

# UNITED STATES CENSUS OF **AGRICULTURE** **1945**



DEPARTMENT OF COMMERCE

Charles Sawyer, *Secretary*  
BUREAU OF THE CENSUS

J. C. Capt, *Director*

**FARM WORK POWER**

**STATISTICS FOR STATES**



DEPARTMENT OF COMMERCE  
CHARLES SAWYER, *Secretary*

BUREAU OF THE CENSUS  
J. C. CAPT, *Director*

# UNITED STATES CENSUS OF AGRICULTURE: 1945

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## SPECIAL REPORT

### FARM WORK POWER

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Farms, Cropland Harvested, Tractors,  
Horses, and Mules, by Class of  
Work Power, by Size of Farm;  
by States

Prepared under the supervision of  
RAY HURLEY  
CHIEF, Agriculture Division  
Bureau of the Census

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# UNITED STATES CENSUS OF AGRICULTURE: 1945

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|--|--|
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- BY SIZE OF FARM. 238 pages, paper, \$0.75.
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- FARM WORK POWER. 66 pages, paper, \$0.30.

Five separate reports with statistics by States for items for which data were collected on a sample basis, and with data classified by size of farm, by value of products, by type of farm, or by color and tenure of operator, as specified in titles above.

## COOPERATIVE REPORTS<sup>1</sup>

(Bureau of the Census of the U. S. Department of Commerce and the Bureau of Agricultural Economics of the U. S. Department of Agriculture. Basic data primarily from the Censuses of Agriculture.)

### LAND UTILIZATION—GRAPHIC SUMMARY

Presenting graphically the uses being made of the agricultural land resources, both inside and outside farm boundaries. Attention has been given to factors contributing to record volumes of crop and livestock production with little expansion in physical area. 41 p., il., paper, \$0.20.

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A graphic presentation of the extent and general nature of the various forms of tenure under which farms are held or operated. The factors contributing to trends and changes in farm tenure since 1880 are analyzed. 40 p., il., paper, \$0.25.

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## LETTER OF TRANSMITTAL

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DEPARTMENT OF COMMERCE,  
BUREAU OF THE CENSUS,  
Washington, D. C.

*June 1, 1949.*

SIR:

I transmit herewith a special report of the 1945 Census of Agriculture. This report presents statistics compiled for a sample of all farms included in the 1945 Census of Agriculture. It includes data by class of work power and size of farm for farms, cropland harvested, tractors, horses, and mules.

The making of tabulations for a sample of all farms made it possible to present, in this special report, data that could not be tabulated for all farms because of the cost. This report will help students and agricultural workers generally to become more familiar with the characteristics of our agriculture and to better understand the agricultural problems of our Nation.

The 1945 Census of Agriculture was taken in conformity with the Act of Congress providing for the Fifteenth Decennial Census and subsequent censuses, approved June 18, 1929. The collection of data was performed by Census enumerators under the direction of supervisors appointed by the Director of the Census. The compilation of the statistics in this special report was made under the supervision of Ray Hurley, Chief, Agriculture Division, and Warder B. Jenkins, Assistant Chief, with the assistance of Hilton E. Robison, John A. Burroughs, Carl R. Nyman, Harold Nisselson, Lois Hutchison, Orville M. Slye, Gladys L. Eagle, Elmer O. Rea, and Henry A. Tucker. The mechanical tabulation, by electrical machines, was made under the supervision of C. F. Van Aken. The maps and charts were prepared under the supervision of Clarence F. Batschelet, Geographer.

Acknowledgment is made of the technical assistance and of the loan of technical personnel by the United States Department of Agriculture in the planning, the enumeration, and the compilation of the 1945 Census of Agriculture.

Respectfully,

J. C. CAPT,  
*Director of the Census.*

Hon. CHARLES SAWYER,  
*Secretary of Commerce.*

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## SPECIAL REPORT—FARM WORK POWER

**Introduction.**—This special report, presenting information for farms by class of work power subdivided by size of farm, supplements other reports of the 1945 Census of Agriculture. The statistics presented here give a detailed picture of work power in relation to the size of the farm and the acreage of cropland harvested. The Special Report, Farms and Farm Characteristics by Size of Farm, 1945 Census of Agriculture, includes data on various characteristics which relate to the work-power requirements for farms of various sizes. The Special Reports, Farms and Farm Characteristics by Value of Products, by Type of Farm, and by Color and Tenure of Farm Operator, 1945 Census of Agriculture, include a count of farms classified by work power.

**Source of data.**—The statistics in this special report are estimates prepared on the basis of tabulations of a cross section, or a sample, of all farms included in the 1945 Census of Agriculture. This sample included approximately 50,000 designated large farms and a sample of approximately 323,000, or about 6 percent, of all other farms.

