

CHAPTER V – SIZE OF FARM

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CHAPTER V.—SIZE OF FARM

Introduction.—The size of a farm can be measured by either a physical or an economic characteristic. Data are presented in this chapter for farms classified according to two physical characteristics, viz, all land in farms and acres of cropland harvested. Other possible size-of-farm measures include capital investment in land, production equipment, gross income received from the sale of farm products, labor requirements or productive man-work units per farm, and numbers of livestock or livestock units per farm. A description of the types of data which are available from the 1954 enumeration is shown under the heading "Other published data." All classifications by size are intended to provide a picture of our agricultural resources and the utilization of these resources by different producing groups.

The 1954 data in this chapter are based on a classification of the total acres of land in farms. These data include the total acreage, the major classes of land use, irrigation, and conservation practices. An array was made of these data on the basis of a size group classification for all land in farms, and the summaries are presented herein. The classification based on the acres of cropland harvested is restricted to a count of farms.

A farm may vary in land area from less than one acre to many thousands of acres. Examples of some of the smaller farms, in terms of land area, include nurseries, greenhouses, feed lots, dry-lot dairies, and mushroom cellars. Examples of extremely large operations, in terms of land area, include the livestock ranches and large wheat farms in the West and Southwest where farming is conducted on an extensive basis. Detailed data for farm-operator characteristics and by farm characteristics other than land and land use, by size of farm, are not available for the 1954 Census.

Sources of data.—The data presented in this chapter are from the 1954 Census of Agriculture with comparative data from earlier Censuses. All statistics by size of farm from the 1954 Census are based on a tabulation for all farms.

Presentation of statistics.—Size-of-farm statistics are presented for the United States, for 3 major regions, for 9 geographic divisions, and for each of the 48 States. An outline map showing the regions, geographic divisions, and States for which totals are shown appears in the Introduction to this volume.

This chapter presents data, by size-of-farm groups, for the geographic areas described above on the number of farms, land in farms, acres of cropland harvested, other classes of farm land, and irrigated land. Some of these tables present data for the 1954 Census only, while other tables include comparative data for earlier Censuses. Averages, percentages, and other derived data are provided to aid in using and analyzing the statistics.

Other published data.—Data from the 1954 Census of Agriculture for counties and States are included in Volume I for the number of farms and the acres of land in farms by size of farm. State totals in Volume I, for farms classified by size, show the number of farms, farm acreage according to use, irrigation, and conservation practices for 1954, with comparable data for earlier Censuses to 1920.

Additional measures of farm size are included in other chapters of Volume II. Chapter VI contains a distribution of the number of farms by number of milk cows, by number of certain other livestock, and by number of chickens on hand. Chapter VII contains data on the distribution of farms by number of acres and quantity produced for certain selected crops. Data on the classification of farms by economic class, or the total value of farm products sold, are given in Chapter XI.

Definitions and explanations.—Definitions and explanations in this chapter are limited to those which have a particular significance in respect to the presentation of statistics by size of farm. Definitions and explanations of general application are included in the Introduction to this volume, and those for specific items may be found in the chapters for those subjects.

A farm.—In analyzing size-of-farm statistics, consideration should be given to the definition of a farm for Census purposes as defined in the Introduction to this volume. All places of 3 or more acres were counted as farms if the value of agricultural products produced in 1954, exclusive of home gardens, amounted to \$150 or more. These 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 value of sales of agricultural products in 1954 amounted to \$150 or more.

Changes in the definition of a farm affect the comparability of size-of-farm data for the various Censuses. While the definition was essentially the same for the 1954 and the 1950 Censuses, it was somewhat more inclusive for the 1945 and earlier Censuses. 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 if the agricultural products for home use and for sale were valued at \$250 or more.

The definition of a farm in the 1920 and 1910 Censuses was similar to that used from 1925 to 1940 but was somewhat more inclusive. In those years, farms of less than 3 acres with products valued at less than \$250 were to be included provided they required the continuous services of at least one person.

