-farm work, work power, farm labor, and farm expenditures, by tenure of operator: Censuses of 1954 and 1950	92	250
9.—Livestock on hand, livestock sold, and specified crops, by tenure of operator: Censuses of 1954 and 1950	94	258
10.—Farms reporting, number of cows, and dairy products sold, by number of milk cows, for all commercial farms and dairy farms: Census of 1954	96	266
11.—Farms reporting, number of chickens, and poultry poruducts sold, by number of chickens on hand, for all commercial farms and poultry farms: Census of 1954	97	267
12.—Farm labor: Census of 1954	98	268

APPENDIX

The 1954 Census of Agriculture Questionnaire....270
Enumerator's Record Book....274
Index to tables....275

INTRODUCTION

INTRODUCTION

This report presents data relating to the agriculture of the United States based on the most recent census of agriculture taken in the fall of 1954. The tables also include some comparative data from earlier censuses.

History and legal basis.—The current census extends the number of nationwide agricultural censuses to 16. Initially, an agricultural enumeration was taken in conjunction with the Decennial Census of Population in 1840. Congress first provided for a mid-decennial census for the year 1915; however, abnormalities created by World War I prevented the taking of this census. Since 1920, a national agricultural census has been taken each five years.

The 1954 Census of Agriculture was authorized by an Act of Congress approved June 18, 1929, and amended July 16, 1952. Section 16 of the Act, as amended, reads as follows: "That there shall be taken, beginning in the month of October 1954, and in the same month of every tenth year thereafter, a census of agriculture. The census herein provided for shall include each State, but shall not include the District of Columbia, Alaska, Hawaii, Puerto Rico, or such other areas or territories over which the United States exercises sovereignty or jurisdiction: Provided, however, that as to the areas excluded from such census it is directed that data available from various Government sources shall be included as an appendix to the report of such census. The Secretary of Commerce is authorized to collect such preliminary or supplementary statistics, either in advance of, or after the taking of such census, as are necessary to the initiation, taking, or completion thereof. The inquiries, and the number, form, and subdivisions thereof for the census provided for in this section shall be determined by the Secretary of Commerce."

The initial appropriation for map preparation, field enumeration, and a part of the office processing was obtained under this authority. Subsequently, the Congress, in a code revision approved August 31, 1954, incorporated the provisions for all censuses in a code which may be cited as "Title 13, United States Code."

The request for funds for fiscal year 1954 included funds for preparatory work for a complete census of agriculture to be taken in the fall of 1954. This request was not approved by the Congress. However, a limited appropriation was made for expenses for "spot checking business, manufactures, and agriculture in such manner as the Secretary of Commerce should decide to be most helpful and informative to said undertakings." Since one of the important uses of quinquennial agricultural census statistics is to serve as a benchmark for the annual estimates of production and inventories prepared by the United States Department of Agriculture, the assumption was made that a "spot check" should provide reliable totals for a limited number of items by States and major producing areas. Accordingly, a sample census was conducted as a pretest of procedures in Utah and Virginia, beginning in October 1953. These surveys are more fully described in separate reports for those two States, published in 1954.

Congress, in an appropriation Act approved July 2, 1954, appropriated $16,000,000 for the expenses necessary for taking, compiling, and publishing the 1954 Census of Agriculture, as authorized by law. Additional funds, amounting to $5,500,000, were appropriated in 1955 in order to complete the work on the 1954 Census.

Plan of presentation of statistics.—This report follows the same general plan of presentation as that for 1950, the last complete census of agriculture. The report is a part of Volume I which comprises 33 reports. Each part of Volume I presents the data for each county and each State economic area for one or more States as well as State totals for those States for which county and State economic area data are shown. Statistics are most revealing when comparisons are available. Therefore, comparable data gathered in the 1950 Census of Agriculture are given for counties and for State economic areas. Comparative data for the States are given for each successive census year beginning with 1920. However, for some items, the data obtained in 1954 are the only ones available.

The tables provide totals for counties for nearly all items for which information was obtained in the 1954 Census. However, most data by economic class of farm, type of farm, and color and tenure of farm operator are presented only for State economic areas. State economic areas represent groupings of counties within a State. Outside of metropolitan areas, the State economic areas are, in general, the same as State type-of-farming areas. (A description of State economic areas is given in a Special Report of the 1950 Census, entitled "State Economic Areas: A Description of the Procedure Used in Making a Functional Grouping of the Counties in the United States.") A map showing the State economic areas is shown at the beginning of Chapter C of this report.

The Act of Congress excluded from the field enumeration the agriculture in Alaska, Hawaii, Puerto Rico, District of Columbia, and U. S. possessions. Available statistics, obtained from other sources, for these areas are included in Part 3 of Volume III.

Data for most of the items included in the 1954 Census of Agriculture, as in prior censuses, were tabulated for "minor civil divisions" or areas smaller than counties. The term "minor civil division" is applied to the primary subdivisions of the counties. These may be townships, precincts, districts, independent municipalities, unorganized territory, etc. The figures for these smaller areas are not included in any of the regular reports. However, it is possible to obtain data for small geographic areas, as heretofore, by paying the cost of checking the data and preparing the necessary statistical tables.

Prior to the 1954 Census, an enumeration district did not include more than one minor civil division, even though the township, precinct, or the like often did not have enough farms to provide a full workload for an enumerator. The aim in establishing the 1954 enumeration districts was to make them large enough to keep each enumerator fully occupied in his area for a three-week, or possibly a four-week, period. Hence, some enumeration districts included more than one minor civil division. Such combined minor divisions were always adjacent. An enumeration district never comprised the whole of one minor civil division and a part of another nor a part of two or more minor civil divisions. A minor civil division which included too many farms for one enumerator was divided into two or more enumeration districts.

The tabulations, as made by machines, in some cases provided totals for a single minor civil division—even though that required a grouping of enumeration districts—and, in other cases, they provided totals for two or more minor civil divisions combined. In the latter instance, the small-area data will be readily available only for combined totals for adjoining minor civil divisions. If there is need for making a separation of the data for such combinations, this is possible at some additional

cost, since each questionnaire contains the name of the minor civil division in which the farm headquarters was located.

Operations for 1954 Census.—The Act providing for the 1954 Census of Agriculture states that "the inquiries, and the number, form, and subdivision thereof . . . shall be determined by the Secretary of Commerce." The staff of the Bureau of the Census prepared the questionnaire for the 1954 Census of Agriculture on the basis of experience obtained in prior censuses, on the basis of an analysis of the sample survey for the States of Utah and Virginia for the calendar year 1953, and on the basis of the advice of a Special Advisory Committee for the 1954 Census of Agriculture. The Advisory Committee comprised representatives of the U. S. Department of Agriculture, State Agricultural Colleges, State Departments of Agriculture, The American Farm Economic Association, The American Statistical Association, The Association of Land-Grant Colleges and Universities, The Agricultural Publishers Association, The Farm Equipment Institute, The American Farm Bureau Federation, The National Grange, The National Council of Farmers' Cooperatives, and the Farmers' Educational and Cooperative Union of America.

The Special Advisory Committee had also assisted in deciding the inquiries to be included on the questionnaire for the 1953 Sample Census for Utah and Virginia. During the planning, State Agricultural Colleges, the U. S. Department of Agriculture, and other major users of data from the census of agriculture were asked to submit suggested inquiries for the census. The number of inquiries recommended greatly exceeded the number that could be included in the census. The Special Advisory Committee and the staff of the Bureau recommended the inclusion or exclusion of these inquiries after giving consideration to the possibilities of obtaining the information in some way other than through the census of agriculture, to the adequacy of the information that might be secured in the census, to the availability of data from other sources, and to the usefulness of the data, etc. This committee reviewed the plans and questionnaires for the 1953 sample enumeration and the 1954 Census of Agriculture as they were developed, and submitted recommendations regarding these plans and questionnaires.

The content of the 21 regional questionnaires (one for each State or group of adjacent States) was similar to that of the questionnaires used for the Utah and Virginia sample surveys conducted in 1953. There were variations region by region in the questionnaires to provide for differences in crops grown, in livestock production, and in cultural practices. Also, the positions of inquiries were changed in order to provide for the enumeration of some items for a limited number of farms even though other inquiries were made for all farms.

An agricultural census that collects vast quantities of reliable information requires that all employees be trained and that they adhere carefully to prescribed procedures as well as time schedules. For the 1954 Census of Agriculture, the Bureau devised a training program so that all employees received instructions for the respective jobs. In most instances, training sessions were held near the areas in which employees worked and immediately prior to the beginning of their assignments.

The 1954 enumeration required approximately 30,000 enumerators who were supervised by some 2,200 crew leaders. These persons were supervised by 119 field offices organized under five regional offices. From October 4 to November 8, 1954, depending upon the State and the area, trained enumerators began their work. Their work was to obtain for every farm the required information about that farm's operations, such as its crops, livestock, poultry, farm expenses, equipment and facilities, and some facts about the farm operator.

About two weeks before the census starting date, questionnaires were distributed to all box holders on the rural postal routes in all except a few Southern States. The questionnaire was accompanied by a letter asking the farm operator to examine it and to answer as many of the questions as possible prior to the visit of the census enumerator. By this procedure, the Bureau expected to expedite the work of the enumerator and to improve the quality of the information given by farmers. By reading the questionnaire, farmers knew what was wanted and could check their records in advance of the enumerator's visit.

A good census requires a complete as well as an accurate enumeration. Several techniques were used to help obtain a good census in 1954.

Instructions covering census procedures were designed in such a manner that objective criteria were supplied, and enumerators were not expected to rely on their own opinions or judgments concerning census entries or classifications. For example, an enumerator was required to complete an agriculture questionnaire when specified conditions were met. He was *not* required to decide first what constituted a farm and then to obtain a questionnaire. Instead, a questionnaire was completed whenever minimum conditions were satisfied. Then, during central office processing operations, a decision was made—on the basis of carefully defined criteria—as to which questionnaires represented farms.