**Description of sample.**—In the sampling plan a cross section of small areas throughout the country was selected in such manner that the farms in those sample areas might represent all farms in the United States, as well as all farms in each State, for the items to be included in the enumeration. For this purpose, every county in the United States was completely subdivided into small areas or segments which averaged about 5 farms each and 2.5 square miles in area. A sample of 1 out of every 18 of these segments or sample areas was drawn. Every county in the United States was represented in the sample, with the exception of a few counties containing only a very small number of farms. Provision was made to insure the proper representation of farms in incorporated places and thickly settled unincorporated areas, as well as in open country areas. A detailed statement of the specific methods used in selecting this sample and for evaluating the precision of results may be obtained by writing to the Bureau of the Census. The sample was developed jointly by the Bureau of the Census and the Bureau of Agricultural Economics, with the cooperation of the Statistical Laboratory of Iowa State College, for use in connection with the 1945 Census of Agriculture and for general use in sample surveys in the field of agriculture.

All farms having their headquarters (farm dwellings, farm buildings, or farm entrance) within the selected areas were designated as sample farms. In addition, the sampling plan provided for the inclusion of approximately 50,000 of the largest farms in the United States, regardless of whether or not these were located in sample segments. For many items these large farms, although few in number, accounted for a considerable part of the State and national totals, and efficient sampling called for their inclusion in the sample. The criteria for selection of these large farms varied from State to State but were such as to insure the inclusion of most of the farming operations making large individual contributions to the total agriculture of the State. Lists of these specified large farms, prepared by the district supervisors, were provided the enumerator in advance of his canvass.

The sample, by including all the larger farms in addition to 1 in 18 of the remaining farms, covered about one-fourteenth of the farms in the United States and a much larger proportion of the acreage and production. This size of sample, except for a few of the smaller States and some of the more detailed tabulations, provided an adequate basis for State and national estimates.

**Comparisons with other published data.**—When data are tabulated for a sample, exact agreement with the results that would have been obtained from a tabulation of all farms is not, in general, expected. The differences in such cases are partly due to sampling variation, and partly to possible differences between the enumeration and processing of sample farms and other farms.

State totals based on all farms enumerated in the 1945 Census of Agriculture are published for all items presented in this report in both Volume I (Statistics by Counties) and Volume II

(General Report, Statistics by Subjects). However, these volumes do not give data on the number of farms, cropland harvested, mules, horses, and tractors by class of work-power groups by size of farm. Tabulations based on all farms classified by size of farm are published by States, in both volumes I and II, for the following items:

Total number of farms

Cropland harvested, including frequency by number of acres harvested

Comparison of the State totals of the estimates, presented here by class of work power and by size of farm, with the corresponding published State totals for all farms provides a measure of the sampling and other variations to which the estimates are subject. Measures of sampling reliability for the statistics in this report are given in the section entitled "Sampling Reliability of Estimates."

Comparisons with the estimated numbers presented in this report, however, would lead to an underestimation of the variations to which the data as a whole are subject, because, in processing the sample, adjustments based on the known total numbers of farms reporting were introduced.

**Definitions and explanations.**—Definitions and explanations are given below for the various items for which data are included in this report.

**Farm.**—The schedule book for the 1945 Census of Agriculture was called "Farm and Ranch Schedule." The following definition appeared in each schedule book:

A farm, for Census purposes, is all the land on which some agricultural operations are performed by one person, either by his own labor alone or with the assistance of members of his household, or hired employees. The land operated by a partnership is likewise considered a farm. A "farm" may consist of a single tract of land, or a number of separate tracts, and the several tracts may be held under different tenures, as when one tract is owned by the farmer and another tract is rented by him. When a landowner has one or more tenants, renters, croppers, or managers, the land operated by each is considered a farm. Thus, on a plantation the land operated by each cropper, renter, or tenant should be reported as a separate farm, and the land operated by the owner or manager by means of wage hands should likewise be reported as a separate farm.

Include dry-lot or barn dairies, nurseries, greenhouses, hatcheries, fur farms, mushroom cellars, apiaries, cranberry bogs, etc.

Do not include "fish farms," "fish hatcheries," "oyster farms," and "frog farms." Do not report as a farm any tract of land of less than 3 acres, unless its agricultural products in 1944 were valued at \$250 or more.