In the definition for 1900, there were no criteria for minimum acreage or for value of production. Market and truck gardens, fruit orchards, nurseries, cranberry marshes, greenhouses, and city dairies were to be included provided the entire time of at least one person was devoted to their care. For 1890, 1880, and 1870, no tract of less than 3 acres was to be reported as a farm unless \$500 worth of produce was actually sold from it during the year. For 1860, no definition was given the enumerator.

Land in farms.—Land in farms for Census purposes is essentially operating units and not ownership tracts. The acres in the farm is the residual obtained by asking the number of acres owned; adding the number of acres rented from others or worked on shares for others; and subtracting the number of acres rented to others or worked on shares by others. It is this residual or net acreage, therefore, that determines the size of farm.

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 as one unit. The person in charge of a managed farm reported the total acres managed for his employer. Land reported as rented to others, or worked on shares by others, was subtracted from this total managed land to obtain the net acreage operated by the manager.

The total acres of 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 the farm operator was unusually large. If a place had 1,000 or more acres of land not being used for agricultural purposes in 1954, 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 was considered to be land for agricultural purposes. Non-agricultural land included all woodland not pastured and wasteland.

The procedure used in 1950 for excluding unusually large acreages of nonagricultural land differed slightly from the one used for the 1954 Census. In 1950, adjustments were made in places of 1,000 or more acres (5,000 or more acres in the 17 Western States) if less than 10 percent of the total acreage was used for agricultural purposes.

In 1954, all grazing land was to be included as land in farms except for open range and grazing land used under Government permit. Grazing lands operated by grazing associations were to be reported in the name of the manager in charge. Land used rent free was to be included as land rented from others. All land in Indian reservations not reported by individual Indian farm operators or not rented to non-Indian farm operators 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.

Classification of farms by size.—In both the 1954 and 1950 Censuses, all size-of-farm tabulations were classified into 12 size groups based on the total acres of land in farms. However, for the under 10-acre group a separate count is shown for farms under 3 acres and farms 3 to 9 acres.

The size groups used in both the 1954 and 1950 Censuses are based on size-of-farm groups established in 1935. These size groups were based primarily on class intervals of the natural groupings which have resulted from the Government land-survey system, along with certain natural farm groupings in other areas. Most of the land in the western part of the United States was surveyed by the Government and initially divided into sections of approximately 640 acres. Transfers of this land have been made for the most part on the basis of these initial Government surveys. A classification of these farms according to size, therefore, will reflect approximate class interval midpoints of 20, 40, 60, 80, 120, 160, etc. acres. These natural groupings were considered in determining the size groups used in the 1935 Census. The classification avoids some of the bimodal distributions of farms that occurred under the classification used for prior Censuses. It provides midpoints for each size group (except for the extremely small or the extremely large farms) that reflect the most common frequency or mode for these survey groupings.

In the Southern States, where relatively small allotments of land are made to croppers or other classes of tenants, the concentration of farms in certain reported size groups may be due in part to the plantation system of farming. Under this system, the tenant generally farms only cropland and the size of farm tends to be smaller than other farms having a similar acreage of crops. The pastureland, woodland, and wasteland which normally would be associated with the cropland may be retained by the landlord. In such cases, the

landlord's farm has a higher proportion of pastureland, woodland, and wasteland than other farms of similar size in the area.

History of classification of farms by size.—The first tabulation of farms by size was made in the Census of 1860. However, for that year and also for 1870, the classification was based on the acres of improved land rather than on the total acres in the farm. Data for the number of farms by size (based on improved land) for these two Censuses are shown for the United States in Table 1.

The first classification of farms by size, based on the total farm area, was made in 1880. In that year, farms were classified by size into 8 groups. In 1890, the classification provided for only 7 groups, no breakdown having been made that year for farms under 10 acres in size. From 1900 to 1930, the classification was the same as that used in 1880 except that, beginning with 1920, farms of 1,000 acres and over were further classified by size. In 1920 and 1925, a separate classification was shown for farms of 5,000 acres and over; and in 1930, farms of 10,000 acres and over comprised an additional group.

In 1935, a revised size classification was established to conform more closely with the Government land-survey system. A total of 17 size groups were provided; some of these groups were provided largely to facilitate comparisons with data for prior Censuses.