To help in insuring the completeness of the enumeration, enumerators were provided with a specially designed Enumerator's Record Book in which to list heads of households for the dwellings in their enumeration districts and names of the tenants or owners for places on which no one lived. The Enumerator's Record Book contained questions about the agricultural operations on the place. The answers to these questions determined whether an agriculture questionnaire was required for the place and, also, whether this enumerator or an enumerator in another enumeration district was required to fill out the questionnaire.

In order to minimize the cost of the enumeration, procedures were developed to limit the listing of heads of households and of other places in urban areas, incorporated places, and built-up residential areas. In accordance with these procedures, enumeration districts were classified, prior to the enumeration, into three groups on the basis of the density of dwellings in relation to the number of farms according to the 1950 Censuses of Agriculture and Population.

In general, the enumeration districts with no well-defined cluster of dwellings were considered to be open-country areas and were classified as Group I Enumeration Districts. For Group I Enumeration Districts the enumerator was required to list in his Enumerator's Record Book the name of the head of each household within his district. If no one lived on a tract of land, he was required to list the name of the person who rented the land, worked it on shares, used it for livestock, or, if the land was not used for agricultural purposes, the name of the owner. There were approximately 15,300 Group I Enumeration Districts. These enumeration districts contained 2,778,000 farms and 4,263,000 dwelling units in 1950.

The rural enumeration districts in which the number of dwellings was large in relation to the number of farms were classified as Group II Enumeration Districts. In these enumeration districts the enumerator was required to list all dwelling places in his district except those on less than one acre of land in built-up residential areas, such as small incorporated or unincorporated villages or the built-up areas adjacent to towns or cities. He was also required to determine, by asking locally, whether there were any farms or any places of one or more acres within the built-up areas. Outside the built-up areas he was required to list the head of every household. There were approximately 14,800 enumeration districts classified as Group II. These enumeration districts had 8,974,000 dwelling units and 2,420,000 farms in 1950.

Most incorporated places and unincorporated villages with approximately 150 or more dwellings were classified as Group III Enumeration Districts. There were approximately 11,000 such enumeration districts and these contained 161,000 farms in 1950. For Group III Enumeration Districts, the enumerator was given a list of farm operators enumerated in the 1950 Census of Agriculture and was instructed to visit each place listed and find out

whether an agriculture questionnaire was required. Any place used for agriculture was to be listed in his Enumerator's Record Book and an agriculture questionnaire was to be obtained. If the place was no longer used for agriculture, an explanation was to be made on the list furnished the enumerator. The enumerator was instructed to ask at each of these places whether there were any other farms or any places of 3 or more acres in the neighborhood.

A few enumeration districts that comprised an incorporated place or that were within an incorporated city were classified as Group I or Group II if the number of farms was large. Also, a few very extensive rural districts requiring considerable travel were classified in Group III when the number of farms was small.

The method prescribed for canvassing an enumeration district helped to insure complete coverage. The enumerator was instructed to proceed in a systematic manner from a logical starting point. He listed each place and each dwelling on successive lines in the Enumerator's Record Book. In addition, he was required to identify these on his enumerator's map with a cross reference to the Enumerator's Record Book. This procedure helped him to determine, by looking at his map, the extent of coverage at any given time. It also helped the crew leader in checking to see that coverage was complete.

Some farms were given special attention to insure their inclusion in the enumeration. Prior to the enumeration, a list known as "specified farms" was prepared from records of the 1950 Census of Agriculture. Farms having unusually large agricultural operations were included in this list. During the enumeration a careful check was made to see that each place on the specified-farm list was accounted for. This procedure helped to insure that units which could have a significant effect upon the census data were not omitted from the enumeration. (For a detailed explanation of specified farms, see page XII.)

Some farm units other than specified farms also received special attention to insure complete coverage. Prior to the field enumeration, lists were obtained of places known to be specializing in specific types of agricultural production, such as garbage-feeding operations, broiler operations, large turkey farms, livestock feed lots, cranberry bogs, and citrus groves. For some of these operations, the list represented a nationwide effort to insure coverage, while for others, only some of the intensive areas of production were given this special attention. These lists were prepared, in part, with the cooperation of the Agricultural Marketing Service of the U. S. Department of Agriculture and State Agricultural Statisticians. During the enumeration, the enumerator was required to obtain a questionnaire for each place or otherwise satisfactorily account for each place on the list of specified farms or on other special lists.

Some areas of the High Plains required special consideration since the usual enumeration procedure was complicated by the prevalence of nonresident operators and widely scattered tracts operated as one farm. In these areas a special mapping form was used to insure complete coverage. Land was checked off on the mapping form by section, township, and range as it was enumerated. This check map, designed for plotting sections within a township, was subdivided into 16 parts of 40 acres each. Enumerators were required to indicate on this form all land in farms that they enumerated. Cross references were made between the questionnaire and the map. The enumerator identified land for a given questionnaire on his check map by writing the number identifying the questionnaire in each corresponding 40-acre square of the check map. The check map helped the enumerator and, subsequently, the crew leader and other personnel reviewing the enumerator's work to determine whether the coverage of the enumeration district was complete. This procedure was used in all of North Dakota and South Dakota and selected counties in Colorado, Kansas, Montana, Nebraska, New Mexico, and Oklahoma. In general, the areas for which such maps were used corresponded with the major wheat-producing sections with low rainfall.

A special supplementary questionnaire was used in approximately 900 counties in the South. This questionnaire, designated the Landlord-Tenant Questionnaire, aided in the enumeration of cropper and other tenant farms which were parts of larger landholdings. This additional form was completed when two or more agriculture questionnaires were needed for a landholding. Since it called for the name and agricultural operations of each tenant on the landholding, the procedure enabled an enumerator to determine that all operations were reported completely and only once. The Enumerator's Record Book, used in these selected southern counties, differed from that used elsewhere. The southern version helped the enumerator to identify the landholdings for which this supplementary landlord-tenant form was required.

Crew leaders, in supervising enumerators, began reviewing questionnaires, maps, and other forms and checking the enumerator's work for completeness of coverage and quality almost as soon as the enumeration was started. The crew leader and his enumerators were required to make the records of their respective areas as accurate and as complete as possible.

While assembling records, the field processing offices also made certain checks. Although these offices performed no detailed editing of questionnaires, some steps were taken to detect enumeration districts in which the enumerator's work was not fully satisfactory, especially in regard to coverage. The 26 processing offices were given a form, for each county, which contained data from the 1950 Census for the number of farms and land in farms. Where possible, this form gave the 1950 comparative data for the enumeration districts or for the minor civil divisions comprising each county. For most counties, it was possible to furnish, at the county level, an additional check figure. This figure was the acreage of one of the following crops: wheat, corn, cotton, tobacco, or rice. In most instances, these check figures represented measured acreages (before harvest) as determined by the Commodity Stabilization Service of the U. S. Department of Agriculture. By checking totals for the enumeration districts with these check data, it was possible to determine and remedy obvious underenumeration before records were released from field processing offices. The 1954 totals for the county, together with the check data, were sent to the Washington office for review and approval before the enumeration was considered acceptable.

After the canvass of an enumeration district was completed, the supervising crew leader collected the questionnaires and other records from the enumerator and sent them to the processing office for his area. The processing offices made some checks on the enumeration in each enumeration district. In this checking, emphasis was placed upon preparation of payrolls, completeness of coverage, and the correct application of the sampling procedure.

The final operations for the agricultural census were handled in central offices. The Washington office was the focal point of these activities; but, for the first time, some of the agricultural census operations were decentralized into areas outside of Washington. Census operations offices were established at Detroit, Michigan and Pittsburg, Kansas.

Upon their release from field processing offices, records were transferred to the two Census operations offices. Although there were exceptions, in general, records from the Northern and Northeastern States were sent to the Detroit office and those from Southern and Western States were sent to Pittsburg, Kansas. At these offices, questionnaires were edited and coded and the information was entered on punch cards for tabulation.

In the operations offices, the checking, editing, and coding were performed for individual agriculture questionnaires. The checking consisted of seeing (1) that the questionnaires were completely filled out; (2) that the acreage of individual crops harvested was in reasonable agreement with the acreage of cropland harvested when 100 or more acres of cropland harvested were

reported; (3) that the acres of land classified according to use accounted for the entire farm acreage for farms having 200 acres or more; (4) that the total of the acreage for the various uses of corn, sorghum, soybeans, cowpeas, and peanuts was in reasonable agreement with the total acreage reported for all purposes for each of these crops; (5) that the age and sex breakdown for cattle, hogs, and sheep added to approximately the total number of such animals of all ages; and (6) that all entries for related items were reasonably consistent. Editing consisted of the identification and withdrawal of questionnaires filled for places not qualifying as farms; the selection of questionnaires with entries of unusually large size for review by the technical staff; the selection of groups of questionnaires with common reporting errors in an individual enumeration district for referral to technical personnel for review; and the correction of obvious inconsistencies, such as reporting in an incorrect unit, or reporting in an improper place on the questionnaire. Coding consisted of entering code numbers for crops for which there were no separate inquiries on the questionnaire, for color and tenure of operator, and for irrigation; and, for a sample of farms, of entering codes for economic class of farm and type of farm. Entries determined by the technical staff to be in error were corrected on the basis of relationships existing on nearby farms or, if the entries were large, on the basis of correspondence with the farm operator. In case of information missing for a group of questions, estimates were prepared on the basis of adjacent questionnaires for farms with similar operations and, in some cases, on the basis of information obtained by mail from farm operators. When estimates were made, letters were mailed to the farm operators to verify the information and, if the estimates were not in reasonable agreement with the information contained in the replies, the entries were corrected before the tabulations were made.

After punch cards were prepared, the punch cards, together with records containing the corresponding basic data, were forwarded to the Washington office for tabulation. Once on punch cards, the data were sorted, listed, or otherwise handled mechanically to facilitate making final checks and to obtain totals. One of the initial and primary steps in the machine handling of the punch cards was to separate those cards which lacked necessary information, those on which the punched data were inconsistent or impossible, and those on which the relationships were possible but the data were of such magnitude that a further review of the individual questionnaires was warranted. These cards containing questionable data or lacking data were examined, checked to the agriculture questionnaires, and corrected, if necessary, before the tabulations were made.