Farming, or agricultural operations, consists of the production of crops or plants, vines, and trees (excluding forestry operations) or of the keeping, grazing, or feeding of livestock for animal products (including serums), animal increase, or value increase. Livestock, as here used, includes poultry of all kinds, rabbits, bees, and fur-bearing animals in captivity, in addition to mules, asses, burros, horses, cattle, sheep, goats, and hogs. Frequently, certain operations are not generally recognized as farming. This is especially true where no crops are grown or where the establishments are not commonly considered as farms.

There was provided a partial list of types of specialized agriculture and of operations not generally recognized as farming but for which a report was required. This list included such operations as apiaries (bee farms), feed lots, greenhouses, hatcheries, mushroom cellars, etc.

**Farms reporting.**—The term "farms reporting," as used in the tables, denotes the estimated number of farms for which the specified items would have been reported in a complete enumeration, based on the number of farms reporting the item in the sample.

**Land in farms.**—The acreage designated as "all land in farms" includes considerable areas of land not actually under cultivation and some land not even used for pasture or grazing, but all such land must have been under the control of the operator and considered a part of his farm. However, large areas of timberland or other nonagricultural land held by an operator of a farm as a separate business, and not used for pasture or grazing, or for any other farm purpose, were to be excluded. Land neither owned nor leased but from which crops, including wild hay, were harvested was to be reported as part of the farm. When cattle, sheep, or other livestock were grazed or pastured on land neither owned nor



leased by the operator, such land was not to be included as a part of the farm. Operations limited to livestock grazing on open range and reported as having no land owned or leased were given "0" acres and were included with farms of under 3 acres.

The 1945 Census also includes in farm acreage more Indian grazing land than prior censuses because of changes in the method of enumerating agricultural activities on Indian reservations. In 1945, if land in an Indian reservation was used by the Indians on a cooperative basis, the entire acreage in the reservation was reported as a single farm. In such cases, much grazing land, not included in farms in previous censuses, was included as land in farms in 1945.

In 1945, data were obtained for eight classes of land based upon the use made of the land in 1944. Data are presented in this report for only cropland harvested.

**Cropland harvested.**—The land from which cultivated crops were harvested; land from which hay (including wild hay) was cut; and land in small fruits, orchards, vineyards, nurseries, and greenhouses. When two or more crops were harvested in 1944 from the same acreage, such acreage was included only once in the acreage for cropland harvested.

**Tractors.**—The inquiry on tractors called for the number on January 1, 1945, to be reported for the farm where usually kept.

**Horses and mules.**—Inquiries on horses and mules called for total number of all ages on the farm on January 1, 1945. The number of horses was to include horses, colts, and ponies.

**Classification of farms by value of farm products.**—The value group into which an individual farm has been placed was determined by obtaining a total for the amounts reported for the eight inquiries on the value of farm products sold plus the amount reported for the inquiry on the value of farm products used by farm households.

**Classification of farms by type.**—In the 1945 Census, all farms were classified mechanically by type of farm, based on the principal source of income in 1944. The procedure was as follows:

After eliminating "farms with no products" and "unclassified" farms, which could not be classified by type on the basis of the value of products, the remaining farms were sorted into two groups: (1) farms producing products primarily for sale and (2) farms producing products primarily for use by farm households. If the value of farm products used by farm households exceeded the total value of all farm products sold, the farm was classified as a "farm producing products primarily for own household use." On the other hand, if the value of all farm products sold equaled or exceeded the value of farm products used by farm households, the farm was classified as a "farm producing products primarily for sale." Farms producing products primarily for sale were further classified into the following nine major types on the basis of source of income: fruit-and-nut farms, vegetable farms, horticultural-specialty farms, all-other-crop (field crop) farms, dairy farms, poultry farms, livestock farms, forest-products farms, and general farms. If the value of products sold from one source of income was more than 50 percent of the total value of all farm products sold, the farm was classified as the type corresponding to that source of income. Farms for which the value of products from any one of the eight sources of income did not exceed 50 percent of the total value of all farm products sold were classified as "general" farms.

Farms not classified by type include two groups of farms. The first group consists of farms on which no farm products were sold or used during 1944. Farms included in this group represented (a) new farms being operated for the first time in 1945 and (b) farms having a complete crop failure in 1944 with no livestock or livestock products sold and no farm products used by farm households. The second group of farms includes a number of farms designated "unclassified farms" for which the information on value of products sold or used was incomplete or was not reported. In the tables giving data for farms classified by value of products, generally, unclassified farms have been included in the value-of-product group \$0-\$249.

**Tenure of operator.**—Farm operators are classified according to the tenure under which they operate their farms.

Full owners own all the land they operate.

Part owners own a part and rent from others the remaining part of the land they operate.

Managers operate farms for others and are paid wages or salaries for their services. Persons acting merely as caretakers or hired as laborers are not classified as managers.