These 17 size-of-farm groups were continued in the Censuses of 1940 and 1945 to provide comparative data for earlier Censuses. In both the 1945 and 1950 Censuses, these 17 groups were combined to form 12 size groups for use in classifying most of the major items covered by the Census of Agriculture. Basic summary data were listed for most of the combined size groups to provide comparative information for Censuses for earlier years. The combined groups were eliminated in 1954, however, and brackets were used to indicate comparable data from previous Censuses.

Prior to 1900, a count only is available for farms classified by size. Beginning with 1900, the size-of-farm classification has included a count of farms, data for all land in farms, and the more important classes of land according to use. Beginning with 1940, data for the entire land-use classification have been tabulated by size of farm.

Changes in size of farm.—In 1954, the average size of farm in the United States was 242.2 acres, the largest at any time during the last century (see Table 14). This average represents an increase of 26.9 acres, or 12.5 percent, since 1950. During this period, the number of farms in the United States dropped 11.1 percent and the total amount of land in farms remained unchanged. Since 1910, the average size of farm has increased 104 acres; with an increase for each Census, except 1925 and 1935. Even though the average size of farm varies considerably by States and geographic areas, an increase in size of farm was shown for every State in the United States from 1950 to 1954. The average size of farm in 1954 varied from 68 acres in North Carolina to 4,483 acres per farm in Arizona.

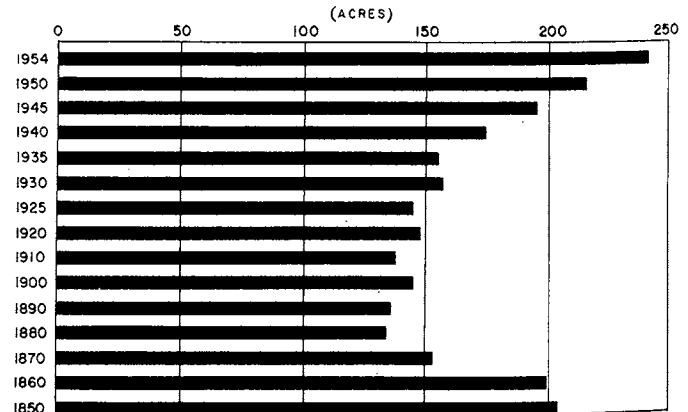
TABLE 1.—FARMS CLASSIFIED BY ACRES OF IMPROVED LAND, FOR THE UNITED STATES: 1870 AND 1860

Size group (based on improved land)	Number of farms	
	1870	1860 ¹
Total.....	2,659,985	2,044,077
Under 3 acres.....	6,875	(NA)
3 to 9.....	172,021	54,676
10 to 19.....	294,607	162,178
20 to 49.....	847,614	616,558
50 to 99.....	754,221	608,878
100 to 499.....	565,054	487,041
500 to 999.....	15,873	20,319
1,000 or more.....	3,720	5,364