Finally, tabulations were examined from the standpoint of over-all reasonableness and consistency. This examination required the judgment of specialists and was the primary responsibility of senior Census staff members. However, qualified State personnel of the Agricultural Marketing Service, U. S. Department of Agriculture, assisted in examining the data, especially those for crops and livestock, evaluating the results, and calling attention to the situations for which further checking was necessary.

DEFINITIONS AND EXPLANATIONS

Specified farms.—"Specified farms" refers to the larger farms that were selected for special handling during the enumeration and during the processing of the agriculture questionnaires. Although the criteria for their selection have varied since this technique was first used in the 1945 Census of Agriculture, the basic purposes for employing this technique have not changed. One purpose for using a list of specified farms was to help to get a complete enumeration.

The criteria for selecting specified farms were kept as simple as possible in order to facilitate the work of enumeration. In most States, only one item was considered in classifying farms as "specified." The following are the criteria used for the 1954 Census:

Criteria	Area
Land in the farm—1,000 acres or more	All States
Cropland harvested:	
200 acres or more	Florida
500 acres or more	Michigan, Minnesota, N. W. Missouri, Wisconsin
Irrigated cropland harvested:	
200 acres or more	Arizona, California, Louisiana
Cattle and calves:	
100 or more	Alabama, Mississippi, N. W. Missouri
200 or more	Louisiana
Milk cows:	
100 or more	Arizona, California, Florida
Chickens sold:	
70,000 or more	Delaware, Maryland, West Virginia

Occasionally, a farm which did not meet any of the criteria chosen, but which bulked large in respect to some other farm characteristics, had to be treated as a specified farm to reduce its effect on the results based on a sample of farms.

In terms of total agricultural production, the operators of specified farms account for a significant part of the total production. For example, in the 1950 Census, 71,328 farms (then designated "large" farms) were handled on a special basis. Although this number was only 1.3 percent of all farms, these "large" farms accounted for 17.3 percent of the value of all farm products sold and 33.1 percent of all land in farms. The criteria used for establishing the group of specified farms for special handling in the 1954 Census resulted in more than twice as many farms (147,000 in the 1954 Census as compared with 72,000 in 1950) being given special attention.

General Farm Information

Date of enumeration.—The enumeration of the 1954 Census of Agriculture was made during the latter part of 1954. In the 1950 Census the starting date for the enumeration was April 1. The 1954 Census beginning dates were varied by areas or States, ranging from October 4 to November 8. In general, the varied starting dates were based upon (1) selecting dates late enough for the enumeration to follow the harvesting of the bulk of important crops, (2) setting the dates early enough to avoid undesirable weather and travel conditions during the enumeration, and (3) arranging for the enumeration to be substantially completed prior to customary dates when farm operators move from one farm to another. The average date of enumeration for the 1954 Census for each county is given in County Table 7, and the percentage of farms enumerated by various dates for the State and the date or dates for the starting of the enumeration are given in State Table 11.

Information for inventory items is based on the situation as of the actual day of enumeration. Data on acreage and quantity of crops harvested are for the crop year 1954. Data on sales of crops relate to crops harvested in the year 1954 regardless of when sold; data on sales of livestock products relate to the production and sales during the calendar year 1954. Since the period to be included was not yet completed for some items at the time of enumeration, special emphasis was placed upon including accurate estimates for such items for the remainder of the period. For example, the question relating to dairy products stated, "Be sure to include dairy products which you will sell before January 1, 1955."

A farm.—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 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.

For the 1954 Census, enumerators were instructed to obtain an agriculture questionnaire for all places that the operator considered a farm and for all places having during 1954 (1) any hogs, cattle, sheep, or goats; (2) any crops such as corn, oats, hay, or tobacco; (3) 20 or more chickens, turkeys, and geese; (4) 20 or more fruit trees, grapevines, and planted nut trees; or (5) any vegetables, berries, or nursery or greenhouse products grown for sale. Thus, agriculture questionnaires were filled for more places than those qualifying as farms.

The determination as to which reports were to be included in the tabulations as farms was made during the central office processing of questionnaires.

For the 1945 and earlier censuses of agriculture, the definition of a farm was somewhat more inclusive. Census enumerators were provided with the definition of a farm and were instructed to fill reports only for those places which met the criteria. From 1925 to 1945, farms for census purposes included places of 3 or more acres on which there were agricultural operations, and places of less than 3 acres with agricultural products for home use or for sale with a value of $250 or more. For places of 3 or more acres, no minimum quantity of agricultural production was required for purposes of enumeration; for places of under 3 acres all the agricultural products valued at $250 or more may have been for home use and not for sale. The only reports excluded from the tabulations were those taken in error and those with very limited agricultural production, such as only a small home garden, a few fruit trees, a very small flock of chickens, etc. In 1945, reports for places of 3 acres or more with limited agricultural operations were retained if there were 3 or more acres of cropland and pasture, or if the value of products in 1944 amounted to $150 or more when there was less than 3 acres of cropland and pasture.

Because of changes in price level, the $250 limit for value of products for farms under 3 acres resulted in the inclusion of varying numbers of farms in the several censuses prior to 1950.

The change in the definition of a farm in 1950, and continued in 1954, resulted in a decrease in the number of farms as compared with earlier censuses, especially in the number of farms of 3 or more acres in size. Places of 3 or more acres with a value of agricultural products of less than $150 were not counted as farms in the 1954 and 1950 Censuses. In some cases, these places would have been counted as farms if the criteria used in 1954 and 1950 had been the same as those used in previous censuses. The change in the definition of a farm had no appreciable effect on the totals for livestock or crops, for the places affected by this change ordinarily accounted for less than 1 percent of the total for a county or State.

There are two figures published for the number of farms for each county in 1954. One is an actual count of all farms enumerated, and the other is an estimate based upon the number of sample farms multiplied by 5, plus the number of specified farms. In almost every county, the actual number of farms and the estimated number of farms differ. Because of sampling variability, the selection of the sample of farms seldom resulted in the inclusion of exactly 20 percent of the non-specified farms. The number of farms in the sample in a county was accepted if this number was within predetermined limits. The counties that were not acceptable were adjusted to bring the number of sample farms within the predetermined limits.

Therefore, the actual number of farms in the sample is more or less than 20 percent in most instances. Similarly, the estimated total for information obtained for the sample of farms may be slightly more or slightly less than the totals which would have been obtained if the data had been tabulated for all farms. Therefore, occasionally the estimated number of farms reporting for some items may be greater than the total number of farms enumerated. The estimated number of farms is shown in the tables so that estimates based on the farms in the sample can be related to the estimated number of farms rather than to the actual number of farms.

Enumeration of land located in more than one county.—Land in an individual farm may be located in two or more counties. In such case, the entire farm was enumerated in only one county. If the farm operator lived on the farm, the farm was enumerated in the county in which the farm operator lived. If the farm operator did not live on the farm, the figures for the farm were included in the county in which the farm headquarters was located. If there was any question as to the location of the headquarters of the farm, the farm was included in the county in which most of the land was located.

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 1,922 farms in a county and only 1,465 had chickens over 4 months old on hand, the number of farms reporting chickens would be 1,465. 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.

For some of the items, such as the residence of the operator, for which reports were to have been obtained for all farms, figures are given for the number of farms not reporting. The number of farms, or operators, not reporting indicates the extent of the incompleteness of the reporting for the item.

Figures for farms reporting or operators reporting, based on a tabulation for only a sample of farms, represent the total estimated from the sample, not the actual number of farms or operators reporting.

Land owned, rented, and managed.—The land to be included in each farm was determined by asking the number of acres owned, the acres rented from others or worked on shares for others, and the acres rented to others or worked on shares by others. The acres in the farm were obtained by adding the acres owned and acres rented from others or worked on shares for others, and subtracting the acres rented to others or worked on shares by others. In case of a managed farm, the person in charge was asked the total acreage managed for his employer. The acreage that was rented to others or cropped by others was subtracted from the total managed acreage.

For 1954 and 1950, the figures for land owned, land rented from others, and land managed for others include land rented to others by farm operators. In earlier censuses, the enumerator was instructed to include all land rented from others and to exclude all land rented to others. Thus, he recorded only that portion of the acreage owned and the acreage rented from others which was *retained* by the farm operator. For prior censuses, the land included in each farm was essentially the same as that included for the 1954 and 1950 Censuses.

Land owned.—Land owned includes all land that the operator or his wife, or both, hold under title, purchase contract, homestead law, or as one of the heirs, or as a trustee of an undivided estate.

Land rented from others.—Land rented from others includes land worked on shares for others, and land used rent free,

as well as all land rented or leased under other arrangements. Grazing land used under government permit was not included.

Land rented to others.—Many farm operators rent land to others. For the most part, the land rented to others represents agricultural land but it also includes tracts rented for residential or other purposes. When land is leased, rented, or cropped on shares, the tenant or cropper is considered the farm operator even though his landlord may exercise supervision over his operations. The landlord is considered as operating only that portion of the land not assigned to tenants or croppers.

Land area.—The approximate total land area reported for 1954 for States and counties is, in general, the same as that reported for the 1950, 1945, and 1940 Censuses. Changes since 1940 represent changes in boundary, actual changes in land area due to the construction of reservoirs, etc. The figures for 1940 represent a complete remeasurement of the United States and, therefore, may differ from the figures shown for earlier censuses.

Land in farms.—The acreage designated "land in farms" includes considerable areas of land not actually under cultivation and some land not used for pasture or grazing. All woodland and wasteland owned by farm operators, or included in tracts rented from others, is included as land in farms unless such land was held for other than agricultural purposes, or unless the acreage of such land held by a farm operator was unusually large. If a place had 1,000 or more acres of land not being used for agricultural purposes and less than 10 percent of the total acreage in the place was used for agricultural purposes, the nonagricultural land in excess of the number of acres used for agricultural purposes was excluded from the farm area. In applying this rule, land used for crops, for pasture, or grazing, and land rented to others were considered to be land for agricultural purposes. On the other hand, land was defined as nonagricultural when it was woodland not pastured, or in house and barn lots, roads, lanes, ditches, or wasteland. The procedure used in 1950 for excluding unusually large acreages of nonagricultural land differed slightly from the one used for the current census. In 1950, adjustments were made in places of 1,000 acres or more (5,000 acres or more in the 17 Western States) if less than 10 percent of the total acreage was used for agricultural purposes.