Tenants operate hired or rented land only. Cash tenants pay a cash rental, such as \$4.50 per acre for the cropland, \$500 for the use of the whole farm, etc. Share-cash tenants pay a part of their rental in cash and part as a share of the crop or livestock production. Share tenants pay a share only of either the crop or livestock production or both. Croppers have been defined as share tenants to whom their landlords furnish all the work animals or tractor power in lieu of work animals. In some of the cropper areas, tenants pay cash rent for noncash crops and a share of the crop for the cash crop. These tenants, as well as those for whom the method of rental was not reported, were classified as croppers if the work power was furnished by the landlord. Other and unspecified tenants include those whose rental agreement was unspecified and those who could not be included in one of the other subclasses.

**Sampling reliability of estimates.**—Approximate measures of the sampling reliability of estimates presented by size-of-farm groups, by States, are given below.

These measures indicate the general level of sampling reliability of the estimates, but they do not include any allowance for sources of error other than sampling variation—for example, underreporting or errors in the original data furnished by farmers. Adjustments made for underreporting, differences in reporting between the farms in the sample and other farms in the census, and other problems in reporting that affect both the sample and the complete census are discussed above, in connection with the definitions of the items, as they apply. It should be borne in mind that for estimates for the United States, and for geographic regions and the larger States, sources of error other than sampling may become relatively more important than sampling variation.

It will be noted in the tables below that estimated numbers of farms and estimated item totals are subject to relatively large sampling errors when the number of farms reporting is small. Nevertheless, the complete detail for all size-of-farm groups in each State is presented for every item in this report. This method of presentation insures maximum flexibility for obtaining estimates for desired combinations of States or size groups. Moreover, percentage figures derived from the tables will have greater reliability than the estimated totals involved, and significant patterns of relationships may sometimes be observed even though the individual data are subject to relatively large sampling errors.

In general, the measures of sampling reliability presented tend to overestimate the variation in the sample estimates. This is true for several reasons: (1) maximum figures intended to serve for all size groups were used for the sampling errors in setting the limits of reliability and (2) the predicted limits of error presented ignore the complete enumeration of large farms. When large farms account for a substantial proportion of the item total in a class, the data on sampling reliability may overstate considerably the sampling variation. This factor, of course, affects only the larger size-of-farm groups and is progressively less important as the size of farm decreases.

The estimated sampling reliability of the number of farms in any size group given as reporting a specified item is shown in the following table. This table shows percentage limits, such that the chances are about 95 in 100 that the difference between the sample estimate and the number of farms reporting that would have been obtained from a tabulation for all farms would be less than the limit specified. However, most of the items would be expected to show a difference of less than one-half the percentage limit given in the table below:

If the estimated number of farms reporting in the size class is—	Then the chances are about 95 in 100 that the estimated number would differ from the results of a complete tabulation by less than—
	Percent
100.....	110.0
500.....	51.0
1,000.....	36.0
2,500.....	23.0
5,000.....	16.0
10,000.....	11.0
25,000.....	7.2
50,000.....	5.2
100,000.....	3.6
500,000.....	1.6

If in the case of items for which the estimated number of farms reporting constitutes more than 50 percent of all farms in the class, more precise limits may be obtained by multiplying the percent difference given in the table by an appropriate factor as follows:

When farms reporting constitute (percent)—	Multiply given limit by—
50.....	0.75
75.....	.50
90.....	.30
95.....	.20



Two tables are given below to assist in determining the general level of sampling reliability of estimated totals by size of farm for other items presented in this report. In table A, a list of the items is given, and the level of sampling reliability as shown in table B is indicated. By referring to table B, in the column for the level of sampling reliability designated in table A, percent limits according to the number of farms reporting may be obtained. As pointed out above, the percent limits indicated represent maximum figures intended to serve for all groups, and a majority of the estimates would be expected to show differences of less than one-half the stated limits. In using tables A and B, it should be noted that, in general, for States in which an item is reported relatively frequently the level of reliability in table B will tend to overestimate the sampling variation to a greater extent than when the item is reported relatively infrequently.

Table A.—INDICATED LEVEL OF SAMPLING RELIABILITY OF ESTIMATED STATE TOTALS BY CLASS OF WORK POWER AND SIZE OF FARM FOR SPECIFIED ITEMS

Class of work power	Level of sampling reliability (refer to corresponding numbered columns in table B) for specified item amounts			
	Cropland harvested	Tractors	Horses and colts	Mules and mule colts
All work-power classes.....	1	1	1	1
No tractor, horses, or mules.....	2	—	—	—
No tractor and only 1 horse or mule.....	1	—	(*)	(*)
No tractor and 2 or more horses and/or mules.....	1	—	1	1
Tractor and horses and/or mules.....	1	1	2	1
Tractor and no horses or mules.....	2	1	—	—

\*The estimated sampling reliability for these items is identical with the number of farms reporting the items.