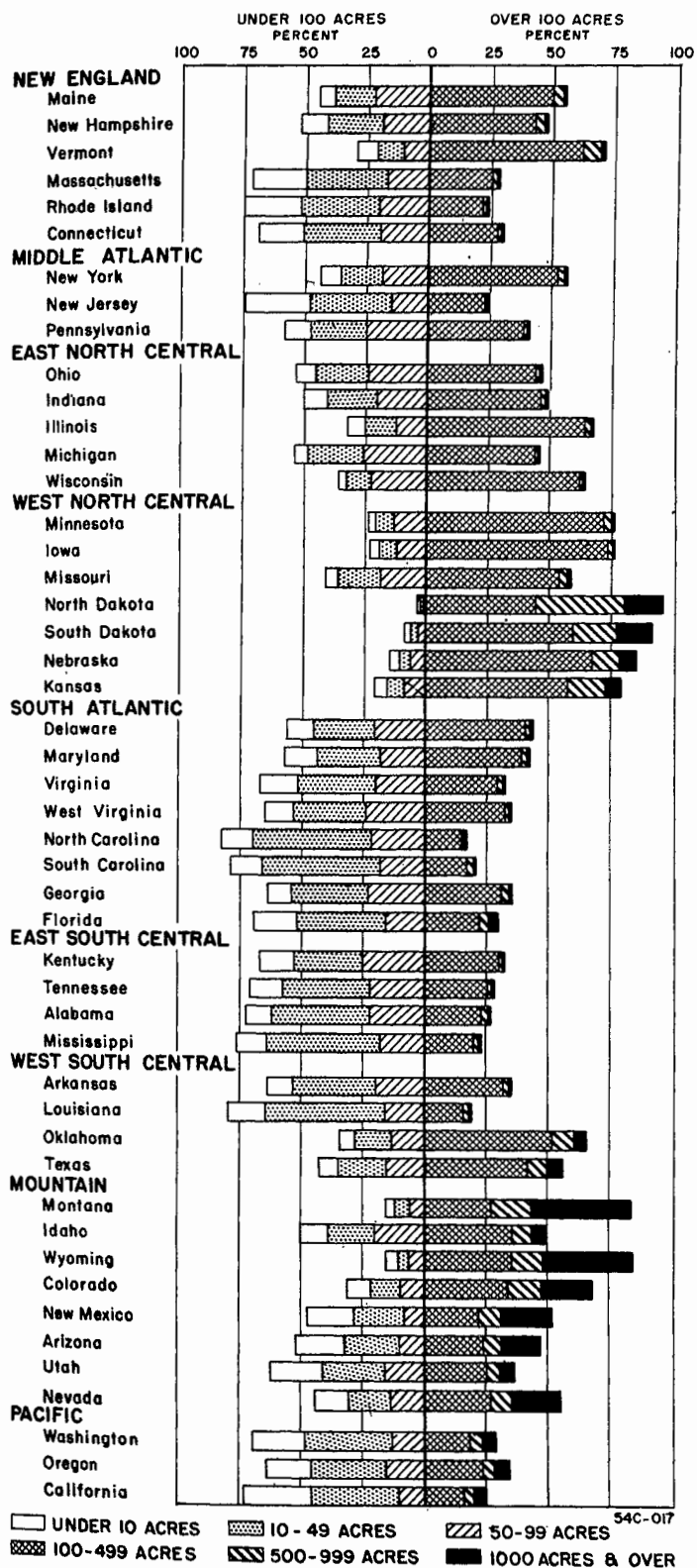
NA Not available.

¹ For 1860, the classification by acreage of improved land is for "Farms containing 3 acres or more." The number of farms in the various classes adds to 1,955,014, which is 89,063 less than the total number of farms.

AVERAGE SIZE OF FARM, FOR THE UNITED STATES;
1850 - 1954



PERCENT DISTRIBUTION OF THE NUMBER OF FARMS, BY SIZE, BY STATES: 1954



A group average derived entirely from the total acres in each place brings together, in a single size group, farms representing numerous types of agriculture and intensity of production. This is especially true when the averages are for geographic divisions, regions, or for the United States. Size of agricultural operations in North Carolina, for example, are quite different from those in the extensive dry-land range country in Arizona.

Changes in the definition of a farm and in the enumeration procedure have affected the number of farms reported for the various Censuses, especially for farms under 3 acres. The effect of changes in definition is discussed in the Introduction to this volume. Table 2 presents the number of farms under 3 acres for each Census beginning with 1880, the minimal value criteria relating to such farms as given in the Census definitions, and the index numbers of prices received by farmers.