Except for open range and grazing land used under government permit, all grazing land was to be included as land in farms. Land used rent free was to be included as land rented from others. Grazing lands operated by grazing associations were to be reported in the name of the manager in charge. All land in Indian reservations used for growing crops or grazing livestock was to be included. Land in Indian reservations not reported by individual Indians or not rented to non-Indians was to be reported in the name of the cooperative group using the land. Thus, in some instances the entire Indian reservation was reported as one farm.

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 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.

The enumerator was instructed to check the figure for cropland harvested for each farm by adding the acreages of the individual crops reported and subtracting the acres of land from which two crops were harvested. This procedure was repeated during the central office editing process for farms with 100 or more acres of cropland harvested.

If the harvested cropland was used for other purposes, either before or after the harvest of a crop, the enumerator was specifically instructed to report the acreage only under cropland harvested.

Cropland used only for pasture.—In the 1954 and 1950 Censuses, 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.

The figures for 1945 and earlier censuses are not entirely comparable with those for the last two censuses. For 1945, the figures include only cropland used solely for pasture in 1944 that had been plowed within the preceding seven years. The figures for this item, for the Censuses of 1940, 1935, and 1925, are more nearly comparable with those for the Censuses of 1954 and 1950, as they include land pastured that could have been plowed and used for crops without additional clearing, draining, or irrigating.

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.

Woodland pastured.—This includes all woodland that was used for pasture or grazing. The questionnaire contained the following instruction: "Include as woodland all wood lots and timber tracts and cutover land with young trees which have or will have value as wood or timber." No definition of woodland was given in 1950 to either farm operators or Census enumerators except an instruction to enumerators not to include brush pasture as woodland. Some of the changes in woodland acreages from one census to another may merely represent differences in interpretation of the meaning of woodland.

Woodland not pastured.—This includes all woodland that was not used for pasture or grazing. Unusually large tracts of timberland reported as woodland not pastured were excluded from the tabulations of land in farms when it was evident that such land was held primarily for nonagricultural purposes. The definition for woodland, as stated above, was used also for enumerating woodland not pastured.

Other pasture (not cropland and not woodland).—This includes rough and brush land pastured and any other land pastured that the respondent did not consider as either woodland or cropland. The figures for 1954 and 1950 are comparable but for 1945 all nonwoodland pasture not plowed within the preceding 7 years was included. For the 1940 Census and earlier years, the figures are more nearly comparable with those for 1954 and 1950, except that the item may be somewhat less inclusive since land that could have been plowed and used for crops without additional clearing, draining, or irrigating was classified as plowable pasture (shown as cropland used only for pasture in the tables).

Improved pasture.—This item includes land in "other pasture" on which one or more of the following practices had been used: Liming, fertilizing, seeding to grasses or legumes, irrigating, draining, or controlling weeds and brush. The question on improved pasture was included in 1954 for the first time.

Other land (house lots, roads, wasteland, etc.).—This item includes house lots, barn lots, lanes, roads, ditches, and wasteland. It includes all land that does not belong under any of the other land-use classes.

In addition to the complete classification of land in farms according to use, the tables also present data for three summary classifications as follows:

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. This item was obtained for only a sample of the farms; however, the value was not reported for all the farms comprising the sample.

Many problems, not encountered in enumerating most agricultural items, are involved in obtaining farm real-estate values. Most enumerated items require the respondent to make a statement based upon fact. It may be the number and value of farm animals sold alive during the year or the number of lambs under 1 year old on the place. In either case, only information as to activities during a specified period, or the situation as of a stated time, is required. This information is based upon actual transactions or existing conditions. But the estimation of the value of land and buildings is based largely upon opinion. In the event a farm had been recently purchased, answers could be based upon that experience. But many farms have not changed hands for many years, nor are they currently for sale. In such cases, farm operators may have no clear basis for estimating the value. In making an intelligent estimate, a respondent needs, first, to estimate the prevailing market value in the community. Secondly, he must in some way add to or subtract from this base to allow for his farm's special characteristics. In many cases, a farm operator who would not sell his place under any circumstances may be inclined to give a "market value" that is unreasonably high. Some operators who had purchased their real estate during periods of *relatively low prices* may give an estimate that is unduly influenced by that experience. Furthermore, the extent of variation known to exist in real-estate values makes it difficult to establish checking procedures that will disclose inaccurate estimates.

Only average values of land and buildings per farm and per acre are presented in this report. A total value of the land and buildings for States, geographic divisions, and the United States, will be presented in Volume II.

Age of operator.—Farm operators were classified by age into six age groups. The average age of farm operators was calculated by dividing the total of ages of all farm operators reporting age by the number of farm operators reporting.

Residence of farm operator.—Farm operators were classified by residence on the basis of whether or not they lived on the farm operated. Some of those not living on the farm operated lived on other farms. When a farm operator rented land from others or worked land on shares for others and had the use of a dwelling as part of the rental arrangement, the enumerator was instructed to consider the dwelling a part of the farm operated. The dwelling assigned may have been on a tract other than that assigned for crops. Since some farm operators live on their farms only a portion of the year, comparability of the figures for various censuses may be affected to some extent by the date of the enumeration. In a few cases the enumerator failed to indicate the residence of the farm operator. Differences between the total number of farms and the number of farm operators by residence represent underreporting of this item.

Years on present farm (year began operation of present farm).—The data on years on present farm and year began operation of present farm were secured on the basis of the inquiry, "When did you begin to operate this place? _____ _____." The
(Month) (Year)
time of year that farmers move is indicated by the month they began to operate their farms, as shown by a breakdown of the data for those farm operators who began to operate their present farms in the calendar years 1954 and 1953. The tabulation of years on present farm at each census is based on the calendar year the operator began operating his farm. Because of differences in the date for various censuses, the figures are not fully comparable from one census to another.

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 nonfarm 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.

The purposes of these four inquiries were (1) to obtain information in regard to the extent that farm operators performed off-farm work and the relation of other nonfarm income to the value of farm products sold and (2) to provide a basis for the classification of farms by economic class (see Farms by economic class, page XXII). The intent of the inquiry in regard to whether or not a member of the family had a nonfarm job, and the inquiry regarding income of the farm operator from other nonfarm sources, was to obtain more accurate replies to the inquiry regarding the relationship of the income from off-farm work and other sources to the total value of all agricultural products sold.

Specified facilities and equipment.—Inquiries were made in 1954 for a sample of farms 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 infra-red 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) corn pickers; (3) pick-up 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. "Pick-up" 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.

Classification of farms by class of work power.—Farms were grouped by class of work power on the basis of whether horses,

mules, or tractors (wheel or crawler, but not garden) were reported. This classification does not present a complete picture of the work power used on all farms. For some farms, all the work power may be furnished by the landlord; and for some farms, all the work power may be hired. Thus, farms hiring all of the work power from others and those having it furnished are shown as having no work power, unless the work animals or tractors were kept on the tenant-operated tract.

Since the number of tractors was obtained for only a sample of farms, the number of farms by class of work power represents an estimate.

Farm labor.—The farm-labor inquiries for 1954, made on a sample basis, called for the number of persons doing farm work 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. Farm work 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.

Data shown for earlier censuses are not fully comparable with those for 1954, primarily because of differences in the period to which the data relate. The data for 1954 were purposely related to a period of peak farm employment. During 1950 the labor inquiries were related to the calendar week preceding the actual enumeration. Although starting dates were identical in all States (April 1, 1950), several weeks were required to complete the field work. Therefore, the calendar week preceding the enumeration was not the same for all farms. For the 1945 and 1935 Censuses, the number of farm workers related to the first week in January. The data for 1940 related to the last week in March. In 1945, 1940, and 1935, only persons working the equivalent of two or more days during the specified week were to be included. In 1945 and 1940, only workers 14 years old and over were to be included. In 1935, as in 1954 and 1950, there was no specification regarding the age of the farm workers. No instructions were issued to include farm chores as farm work in 1940 and 1935 Censuses.

In censuses prior to 1954, farm-labor data were not always satisfactorily reported when the specified week for reporting the number of persons employed did not immediately precede the week during which the actual enumeration was made. When the week, for which a report for the number of persons employed was required, was several weeks before the week of enumeration, the farm operator or the enumerator often reported the highest number of persons employed during the year. When it was obvious that the data were not correctly reported, adjustments were made to make the data reflect more nearly the situation during the specified week. Because of demand for the data, the information on number of persons working on farms, for the 1954 Census, relates to a specified week. In some cases, this specified week was several weeks before the week of actual enumeration. However, few adjustments were made in the data for 1954 even though there were indications that there was incorrect reporting or that the report may have referred to a week other than the week specified.

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.

Hired workers by basis of payment.—Hired persons were also classified according to the basis of payment. The questionnaire called for the numbers of hired workers paid on a monthly basis, on a weekly basis, on a daily basis, on an hourly basis, and on a piecework basis. If the basis of payment was not reported for any of the hired workers, the missing information was supplied.

Wage rate and hours worked.—The rate of pay (except for workers on a piecework basis) and the hours that workers were expected to work to earn this pay (except for workers on hourly basis or on piecework basis) were asked for each class of worker. For 1954, the data include estimates of hours worked and wage rates for questionnaires incomplete for either of these items. Estimates were based upon relationships existing on nearby farms of similar size and type. Data for 1950 for hours worked and wage rates were restricted to farms reporting both wage rates and hours worked.

Fertilizer and lime.—The 1954 questionnaires contain inquiries on the tonnage and cost of fertilizer and liming material and the acreage on which they were used during the calendar year 1954. Fertilizer and lime used on the place were to be included regardless of whether the landowner, tenant, or both paid for them. Fertilizer was to include only commercial fertilizer or fertilizing material. No specific mention was made of basic slag. It was thought that this byproduct of steel production would be considered as a fertilizing material. Barnyard manure, straw, refuse materials, and soil conditioners were to be excluded. Lime or liming material was to include ground limestone, hydrated and burnt lime, marl, oyster shells, etc. No mention was made of gypsum but this product was excluded in the processing when the entries for such were detected. Lime used for sprays or sanitation purposes was to be omitted.