Table B.—SAMPLING RELIABILITY OF ESTIMATED ITEM TOTALS FOR STATES BY CLASS OF WORK POWER AND SIZE OF FARM FOR SPECIFIED NUMBERS OF FARMS REPORTING BY LEVELS

[See table A for designation of level for any item]

If the estimated total number of farms reporting in the class of work power by size-of-farm group is—	Then the chances are about 95 in 100 that the estimated item total would differ from the results of a complete tabulation of the items for all farms by less than—	
	Level 1 Percent	Level 2 Percent
100.....	117.0	143.0
500.....	52.0	64.0
1,000.....	37.0	45.0
2,500.....	23.0	28.0
5,000.....	16.0	20.0
10,000.....	12.0	14.0
25,000.....	7.4	9.0
50,000.....	5.2	6.4
100,000.....	3.7	4.5
500,000.....	1.6	2.0

**Presentation of data.**—A State is the smallest geographic area for which the data given in this special report are available. Table C presents summary statistics for the United States on the numbers of farms in each work-power class by size of farm with the percentage distribution of each work-power class by size of farm and the percentage distribution of each size of farm by class of work power. Tables D, E, and F present similar summary statistics on the numbers of farms in each work-power class by value of products, by tenure of farm operator, and by type of farm, respectively. The data shown in these three tables, representing summary information taken from the series of special reports presenting farms and farm characteristics by these respective classifications, will be helpful in the appraisal and analysis of the data presented in this report. For corresponding information on a State level, reference should be made to these special reports.

Maps and charts showing some of the important characteristics and relationships for various work-power groups are presented on pages 6 to 9. Data by States are presented with the States arranged in groups, by geographic divisions, in order to facilitate comparisons among States in the same general area.

The discussion which follows relates primarily to the United States. Since the farms in the various States differ from those representative of the United States, the conclusions for the United States would not apply to an individual State. The characteristics of farms in each work-power class differ from State to State.

**Classification of farms by size.**—Farms were classified by size according to the total land area of each farm. In considering the data presented in this report, it should be kept in

mind that Census farms are essentially operational units—not ownership tracts. Each farm includes all the land owned and operated by an individual farm operator plus land rented by him from others. Land rented to others or managed by others is excluded. If a person has croppers or other tenants, the land assigned each cropper or tenant is a separate farm even though the landlord may handle the entire holding essentially as one farm in respect to supervision, equipment, rotation practices, purchase of supplies, or sale of products. In such a multiple-unit operation, the tenant's farm is often much smaller than single-unit farms having a similar number of acres of crops. The pasture land, woodland, wasteland, etc., which normally would be associated with the cropland is retained by the landlord. Thus the "home farm" of multiple-unit operations has a relatively smaller proportion of cropland than do single-unit farms of a like size in the same area. The work power is frequently included in the report for the "home farm."

In general, the farm averages for both inventory and production items increase with an increase in size of farm. However, grouping of farms solely on the basis of land area often brings together into a single-size group farms representing numerous types of agriculture and various sizes of operations. This is especially true when different geographical areas are brought together, such as in State, regional, or United States totals.

**Classification of farms by class of work power.**—Farms were classified on the basis of the horses, mules, and tractors reported. This classification does not present an entirely accurate picture of the work power used on these farms. The data on horses, mules, and tractors represent minimum numbers as occasionally enumerators failed to obtain the information for every farm. Thus, farms classified as reporting no tractors, horses, or mules include some farms which probably had one or more of these items. Also, for some farms all the work power is hired; for some a part of the work power is hired; and for others the work power may be furnished by the landlord. Farms hiring out or furnishing work power to others show more work power available than is needed for their operation, while those hiring all or part of the work power and those having it furnished show an insufficient amount of work power for their operations. The total horses and mules of all ages are included in the determination of work-power classes, yet on some farms horses are kept for uses other than work power. This is especially true in respect to country estates and stock ranches.

In this report the numbers only of tractors are shown. These tractors will vary in size from small garden tractors to large crawler types. Also, the work power in this report represents inventories as of January 1, 1945, while the figures for cropland harvested represent operations carried on during the preceding year.