TABLE 2.—NUMBER OF FARMS UNDER 3 ACRES IN SIZE, PERCENT OF ALL FARMS, MINIMUM VALUE OF PRODUCTS, AND INDEX NUMBERS OF PRICES RECEIVED BY FARMERS; FOR THE UNITED STATES: 1880 TO 1954

[Figures for States in Table 12]

Year	Farms under 3 acres in size		Minimum value-of-products criterion for farms under 3 acres (dollars)		Index numbers of prices received by farmers (1910-1914=100) ¹
	Number	Percent of all farms	All farm products sold or used by farm households	Farm products sold	
1954.....	99,896	2.1	-----	150	249
1950.....	76,606	1.4	-----	150	250
1945.....	98,966	1.7	250	-----	197
1940.....	35,977	0.6	250	-----	95
1935.....	35,573	0.5	250	-----	90
1930.....	43,007	0.7	250	-----	148
1925.....	15,151	0.2	250	-----	143
1920.....	20,350	0.3	² 250	-----	217
1910.....	18,033	0.3	² 250	-----	104
1900.....	41,385	0.7	(³)	(³)	(NA)
1890.....	(NA)	(NA)	-----	500	(NA)
1880.....	4,352	0.1	-----	500	(NA)

NA Not available.

¹ For all years, except 1954 and 1910, each index number is for the calendar year preceding the Census date. For 1954 and 1910, the index numbers are for those calendar years. Data for 1939 to 1954 from Table 607 in "Agricultural Statistics, 1955"; and for years prior to 1939, see Table 604, "Agricultural Statistics 1954" United States Department of Agriculture.

² "Or requiring for its agricultural operations the continuous services of at least one person."

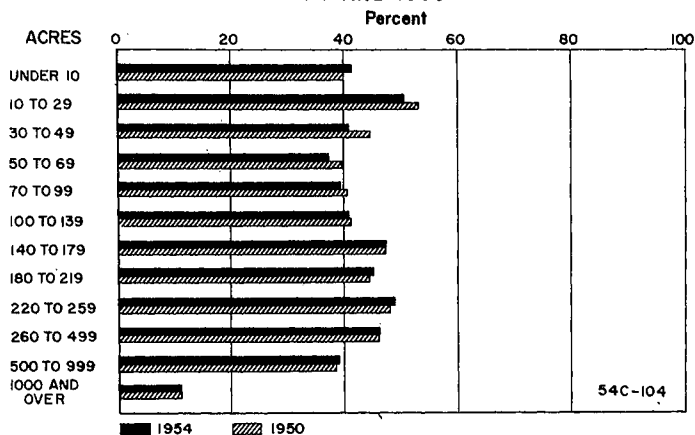
³ No minimum limit used in the 1900 Census on value of products. "All agricultural establishments with less than three acres were reported as farms whenever their operation or management required the constant services of at least one individual."

The total area of land in farms and the distribution by size groups for the various Census periods for some States is affected by the method of enumerating and processing large ownership tracts such as grazing associations and Indian reservations. As indicated in the section of this chapter on "Land in farms," lands in grazing associations and Indian reservations, not reported by individual Indian or other operators, were to be reported as one farm. In certain instances, all of the agricultural land in a grazing association or in a reservation may have been reported as one farm, while in other years, all or part of this land may have been reported for a considerable number

of different operators and, thus, counted as a considerable number of separate farms.

Between 1950 and 1954, the number of farms in the "Under 10 acres" group remained relatively constant, but the percentage of all farms represented by farms under 10 acres in size increased from 1950 to 1954. Table 3 shows the number of farms included in the under 10 acres group for each Census beginning with 1880. Farms of under 10 acres increased from 139,241 in 1880 to 594,561 in 1945, then decreased to 484,291 in 1954.