Acres on which purchased materials were used were to be reported for both lime and fertilizer. In case fertilizer was applied to the same crop more than once in 1954, instructions were to report acres of land only once but to report the total tonnage used. The acres fertilized and tons applied were obtained separately for selected crops. The selected crops varied by regions. This arrangement made it possible to obtain data for crops most commonly fertilized in the region.

For some counties, the tonnage of lime shown in the table may be less than the tonnage reported for the Agricultural Conservation Program. In some cases, the difference may arise because of sampling error and in other cases, it may be the result of underreporting by farm operators. Many of the differences disappear when the data are presented for larger areas.

In the South, some landlords, who conducted some farming operations themselves, reported for their operations fertilizer and lime paid for wholly or in part by them for use on their tenant-operated land. The tenants may also have reported the fertilizer and lime. During the editing procedure such reports, when detected, were adjusted to prevent duplication in the reports for fertilizer and lime by landlords and their tenants.

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.

Farm-mortgage debt.—Data on farm-mortgage debt will be contained in a special report (Part 5 of Volume III) to be issued in 1956. This report will contain data only for States and larger geographic areas.

Crops

Crops harvested.—The agriculture questionnaire was organized to make possible the listing of acreage and quantity harvested for each crop. To facilitate the enumerator's work, specific crop questions were varied according to areas (usually each area comprised a State or a group of States). Regionalizing questionnaires made it possible to devote special attention to the more important crops for a given area and also to use the unit of measure that was in most common use in the area.

In most instances, the harvested acreage that was reported for individual crops represents the area harvested for the 1954 crop year. An exception was made for land in fruit orchards, vineyards, and planted nut trees; in this case the acreage represents that in both bearing and nonbearing trees and vines as of the date of enumeration (usually October or November 1954). The acreage harvested for various crops is often less than the acreage planted.

With three exceptions, citrus fruits, olives, and avocados, figures for quantity harvested represent the amount actually harvested during the 1954 crop year. Citrus fruit production was to be reported for the 1953–1954 marketing season (from the bloom of 1953). Olive and avocado production for California related to the quantity harvested from the 1953 bloom (an instruction to enumerators referred to the marketing season which began October 1, 1953). In Florida, the avocado production period, according to the Enumerator's Instruction Book, was to include the quantity harvested from the 1953 bloom (the harvesting season extending from July 1, 1953, to June 30, 1954).

The unit of measure used for reporting the quantity harvested for some crops has varied, not only from State to State, but from census to census, to permit reporting in units of measure currently in use. In the State and county tables, figures on quantity harvested for each crop are shown in the unit of measure appearing on the 1954 Agriculture Questionnaire. When required, data for earlier years were converted into units of measure differing from those which were used in the published reports for those years.

Corn.—The inquiries regarding corn acreage and quantity harvested were not the same in all States. In areas where farmers frequently use units of measure such as baskets, barrels, etc., the questionnaire permitted the reporting of quantity harvested in bushels or in an alternative unit of measure. When alternative units of measure other than bushels (shelled basis) were reported on the questionnaire, the quantity was converted into bushels prior to tabulation. As in former censuses, farmers in certain areas had a tendency to report the quantity of corn harvested in terms of baskets of ear corn, barrels, or some unit other than bushels of corn on a shelled basis. Such reports, when detected, were corrected to represent the equivalent bushels of 70 pounds of ear corn or 56 pounds of shelled corn.

Annual legumes.—Acres and quantity harvested for the most important uses of soybeans, cowpeas, and peanuts, as well as the total acreage grown for all purposes, were obtained for areas where these crops are grown extensively. The total acreage grown for all purposes includes some acreage not harvested as the acreage plowed under for green manure was included. In certain States, separate figures were obtained for the acres grown alone and the acres grown with other crops. For the 1954 Census, enumerators were instructed to report acres and value of sales for cowpeas harvested for green peas with vegetables harvested for sale. For 1949, the total acreage of vegetables harvested for sale, shown in State and county tables, includes the acres of cowpeas harvested for green peas for the following States: Alabama, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, and Texas. However, for 1949 the number of farms reporting and the value of vegetables harvested for sale do not include farms reporting or the value of cowpeas harvested for green peas.

Hay crops.—The tables contain data regarding the total acres of land from which hay was cut. Sorghum, soybean, cowpea, and peanut hays were excluded from this total as separate questions were provided in those States where these crops are important. The figures for total land from which hay was cut for 1954 were obtained by adding the acres of the various hay crops, including grass silage, for each county. The comparable figures for the 1950 Census were obtained by an inquiry of the farm operator. Alfalfa hay includes any production which was dehydrated. The tonnage of alfalfa hay for dehydration (as well as that for other hays but not for grass silage) is given on a dry-weight basis.

Enumerators and farmers were instructed to report the total quantity of hay harvested from all cuttings, but to report only once the acres of land from which more than one cutting was made. For 1954, alfalfa hay included alfalfa and alfalfa mixtures. Likewise, clover and timothy hay included clover and timothy and mixtures of clover and grasses. For 1950, the agriculture questionnaire contained instructions to report mixed hay under the kind of hay that made up the largest part of the mixture. The differences in the instructions for reporting mixed hays affect the comparability of the data for the 1954 and prior censuses. The kinds of hay to be reported under "Other hay" varied from State to State, and can be determined for a specific State by referring to the copy of the questionnaire in the Appendix.

Clover seed, alfalfa, grass and other field seed crops.—The 1954 questionnaire contained separate inquiries for a number of the field seed crops and provided a question on "other field seed crops" for the purpose of obtaining information for all minor field seed crops harvested.

Irish potatoes and sweetpotatoes.—The 1954 Census inquiry for both Irish and sweet potatoes called for acres harvested and the quantity harvested. If less than 20 bushels (or 10 bags in specified States) of Irish potatoes or if less than 20 bushels of sweetpotatoes were harvested, the enumerator was instructed to report the quantity harvested, but not the area harvested. This method of reporting was used in order to facilitate the enumeration of potatoes grown on small plots for home use. The procedure and inquiries for both Irish potatoes and sweetpotatoes were essentially the same for 1950. Data for censuses prior to 1950 are not entirely comparable with those for 1950 and 1954. Earlier censuses did not eliminate the acres of the small plot—home-use production of Irish potatoes and sweetpotatoes. There-

fore, especially in counties or States where the production of potatoes is largely for home use, the data on acres for 1954 and 1950 are not fully comparable with those for earlier censuses.

Berries and other small fruits.—The questionnaire called for acreage and quantity harvested in 1954 for sale. Nonbearing areas and areas from which berries or fruits were not harvested for sale were not to be reported. Separate inquiries were carried on the questionnaire for such berries as strawberries, blackberries, and raspberries (tame) in States where production of these crops was important commercially.

Tree fruits, nuts, and grapes.—For 1954, the number of trees or vines and the quantity harvested were not enumerated if there was a total of less than 20 fruit or nut trees and grapevines on the farm. For censuses prior to 1954, enumerators were instructed to report the number of fruit or nut trees and grapevines and the quantity harvested, regardless of how many trees or grapevines were on the farm. Because of this change in instructions, the data for 1954 are not fully comparable with those for prior censuses. In commercial fruit-producing counties, the change in instructions may have affected considerably the number of farms reporting, but had little effect on the number of trees or the quantity harvested. On the other hand, in counties where most of the fruit and nut trees and grapevines are in small plantings, largely for producing fruit or nuts for consumption on the farm, the change in instructions may have resulted in a reduction not only in the number of farms reporting, but also in the number of fruit and nut trees and grapevines, as well as in the quantity harvested.

For 1954, the acreage in fruit orchards, groves, vineyards, and planted nut trees was not enumerated if there were less than 20 fruit or nut trees and grapevines on the farm. For the 1950 Census, enumerators were instructed not to report the area in fruit orchards, groves, vineyards, and planted nut trees if the area was less than one-half acre. For censuses prior to 1950, enumerators were instructed to report the area in all orchards, vineyards, and planted nut trees regardless of size of the area. However, frequently enumerators did not report the area for small fruit plantings and home orchards. In areas where small fruit and nut plantings or home orchards comprise a considerable part of the total fruit and nut acreage, considerable change may be indicated from census to census in the acreage of land in fruit trees, planted nut trees, and grapevines because of differences in enumeration procedures or in the enumerators' application of the instructions.

In the regional questionnaire for Arizona and California, the acreage in each individual fruit and nut crop was secured.

The acreage in fruit and planted nut trees and grapevines does not usually include the acreage of wild pecans that were not planted. For Maine, the acreage in cropland harvested includes the acreage from which wild blueberries were harvested.

The unit of measure used for the quantity of fruits, grapes, and nuts harvested varied from State to State. Tables in this report show the quantity harvested in the unit of measure appearing on the 1954 Agriculture Questionnaire.

Nursery and greenhouse products.—The agriculture questionnaire included three inquiries relating to horticultural-specialty crops. One called for acres and value of sales in 1954 of nursery products (trees, shrubs, vines, ornamentals, etc.). Another asked for the area grown under glass; area grown in the open; and value of sales of cut flowers, potted plants, florist greens, and bedding plants. The third called for area grown under glass or in house; area grown in the open; and value of sales of vegetables grown under glass, flower seeds, vegetable seeds, vegetable plants, bulbs, and mushrooms. The inquiries in 1954 were essentially the same as those used in the 1950 Census.

Value of crops harvested and value of crops sold.—The total value of crops harvested represents the value of all crops harvested during the crop year 1954. It includes the value of the part of the crop consumed on the farm and the value of the part of the crop used for seed on the farm, as well as the value of the part of the crop that was sold.