The class of work power is associated with the type of farming, topography of the land, etc. Thus, differences between farms in one work-power class and those in another tend to reflect geographic variations. This is especially significant when totals are shown for broad geographic areas. Thus, for the United States, the differences between farms with horses and mules and no tractors and those having tractors are largely a comparison of farms in the South with those in the North and West. Nearly seven-tenths of the farms with horses or mules and no tractors are in the South, while more than seven-tenths of those with both tractors and horses or mules are in the North, as are over three-fifths of those with tractors and no horses or mules.

**Farms with no tractor, horses, or mules.**—More than one-fourth of all farms in the United States did not report either tractors or horses or mules. However, farms with no work power accounted for 6.3 percent of the total cropland harvested. About one-fifth of these farms without work power had no cropland harvested. Farms without work power accounted for two-thirds of all farms not reporting cropland harvested.

Three-fourths of the farms with no work power were under 50 acres with 29.0 percent under 10 acres. Nearly three-fifths of the farms with no work power were in the South. Many of these apparently were cropper farms on multiple units, the work power being kept on and reported for the "home farm." Over three-fourths of all farms under 10 acres did not report work power, over one-half of those 10 to 29 acres and 30.8 percent of those 30 to 49 acres did not report work power. This percentage decreases as the size of farm increases. Only 3.0 percent of those farms 1,000 acres and over have no work power reported and more than one-half of those have no cropland harvested.

It should be kept in mind that farms with no tractor, horses, or mules may include some farms with work power but for which a

report for tractor, horses, or mules was not made to the Census enumerator. These, however, account for a very small proportion of the farms with no work power reported. If it is assumed that all the farms with 500 or more acres of cropland harvested for which no work power was reported actually had tractors, horses, or mules, then only a little over 1 percent of the farms in these size groups did not have a report for work power. Although some of the farms with large acreages of cropland harvested may have been operated by hired work power it is more likely that, for the most part, tractors, horses, or mules were not correctly reported. The characteristics of the farms with smaller acreages of cropland harvested indicate that a high proportion of the work power is supplied from other farms, or that work power is not required for their operation.

A large proportion of the small farms with no work power reported represents rural homes with very limited agricultural operations. More than three out of every four farms under 10 acres report no tractor, horses, or mules. On four out of seven farms in this size group the value of products produced primarily for use in the household exceeds the value of products sold.<sup>1</sup> On nearly one-half of the farms under 10 acres the operator works off his farm 100 or more days during the year.<sup>1</sup>

Farms with no tractor, horses, or mules are predominantly farms of small incomes. Only slightly more than one-half of all such farms had a value of products of less than \$1,500, yet this group accounted for nearly four-fifths of the farms with no work power reported. Nearly one-fourth (22.7 percent) of the farms with no work power reported a value of products sold or used by farm households of less than \$250. These accounted for nearly two-thirds (63.7 percent) of all farms with a value of products of less than \$250. More than one-fourth (29.4 percent) of the farms with no work power had a value of products of \$250 to \$599 and represented nearly one-half of the farms within this income group. More than one-fourth (27.8 percent) of the farms with no work power had a value of products of \$600 to \$1,499 and accounted for three out of every ten farms with a value of products sold or used by farm households of \$600 to \$1,499.

The work-power requirements of farms are related to the type of farm. Much of the work in the smaller greenhouses and nurseries represents hand labor. More than one-half (53.1 percent) of the horticultural-specialty farms had no tractor, horses, or mules. These farms, however, accounted for only a small part of the farms with no work power.

Nearly one-half (47.0 percent) of the farms producing products primarily for own household use did not report work power. Nearly one-fifth (18.0 percent) of these family-living farms had no cropland harvested and a very high proportion reported very small acreages of cropland harvested.<sup>2</sup> Slightly less than one-half (46.4 percent) reported 1 to 10 acres of cropland harvested.<sup>2</sup> These family-living farms accounted for nearly two-fifths (38.6 percent) of all farms with no work power.

More than one-half (52.4 percent) of the poultry farms reported no cropland harvested or less than 10 acres harvested.<sup>2</sup> More than two-fifths (43.2 percent) of all poultry farms had no work power. Poultry farms accounted for 7.5 percent of the farms with no tractor, horses, or mules.

On many fruit-and-nut farms the various operations are handled on a contract basis. Some fruit-and-nut farms are handled without tractors, horses, or mules. Two-fifths (41.3 percent) of the fruit-and-nut farms reported neither tractors, horses, nor mules. These farms, however, accounted for only 3.5 percent of all farms with no work power reported.

Over one-fourth (28.7 percent) of the forest-products farms did not report work power but these accounted for only 0.6 percent of the farms reporting neither tractors, horses, nor mules.