PERCENT OF ALL LAND IN FARMS REPRESENTED BY CROPLAND HARVESTED, BY SIZE OF FARM; FOR THE UNITED STATES: 1954 AND 1950



PERCENT OF ALL LAND IN FARMS REPRESENTED BY LAND PASTURED, BY SIZE OF FARM; FOR THE UNITED STATES: 1954 AND 1950

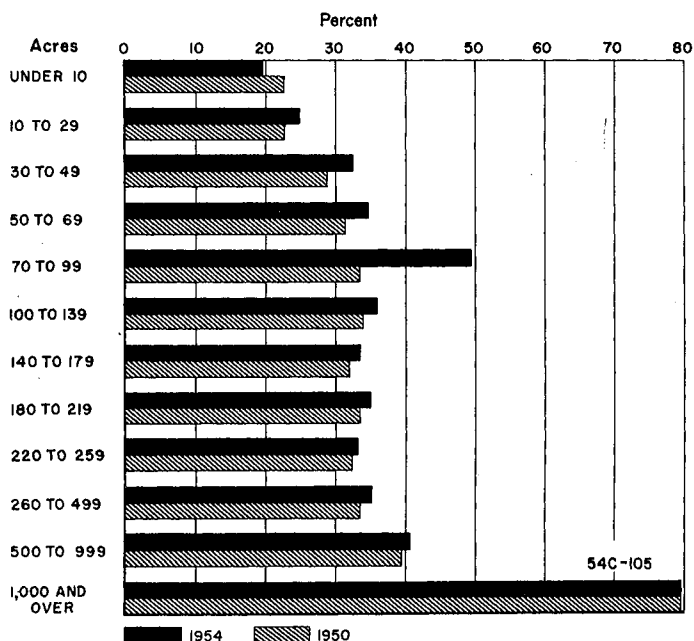


TABLE 3.—NUMBER OF FARMS UNDER 10 ACRES IN SIZE, WITH LAND IN FARMS; FOR THE UNITED STATES: 1880 TO 1954

[Figures for States in Table 12]

Year	Under 10 acres		Under 3 acres		3 to 9 acres	
	Number of farms	Land in farms (acres)	Number of farms	Land in farms (acres)	Number of farms	Land in farms (acres)
1954	484,291	2,259,817	99,896	(NA)	384,395	(NA)
1950	484,014	2,437,584	76,606	(NA)	408,308	(NA)
1945	594,561	2,805,435	98,966	141,262	495,595	2,664,183
1940	506,402	2,667,754	35,977	50,946	470,425	2,616,898
1935	570,831	3,057,166	35,573	51,269	535,258	3,005,897
1930	358,504	1,908,370	43,007	61,338	315,497	1,847,032
1925	378,535	2,096,610	15,151	22,976	363,384	2,073,034
1920	288,772	1,600,287	20,350	33,613	268,422	1,566,074
1910	335,043	(NA)	18,033	(NA)	317,010	(NA)
1900	267,229	1,477,379	41,385	78,715	225,844	1,308,664
1890	150,194	(NA)	(NA)	(NA)	(NA)	(NA)
1880	139,241	(NA)	4,352	(NA)	134,889	(NA)

NA Not available.

Changes in the number of farms reported for the under 10 acres group between Census years may be attributed to changes in the agricultural operations on these places, to changes in Census definition of a farm, and to changes in the relative completeness of the Census. Places in this group may have sufficient agricultural production to be counted as farms at one Census, and at another, they may have too limited production to be included as farms. In many cases, such places have small agricultural operations as they represent rural residences.

The number of farms in all of the size groups from 10 to 179 acres for the United States decreased for each Census period since 1935 (see Table 4). This trend continues to reflect the consolidation of farms, the discontinuance of farm operations on small farms, and a decrease in farm numbers brought about by the rapid increase in farm technology and mechanization of agriculture. The increase in nonfarm job opportunities has contributed significantly to this change.

Farms of 1,000 or more acres in size accounted for 2.7 percent of all farms in 1954, 2.3 percent in 1950, and 1.9 percent in 1945. Farms in this 1,000-or-more-acres group accounted for 45.9, 42.6, and 40.3 percent, respectively, of the total farm land. In 1954, these large farms of 1,000 or more acres accounted for 20.7 percent of the total cropland, 65.4 percent of the total land pastured, and 36.1 percent of the total woodland (see Table 6). The increase in the number and size of large farms has resulted from farm consolidation arising because of the improvements in farm technology and efficiency, the rapid mechanization of agriculture, and the incorporation of grazing lands into farms in the West.

For any one area representing similar land and similar farming practices, the size of farm varies with the type of farming, the resources of the farm family, the number of available workers in the family, the age of the operator, the utilization of machinery, size of holding at the time of settlement, etc. On the one extreme are places which represent, primarily, rural homes with limited agricultural operations, and on the other, there are strictly commercial farms depending in a large part on hired employees.