Farmers were not asked to report the value of crops harvested. The values were calculated in the central office by multiplying the quantity harvested for each crop by the average price at which the crop was sold in the State. These State average prices were obtained cooperatively by the Agricultural Marketing Service, United States Department of Agriculture, and the Bureau of the Census. The prices are based on reports provided by a sample of farmers and dealers. However, average prices were not calculated for vegetables harvested for sale, nursery and greenhouse products, and forest products. In the absence of the value of quantities harvested for these products, the value of sales which was obtained in the enumeration was used in calculating the total value of crops harvested.

State Table 16 gives data for the value of that part of each crop sold. The questionnaire did not call for reports of sales (quantity sold or the value of sales) for all crops. Estimates of the quantities sold were made in the central office for those crops for which the quantity sold was not enumerated. (For the procedure used in estimating the quantity of each crop sold, see Value of farm products sold, page XXIII.) For each crop, the quantity sold was multiplied by the average State price in order to obtain the value of the quantity sold. Enumerators and farmers were instructed to report the landlord's share as sold unless it was used for feed or seed on the place where it was produced.

In 1950, the value of crops sold was obtained by inquiry of each farm operator during the enumeration.

Forest products.—The forest products data obtained by the Census relate only to those products cut on farms. Commercial logging, timber operations, and forest products cut on places not counted as farms are excluded. Therefore, the data published do not show the total forestry output and income for a county or State.

The questions included in the 1954 questionnaire were essentially the same as those for 1950. However, a change was made in the enumeration of the sales of standing timber. In 1950, a special question asked for "sales from standing timber," while in 1954, instructions were to report any standing timber cut as sawlogs and veneer logs.

Irrigation

Irrigated land was defined as land to which water was applied by artificial means for agricultural purposes. Water applied by subirrigation was included as well as that applied to the surface. Irrigated land included land irrigated by a sprinkler system. Land flooded during high-water periods was to be considered as irrigated land only if water was purposely applied for agricultural purposes by means of dams, canals, or other works. Regulation of the "water table" by drainage works was not to be included as irrigation.

There were two groups of irrigation inquiries used for the 1954 Census. One group was used in the 17 Western States (Arizona, California, Colorado, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Texas, Utah, Washington, and Wyoming) and in Arkansas, Florida, and Louisiana. The other group was used in the remaining 28 States. In the 17 Western States and Arkansas, Florida, and Louisiana, the agriculture questionnaire contained several inquiries regarding irrigation. These inquiries related to the area of irrigated land from which crops were harvested and the names of the crops for which the entire acreage harvested was irrigated in 1954. In all of these States except Arkansas and Louisiana, the area of irrigated pasture was also obtained. In the remaining States, the agriculture questionnaire called for only the total acres irrigated in 1954. This acreage may have been used for harvested crops, soil-improvement crops, or for pasture.

The inquiries relating to irrigation for the 1954 Census were essentially the same as those for the 1950 Census. However, in

1950, irrigated land from which no crop was harvested was included as irrigated land, while such acreage was not obtained in 1954.

Considerable data are published regarding irrigation in the 17 Western States and Arakansas, Florida, and Louisiana. The following definitions apply to these States:

Irrigated farms.—These are farms reporting land irrigated. Data on land in irrigated farms and on land in irrigated farms according to use include the entire acreage of land in these farms, whether irrigated or not.

Land irrigated.—This relates only to that part of the land in irrigated farms to which water was applied. However, for Arkansas and Louisiana the total for irrigated land does not include land used solely for pasture or grazing. For the 17 Western States and for Arkansas, Florida, and Louisiana, this total does not include irrigated cropland that was not harvested and not pastured.

Irrigated land in farms according to use.—This classification provides data on the use of irrigated land in farms and includes that part of the cropland harvested that was irrigated as well as that portion of the land pastured to which water was applied.

Farms with all harvested crops irrigated.—These are all "irrigated farms" on which all crops harvested were grown on irrigated land.

Irrigated crops harvested.—The data for irrigated crops harvested include (1) the acreage of crops harvested on irrigated farms on which all harvested crops were irrigated and (2) the acreage of those crops which were wholly irrigated on farms where a part of, or all of, other harvested crops were not irrigated. Thus, the reported acreage in irrigated crops may not include the total acreage of each harvested crop grown on irrigated land, but the exclusions are minor. However, in the case of vegetables harvested for sale and orchard fruits and nuts, the data for farms reporting number of trees, value of sales, etc., relate only to those crops harvested on farms on which all crops were irrigated.

Land-Use and Conservation Practices

Land in cover crops turned under for green manure.—The data for this item represent land on which a cover crop was turned under in 1954 and another crop was planted for harvest after 1954. Such acreages were to be reported even though the succeeding crop may later have failed. This inquiry was not made in Arizona, California, Colorado, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Utah, Washington, Wyoming, and the western part of Texas.

Stripcropping.—The data for stripcropping relates to the area of row crops or close-seeded crops that were grown in strips across the path of prevailing winds to prevent or reduce the blowing of topsoil. This question was included only in Colorado, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, Oregon, South Dakota, Utah, Washington, Wyoming, and the western part of Texas.

Cropland used for grain or row crops farmed on the contour.—This is the area for all grain and row crops that were planted *around the slope* to maintain comparatively level rows instead of being planted in straight rows running up and down the slope.

Livestock and Poultry

The 1954 questionnaire called for an inventory of or for some phase of production for all the important kinds of farm animals and poultry. Respondents were asked for the numbers on hand on the day of enumeration. Livestock were to be enumerated on the place on which they were located, regardless of ownership. Livestock grazing in national forests, grazing districts, or on open range at the time of enumeration were to be reported for the farm or ranch to which they belonged.

The time of the year at which livestock and poultry were enumerated influences greatly the resulting data. Therefore, the date of the enumeration needs to be considered when comparing 1954 totals with those for corresponding items for the 1950 or prior censuses. The 1950 data represented a spring inventory (April 1, 1950), while the current census provided a fall inventory. The 1954 enumeration came at a time of large scale movement of flocks and herds from one range to another, from ranch to feeder, and from farm or ranch to market.

The censuses of agriculture beginning with 1920 and continuing through 1950 were taken as of either April 1 or January 1. The censuses taken in the years ending in "0" were taken as of April 1, while the censuses taken in the years ending in "5" were taken as of January 1. An enumeration made in April results in a count that differs considerably from a count made in January. In most areas a large number of animals are born between January and April. On the other hand, a considerable number of older animals are sold or die during the 3-month period, January to April. In the range States, sheep and cattle are moved, with the change in season and grazing condition, from one locality, or country, to another. This movement may affect the comparability of data for counties and, in some cases, for States. The comparability of the data for the number of livestock and poultry has also been affected by changes in age groups and questionnaire inquiries from census to census. State Table 12 presents a description of the various age and sex groups of livestock and poultry for each census from 1920 to 1954.

Milk cows; cows milked; milk sold.—Data on number of cows milked and milk production relate to the day preceding the enumeration.

Questionnaires in 25 States, chiefly western and midwestern, provided three alternative units of measure for enumerators and respondents to report whole milk sales: (1) Pounds of milk, (2) pounds of butterfat, and (3) gallons of milk. In the other States, sales of whole milk on the basis of butterfat content were considered relatively unimportant and, therefore, the unit of measure (pounds of butterfat) was omitted from the questionnaire. However, for publication by States, the reports for whole milk sold were converted into a unit of measure common to the particular State. Pounds of butterfat were converted into gallons or pounds of whole milk on the basis of the average butterfat content of whole milk, as shown by data furnished by the Agricultural Marketing Service of the United States Department of Agriculture.

The tables for economic areas contain figures on total milk sold. These figures represent the total equivalent of milk and pounds of butterfat in cream sold in terms of whole milk.

Total sales of all dairy products for 1954 are not entirely comparable with those for 1949. The value of sales for whole milk and cream was included in both the 1954 and 1945 Censuses. In 1950, the value of the sales of butter, buttermilk, and cheese was obtained; the value of these products was not included in 1954.

Sows and gilts farrowing.—The 1954 questionnaire asked for spring litters by an inquiry on the number of sows and gilts farrowing between December 1, 1953, and June 1, 1954, and for fall litters by an inquiry on the number of sows and gilts farrowing since June 1, but before December 1, 1954. The inquiry relating to sows farrowing or expected to farrow during the fall was included in the census for the first time in 1954. The 1954 data for spring farrowings (sows and gilts farrowing between December 1, 1953, and June 1, 1954) are comparable with those for 1950. Since no data were obtained in 1950 for fall farrowing, only the 1954 data for farrowing after June 1 are given. For a number of counties, the ratio of sows farrowing to the number of hogs and pigs on hand, plus those sold, may be low because hogs or pigs were shipped into the county for feeding. Adjustments in the number of sows farrowing were made both for spring and fall litters when there was substantial evidence that the number of sows farrowing was not reported. The adjustments were made largely in counties outside the major hog-producing areas.

Sheep and lambs and wool.—Questionnaires for all States, except Florida, Georgia, and South Carolina, contained inquiries

regarding sheep and lambs. In Florida, Georgia, and South Carolina, the enumerator was instructed to report the number of sheep and lambs in the remarks section. However, no data on the number of sheep and lambs or on wool production were compiled for these 3 States for 1954.

Goats and mohair.—In Louisiana, New Mexico, Oklahoma, Oregon, Texas, Washington, and selected counties in Missouri, special questions were provided for reporting goats and mohair. These questions called for the number of all goats, Angora goats, and other goats, separately, and for the number of goats clipped and pounds of mohair clipped in 1954.

Bees and honey.—Provision was not made for reporting bees or honey for the 1954 Census.

Value of livestock on farms.—The values for 1954 shown in State Table 13 were secured by multiplying the number of each class of livestock or poultry on hand by the State average price. These prices were obtained cooperatively by the Agricultural Marketing Service, United States Department of Agriculture, and the Bureau of the Census.

Livestock products.—The inquiries regarding livestock production and sales relate to the calendar year 1954, and those for sales of livestock products relate to the products produced in 1954.