More than one-fifth of the cotton and tobacco was produced by tenants with the landlord furnishing the work power.<sup>3</sup> The tractors, horses, and mules used on many of these cropper farms were kept on the landlord's farm and were reported there in the Census enumeration. These cotton and tobacco farms were included in the "all-other-crop" farms (other than fruits and nuts, vegetables, and horticultural specialties). Nearly three-fourths (73.6 percent) of the "all-other-crop" or "field-crop" farms were in the

South.<sup>2</sup> More than two-thirds (69.2 percent) of the "all-other-crop" farms in the South reported cotton and more than one-fourth (27.4 percent) reported tobacco.<sup>2</sup>

One-fourth (25.2 percent) of the "all-other-crop" farms—28.0 percent in the South<sup>2</sup>—reported neither tractors, horses, nor mules. For the South, "all-other-crop" farms accounted for more than two-fifths (42.3 percent) of all farms with no work power,<sup>2</sup> while for the United States as a whole they comprised 29.9 percent of all farms with no work power.

Most farms of the livestock and dairy types produce at least part of their feed requirements. However, some farms of these types, such as dry-lot feeder farms and dry-lot or barn dairies, do not produce any crops and hence may not require work power. Approximately one in ten of the livestock (11.3 percent) and dairy (10.0 percent) farms reported no tractors, horses, or mules. A somewhat lower proportion (8.4 percent) of the "general" farms were without work power.

**Farms with no tractor and only one horse or mule.**—On one farm in ten (10.9 percent) the only work power reported in the 1945 Census was one horse or mule. Most of these farms were small, although somewhat larger than those with no work power, nearly two-thirds (64.6 percent) being under 50 acres in size, with over one-half (54.1 percent) between 10 and 50 acres. Most of these farms had very little cropland harvested and accounted, in all, for less than 3 percent of the total cropland harvested. Approximately seven-eighths of these farms reported less than 30 acres harvested or no cropland harvested. Five out of six (83.0 percent) of the farms reporting only one horse or mule for work power were in the South.

For the most part, these farms with only one horse or mule had low incomes. Approximately two-thirds (64.5 percent) reported a value of products sold or used in own household of less than \$1,000, and over one-half (53.2 percent) had a total value of products of \$250 to \$999.

Two out of five (41.3 percent) of these farms with no tractor and only one horse or mule produced products primarily for own household use. They accounted for one-fifth of all family-living farms. Three out of eight were "all-other-crop" farms. Most of these "all-other-crop" farms with only one horse or mule were in the South and were principally cotton and tobacco farms. One-eighth (12.4 percent) of the "all-other-crop" farms reported no tractor and only one horse or mule. A high proportion (14.1 percent) of the vegetable farms was also represented by farms with only one horse or mule but these accounted for only 2.1 percent of the total farms with no tractor and only one horse or mule.

Two-thirds (65.9 percent) of these farms with one horse or mule were operated by owners. One in six of all cropper farms were in this work-power class and accounted for 11.6 percent of the total farms with no tractor and only one horse or mule. An additional 8.7 percent were share tenants. Some of these tenant-operated farms with only one horse or mule may have had access to additional work power, particularly the cropper farms.

**Farms with no tractor and two or more horses and/or mules.**—About three out of ten farms reported no tractor and two or more horses or mules. Nearly three-fourths (72.2 percent) of these farms had between 30 and 179 acres and 44.4 percent had between 70 and 179 acres. This group of farms accounted for one-sixth (17.2 percent) of the total cropland harvested and had an average of 22.3 more acres of cropland harvested per farm than the farms with only one horse or mule. Only one in twenty (5.2 percent) of the farms of under 10 acres reported no tractor and two or more horses or mules, while nearly two out of five (38.5 percent) of the farms 30 to 179 acres in size were in this work-power class. More than three out of five (63.0 percent) of the farms reporting no tractor and two or more horses or mules were in the South.

Nearly three-fourths (73.5 percent) of the farms with no tractor and two or more horses or mules reported a value of products sold or used in own household of \$600 to \$3,999 and about one-fourth (23.5 percent) reported a value of products of \$1,500 to \$2,499. Approximately two-fifths (38.2 percent) of all farms having a value of products of \$600 to \$3,999 had two or more horses or mules but no tractor for work power.

"All-other-crop" farms constituted three-eighths (36.8 percent) of the farms with two or more horses or mules but no tractor, while "general" farms accounted for an additional one-eighth (13.4 percent). In this group, farms producing products primarily for own household use accounted for only about one-sixth (17.7 percent).

<sup>1</sup>Special Report—Farms and Farm Characteristics by Size of Farm, 1945 Census of Agriculture.