Sales of live animals.—The 1954 questionnaire called for the number and value of sales of animals sold alive from the place during 1954. The questions used were similar to those used in the 1950 Census. The difference in the time of enumeration for the two censuses may have affected the comparability of the data. Since the 1954 Census was a fall enumeration, an additional problem was involved in getting information on animals sold alive. It was necessary not only to ask the respondent for sales he had made during 1954 prior to the date of the enumeration, but also for an estimate of sales he would make during the remainder of 1954. Some respondents may not have reported sales to be made after the enumeration but before December 31, 1954. No data are available to indicate the extent of under-reporting of sales of livestock and poultry.

Poultry and poultry products.—For the 1954 Census, chicken sales were subdivided into sales of (1) broilers and (2) other chickens. This is the first census in which broilers were enumerated separately. The enumeration of broilers presented problems because of the varied contractual arrangements under which broilers are produced. The agriculture questionnaire contained the following instruction: "Report all broilers sold from this place including those raised for others under contract." In a number of cases, young chickens were reported as broilers sold. Entries of less than 1,000 chickens or broilers sold, for individual farms, were tabulated as other chickens sold.

Sampling

Sampling was used for the 1954 Census of Agriculture in two ways. First, information on fertilizer and lime, farm expenditures, farm labor, off-farm work, facilities and equipment on the place, farm value, and mortgage debt, was enumerated for only a sample of farms. (The information in Sections VIII through XIII of the questionnaire was obtained only for the farms in the sample. See Appendix for copy of the questionnaire.) Second, some tabulations were prepared on the basis of a sample of farms. As a result, a greater volume of data could be published than if the reports for all farms had been used for every tabulation. Most of the data shown in this report by State economic areas are estimates prepared on the basis of the tabulation of data for the sample of farms. These tabulations are for the same sample of farms for which data were collected on a sample basis during the enumeration.

Description of the sample for the 1954 Census.—The sample used for the 1954 Census of Agriculture consisted of specified farms (see page XII for a description of specified farms) and one-fifth of the remaining farms. Thus, the sample included slightly more than 20 percent of all farms.

The actual selection of farms in the sample was made by census enumerators as part of the enumeration procedure. The enumerator listed the head of each household on a single line of the Enumerator's Record Book, and determined whether an agriculture questionnaire was to be obtained. If he was required to fill a questionnaire, he entered the "number of acres in this place" in accordance with question 11 of the agriculture questionnaire. On the basis of the number of acres in this place, the enumerator recorded a check mark in one of five squares that provided for the recording of each farm in one of five size-of-farm groups. All the squares for farms with 1,000 or more acres were lightly shaded and a random fifth of the squares for each of the other four size groups was also lightly shaded. (See Appendix for an example of a page of the Enumerator's Record Book.) If the respondent was listed on a line for which the shaded square corresponded to the size of his farm, his farm was included in the sample. The agriculture questionnaire contained one or more inquiries at the beginning of Section VIII—the first section containing inquiries to be asked for only a sample of farms (See copy of questionnaire in Appendix)—for the guidance of the enumerator as to whether the questionnaire was for a farm to be included in the sample and whether the farm qualified as a specified farm.

Adjustment of the sample.—An adjustment in the 20 percent part of the sample was made by a process essentially equivalent to stratifying the farms in the sample by size, for the purpose of (1) improving the reliability of the estimates from the sample on an economic area level, and (2) for the purpose of reducing the effects of possible biases introduced because some census enumerators did not follow perfectly the method devised for selecting the farms in the sample. In order to adjust the sample for each State economic area, counts were obtained of all farms and of sample farms for each of ten size-of-farm groups based on "acres in this place." The ten size-of-farm groups were as follows: Under 10 acres, 10–29 acres, 30–49 acres, 50–69 acres, 70–99 acres, 100–139 acres, 140–179 acres, 180–259 acres, 260–499 acres, and 500–999 acres. In determining the extent of the adjustment, the difference between the number of farms in the sample and the total number of farms divided by five was obtained for each size group. The actual adjustment for the size group was made by either eliminating or duplicating, on a random basis, farms in those counties of the State economic area where the greatest over- or under-representation existed.

Method of estimation.—Data which are based on the sample of farms were expanded to represent figures for all farms. The expanded figure for an item was obtained by multiplying by five the tabulated total for that item for the farms in the 20 percent part of the sample and adding the total for the specified farms.

Reliability of estimates based on the sample.—The estimates based on the tabulation of data for a sample of farms are subject to sampling errors. When data based on a sample of farms are shown in the same table with data for all farms, the data based on a sample are shown in italics. In case all the data in a table are estimates based on a sample, a headnote for the table indicates that the data are estimates based on a sample of farms. Approximate measures of the sampling reliability of estimates are given in State Tables 18 and 19 for farms reporting and for item totals. These measures indicate the general level of sampling reliability of the estimates, but do not include adequate allowances for sources of error other than sampling variation as, for example, errors in original data furnished by farmers. Sources of error other than sampling may be relatively more important than sampling variation, especially for totals for a State.

In general, the measures of sampling reliability presented are conservative in that they tend to overestimate the variations in sample estimates, because (1) the predicted limits of error do not always take fully into consideration that complete data were

tabulated for all specified farms and (2) the maximum figures intended to serve for all economic areas were used. Consequently, there is a tendency to overestimate the variations in the sample, especially for groups with large numbers of farms or for groups for which the totals for specified farms represent a high percentage of the item totals.

Data in State Tables 18 and 19 are given to assist in determining the general level of sampling reliability of estimated totals. In State Table 19 a list of the items is given and the level of sampling reliability as shown in State Table 18 is indicated. By referring to State Table 18 in the column for the level of sampling reliability designated in State Table 19, the sampling error according to the number of farms reporting may be obtained. For farms reporting, the indicated level of sampling is level 1. State Table 18 shows percentage limits such that the chances are about 68 in 100 that the difference between the estimates based on the sample and the figure that would have been obtained from a tabulation for all farms would be approximately within the limit specified. However, the chances are 99 in 100 that the difference would be less than two and one-half times the percentage given in the table.

The data in State Table 18 indicate that when the number of farms reporting specified items is small, the item totals are subject to relatively large sampling errors. Nevertheless, the considerable detail for every classification for each item is presented to insure maximum usefulness for appraising estimates for any combination of items that may be desired.

Percentage figures and averages derived from the tables will generally have greater reliability than the estimated totals; also, significant patterns of relationships may sometimes be observed even though the individual data are subject to relatively large sampling errors.

The data representing estimates based on a sample for the 1950 Census were obtained in essentially the same way as in 1954 and the same State Tables 18 and 19 may be used to estimate the sampling errors for the 1950 data.

Differences in data presented by counties and by State economic areas.—In many cases, data presented by State economic areas were estimated on the basis of tabulations for a sample of farms, while most of the data presented by counties were obtained by the tabulation of data for all farms in the county. However, data for the number of farms classified by type of farm and economic class of farm, and for the use of fertilizer and lime, farm expenditures, farm labor, farm facilities, farm equipment, and value of land and buildings were estimated for each county on the basis of the tabulation of data for a sample of farms in each county. The same sample of farms was also used for the tabulation of data for these items for State economic areas and for the State. In some cases, the totals presented for these items for State economic areas or for the State will differ slightly, but not significantly, from the totals obtained by adding figures for counties in the State economic area or the State. As a matter of economy, small adjustments were not made in the tabulations when the difference was not large enough to affect the usefulness or reliability of the data.

Classification of Farms

The classifications of farms by color and tenure of operator, economic class of farm, and type of farm were made on the basis of visual inspection of each questionnaire during the office processing.

The classification for color and tenure of operator was made for all farms, while the classifications by economic class and by type of farm were made for only a sample of farms. The classification of farms by size was made for all farms by means of electric tabulating equipment.

Farms by size.—Farms were classified by size according to the total land area of each farm. The same classification was used for all States.

In analyzing size-of-farm statistics, consideration should be given to the definition of a farm for census purposes. Census farms are essentially operating units, not ownership tracts. If a landlord has croppers or other tenants, the land assigned each cropper or tenant is a separate farm even though the landlord may operate the entire holding essentially as one farm in respect to supervision, equipment, rotation practices, purchase of supplies, or sale of products.

In some parts of the South a special questionnaire, the Landlord–Tenant Questionnaire, was used to obtain statistics for such multiple units. The statistics for multiple units will be published in Volume III, Part 1.

Farms by tenure of operator.—Farm operators are classified according to the tenure under which they hold their land on the basis of the replies to the inquiries on total land owned, total land rented from others, total land managed for others, and land rented to others. The basis of classification by tenure is, in general, the same for the 1954 as for the 1950 Census. In 1950, for an operator who owned land and rented land from others, there was no way to determine whether land rented to others represented land owned by the operator or land rented by the operator from others; therefore, such an operator was classified as a part owner. In 1945 and earlier, full owners, part owners, and tenants were classified on the basis of the land retained. Under this earlier classification a part owner who sublets to others all the land he rents from others would have been classified as a full owner; a part owner who rents to others all the land he owns would have been classified as a tenant. In 1954, the acreage of owned land that was rented to others was obtained for the first time. Thus, it was possible to classify a farm operator who owned land and rented land from others as a full owner, part owner, or tenant according to the ownership or rental of the land he retained.

Full owners own land but do not retain any land rented from others.

Part owners own land and rent land from others.

Managers operate farms for others and are paid a wage or salary for their services. Persons acting merely as caretakers or hired as laborers are not classified as managers. If a farm operator managed land for others and also operated land on his own account, the land operated on his own account was considered as one farm and the land managed for others as a second farm. If a farm operator managed land for two or more employers all the land managed was considered one farm.

Tenants rent from others or work on shares for others all the land they operate. Tenants are further classified on the basis of their rental arrangement as follows:

Cash tenants pay cash as rent, such as $10 an acre or $1,000 for the use of the farm.

Share–cash tenants pay a part of the rent in cash and a part as a share of the crops or of the livestock or livestock products.

Share tenants pay a share of either the crops or livestock or livestock products, or a share of both.

Crop–share tenants pay only a share of the crops.

Croppers are crop-share tenants whose landlords furnish all work power. The landlords either furnish all the work animals or furnish tractor power in lieu of work animals. Croppers usually work under the close supervision of the landowners, or their agents, or another farm operator, and the land assigned them is often merely a part of a larger enterprise operated as a single unit.

Livestock–share tenants pay a share of the livestock or livestock products. They may or may not also pay a share of the crops.

Other tenants include those who pay a fixed quantity of any product; those who pay taxes, keep up the land and buildings, or keep the landlord in exchange for the use of the land; those who have the use of the land rent free; and others who could not be included in one of the other specified subclasses.

Unspecified tenants include those tenants for whom the rental arrangement was not reported.

For earlier censuses, the definition for each subclass of tenant is essentially the same as for 1954. However, in 1945 the enumerator was asked to determine the subclass of tenants, while in 1954, 1950, 1940, and earlier censuses the classification was made during the processing of the questionnaires on the basis of the answer to the inquiries on the questionnaires. The

procedure for 1945 may have affected the comparability of the data, particularly those for cash tenants and share-cash tenants.

Farms by color or race of operator.—Farm operators are classified by color as "white" and "nonwhite." Nonwhite includes Negroes, Indians, Chinese, Japanese, and all other nonwhite races.

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. Only the farms in the sample were classified by economic class. The totals given in the tables represent estimates for all farms based on tabulations of the data for the farms included in the sample.

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. If the estimated value of the quantity sold for any other crop was $100 or more, the entire quantity harvested 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. The remaining farms with gross income of $250–$1,199 and farms with a value of sales of all farm products of less than $250, as well as farms operated by institutions, experiment stations, grazing associations and community projects were classified as "other farms."

Commercial farms were divided into six groups on the basis of the total value of all farm products sold, as follows:

Class of farm	*Value of farm products sold*
I	$25,000 or more
II	10,000 to $24,999
III	5,000 to 9,999
IV	2,500 to 4,999
V	1,200 to 2,499
VI	*250 to 1,199

*Provided the farm operator worked off the farm less than 100 days, or provided the income the farm operator and members of his family received from nonfarm sources was less than the value of all farm products sold.

Other farms have been grouped into three classes as follows:

Part-time farms.—Farms with a value of sales of farm products of $250 to $1,199 were classified as part time if the farm operator reported (a) 100 or more days of work off the farm in 1954, or (b) the nonfarm income received by him and members of his family was greater than the value of farm products sold.

Residential farms.—Residential farms include all farms except abnormal farms with a total value of sales of farm products of less than $250. Some of these represent farms on which the operator worked off the 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. Some farms are included here which, if the classification were based on farm production for more than 1 year, might have qualified as commercial farms.

Abnormal farms.—Insofar as it was possible to identify them, abnormal farms include public and private institutional farms, community enterprises, experiment-station farms, grazing associations, etc.

Farms by type.—The classification of 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 closely related products, such as dairy products. In other cases, the type was determined on the basis of sales of a broader group of products such as corn, sorghums, all small grains, field peas, field beans, cowpeas, and soybeans. Part-time, residential, and abnormal farms were not classified by type. In order to be classified as a particular type, sales or anticipated sales of a product or a group of products had to represent 50 percent or more of the total value of products sold.

Only the farms in the sample were classified by type. The data given in this report by type of farm relate only to commercial farms.

The types of 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
Cotton	Cotton.
Cash-grain	Corn, sorghum, small grains, field peas, field beans, cowpeas, and soybeans.
Other field-crop	Peanuts, Irish potatoes, sweetpotatoes, tobacco, sugarcane, sugar beets for sugar, and other miscellaneous crops.
Vegetable	Vegetables.
Fruit-and-nut	Berries and other small fruits, and tree fruits, grapes, and nuts.
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—Continued
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.

The classification of farms by type of farm for the 1954 Census was made on essentially the same basis as that for the 1950 Census. In 1950, miscellaneous farms included those that had 50 percent or more of the total value of products accounted for by the sale of fur animals, or the sale of bees and honey, in addition to the items included in the 1954 classification.

Value of farm products sold.—Data on the value of farm products sold were obtained for 1954 by either of two methods. First, the values of livestock sold alive, poultry, poultry products, vegetables harvested for sale, nursery and greenhouse products, forest products, and all livestock products, except wool and mohair, were obtained during the enumeration by asking the farm operator the value of sales.

Second, the values of all other agricultural products sold were estimated for each county. During the enumeration, the quantity sold was obtained for each farm, for corn for grain, sorghums for grain or forage, small grains, hays, and for all small fruits and berries. For all other crops, the quantity sold was estimated for each county. For the purpose of computing value of farm products sold, it was assumed that the entire quantity harvested, or reported, was sold for the following crops:

Strawberries
Blackberries
Dewberries
Raspberries
Blueberries
Boysenberries
Loganberries
Youngberries
Cranberries
Currants
Gooseberries
Elderberries
Other berries
Apples
Peaches (except in selected States where the proportion of the crop culled was considerable)
Clingstone peaches (except in a few States where the proportion of the crop culled was considerable)
Pears
Cherries
Plums and prunes
Plums (except in selected States where the proportion of the crop culled was considerable)
Prunes (except in selected States where the proportion of the crop culled was considerable)
Apricots
Avocados (except in selected States where the proportion of the crop culled was considerable)
Figs
Mangoes
Nectarines
Olives
Grapes
Bananas
Dates
Guavas
Japanese persimmons
Jujubes
Papayas
Pineapples
Pomegranates
Quinces
Sapodillas
Soursops
Sugar apples
Loquats
Other tree fruits
Tung nuts
Walnuts (English or Persian)
Almonds
Filberts and hazelnuts
Black walnuts
Chestnuts
Coconuts
Other nuts
Oranges
Tangerines, mandarins, satsumas (except in selected States where the proportion of the crop culled was considerable)
Temple oranges
Valencia oranges (except in selected States where the proportion of the crop culled was considerable)
Navel oranges (except in selected States where the proportion of the crop culled was considerable)
Other oranges (except in selected States where the proportion of the crop culled was considerable)
Grapefruit (except in selected States where the proportion of the crop culled was considerable)
Lemons
Limes
Tangeloes
Kumquats
Citrons
Limequats
Other citrus fruits
Cotton
Popcorn
Sugar beets for sugar
Broomcorn
Sugarcane for sugar
Tobacco

The quantity sold was estimated for the following crops on the basis of crop-disposition data published by the Agricultural Marketing Service of the U. S. Department of Agriculture:

Alfalfa seed
Red clover seed
Lespedeza seed
Sweetclover seed
Timothy seed
Alsike seed
Soybeans for beans
Cowpeas for dry peas
Peanuts for nuts
Dry field beans
Sugarcane and sorghum for sirup
Maple sugar
Maple sirup

In the case of Irish potatoes and sweetpotatoes, the quantity sold was estimated after making allowance for home use, on the basis of data on the disposition of these crops as published by the Agricultural Marketing Service of the U. S. Department of Agriculture.

The quantity sold for the following miscellaneous crops was estimated on the basis of the reported quantity or value of sales for the 1954 Census or on the basis of the quantity sold as shown for the 1950 Census:

Soybeans for hay
Cowpeas for hay
Peanuts for hay
Velvetbeans
Angelica
Anise (except for oil)
Arnica
Artemisia
Basil
Belladonna
Bloodroot
Borage
Buhach
Burnet
Cascara bark
Carambola
Cassava
Castor beans
Chicory
Chufas
Coriander
Dikon
Dill for oil
Fennel seed
Fejou
Flax for fiber
Foxglove
Ginseng
Gobbe
Golden seal
Guar
Hemp for fiber
Hemp for seed
Jaboticaba
Kudzu crowns
Lemon balm
Litchi nuts
Mint for oil
Oiticica nut
Ramie for fiber
Rape seed
Roselle
Safflower
Sesame for oil
Sorrel
Sugar beet seed
Sunflower seed
Sweet corn for seed
Teosinte
Vetiver
Wormseed oil
Lentils
Other grains
Grass silage
Other clover seed
Hubam clover
Mammoth clover
Persian clover
Sour clover
Crotalaria seed

Indigo, hairy seed
Meadow foxtail
Fescue grass
Rhodes grass
Other seed
Sesbania
Sheep fescue

The estimated value of all crops sold, except vegetables harvested for sale, nursery and greenhouse products, and forest products, was obtained by multiplying the estimated quantity sold by the State average price. The State average prices were obtained by the Agricultural Marketing Service of the U. S. Department of Agriculture.

In the case of miscellaneous crops listed above, the average prices have been determined on the basis of reports of quantity sold and value of sales obtained in the 1954 Census of Agriculture.

For the 1950 Census, the value of all farm products sold was obtained by inquiry of each farm operator during the enumeration. In that census, inquiries were made regarding the value of farm products sold for a maximum of 46 individual farm products or groups of farm products. In most cases, the quantity sold for the individual farm product was obtained together with the value of sales. The total value of farm products sold for 1950 includes the value of several farm products not included in the figures for 1954—butter, cheese, skim milk, bees, honey, corn fodder, corn silage, and grain straw, and receipts from the rental of pasture.

Data for the sales of farm products represent total sales for the entire farm, regardless of who shared in the receipts. The landlord's share of crops and livestock sold and also the livestock which the landlord took from the tenant farm to his own place were considered as sales from the tenant farm. Sales of crops grown on a contract basis, of livestock fed on a contract basis, or of poultry raised under a contract with a feed dealer or others, were included as sales from the farm.

The data on sales cover one year's operation. The sales of crops represent the sales of crops before the enumeration as well as those yet to be sold at the time of the enumeration. Corn, cotton, and other commodities under loan were to be considered as sold at loan prices. Livestock sales are for the calendar year regardless of when the livestock were raised or produced. Most livestock products are sold at the time they are produced. It was assumed that all wool and mohair shorn or clipped in 1954 was sold.

The value of farm products sold does not include government payments for soil conservation, lime and fertilizer furnished, and subsidy payments.

When obtaining the value of the farm products sold from farm operators, the enumerators were instructed to report the gross value without making deductions of any kind. These instructions, however, were not always followed. In the case of milk, poultry, eggs, etc., deductions were often made by buyers of farm products for hauling, handling, marketing, etc., before making payments to farmers. In such cases, farm operators often considered the amount of the check received as the gross value of the farm products sold.