<sup>2</sup>Special Report—Farms and Farm Characteristics by Type of Farm, 1945 Census of Agriculture.

<sup>3</sup>Special Report—Farms and Farm Characteristics by Color and Tenure of Farm Operator, 1945 Census of Agriculture.

although farms of this type represented two-fifths (41.3 percent) of all farms with no tractor and only one horse or mule. Approximately three out of ten of all farms of the "all-other-crop," dairy, livestock, and "general" types had two or more horses or mules but no tractor. Nearly seven-tenths (68.9 percent) of all farms with two or more horses or mules but no tractor were operated by owners.

In considering cropland harvested in relation to work power reported, it should be noted that farms reporting two or more horses or mules and no tractor included many of the "home farms" of multiple units, as well as many of the stock ranches and horse-breeding establishments.

**Farms with tractors and horses and/or mules.**—One-fourth of the Nation's farms reported tractors and horses and/or mules. More than four-fifths (81.8 percent) of these farms reporting tractors and horses and/or mules comprised 100 acres or more, with seven out of ten (69.1 percent) consisting of 100 to 499 acres. The proportion of farms of each size-of-farm group that was reported in this work-power class ranged from 0.9 percent for all farms under 10 acres in size to 64.7 percent for farms of 500 to 999 acres. Farms with tractors and horses and/or mules reported nearly three-fifths (58.0 percent) of all cropland harvested in the United States in 1944. Only 1.1 percent of these farms did not report any cropland harvested, while nearly four-fifths (79.6 percent) reported 50 acres or more harvested. More than seven-tenths (71.6 percent) of the farms reporting tractors and horses and/or mules were in the North.

Seven out of every eight farms (86.9 percent) with tractors and horses and/or mules reported a value of products sold or used by own household of \$1,500 or more and nearly three-fourths (73.2 percent) reported a value of products of \$2,500 or more. Over one-half (55.1 percent) of all farms reporting a value of products of \$2,500 or more and three-sevenths (44.5 percent) of all farms reporting a value of products of \$1,500 or more were in this work-power class.

Nearly one-half (48.2 percent) of all livestock farms, three-sevenths (44.7 percent) of all "general" farms, 44.6 percent of all dairy farms, and one-fifth (20.3 percent) of all "all-other-crop" farms were in this work-power class. Of the fruit-and-nut, vegetable, and horticultural-specialty farms combined, one-sixth reported tractors and horses and/or mules, but these farms accounted for only 2.8 percent of all farms in this work-power class. Less than one-twentieth of the farms producing products primarily

for own household use were in this work-power class, and these accounted for only 3.9 percent of all farms reporting tractors and horses and/or mules.

Although only one-fourth of the farms operated by owners had tractors and horses and/or mules, these farms accounted for two-thirds (67.6 percent) of all farms in this work-power class. More than one-half (53.4 percent) of the farms operated by tenants with tractors and horses and/or mules were operated by share tenants. Sixty-three percent of the farms operated by share-cash tenants, and more than one-half of the part-owner (51.2 percent) and manager-operated (52.2 percent) farms were in this work-power class.

**Farms with tractors and no horses or mules.**—Farms with tractors and no horses or mules are predominantly owner-operated, and are associated with farms of large incomes. The proportion of farms in this class increases as the value of products increases. More than one-fourth (27.9 percent) of all farms with a value of products of \$40,000 and over reported tractors as the only source of work power. Two-thirds (66.8 percent) of the farms in this work-power class reported a value of products sold or used by own household of \$1,500 or more. More than three-fifths of the farms with tractors and no horses or mules were in the North, and the five East North Central States accounted for 29.9 percent of all such farms.

As the size of farm increases, the proportion of farms with tractors and no horses or mules also increases. One-seventh of all farms of 500 to 999 acres were reported in this work-power class. For farms 70 acres or more in size, farms with tractors and no horses or mules accounted for one-sixth of the total acres of cropland harvested, while they accounted for only one-twelfth of all cropland harvested on farms of less than 70 acres.

"All-other-crop" farms constitute the most important single type of farm among the farms reporting tractors but no horses or mules. They accounted for nearly one-third (32.9 percent) of all farms in this work-power class. Many of these farms were single-crop farms such as the wheat farms of the Great Plains. Farms reporting tractors but no horses or mules included many of the highly specialized vegetable, fruit-and-nut, and horticultural-specialty farms. Nearly one-fifth (18.7 percent) of all vegetable farms and about one-fourth of the fruit-and-nut (26.5 percent) and horticultural-specialty farms (24.4 percent) were in this work-power class. The dairy, livestock, and "general" types of farm each accounted for about one-eighth of the farms with tractors and no horses or mules.