CHAPTER V SIZE OF FARM

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Chapter V.—SIZE OF FARM

Introduction.—Data presented in this chapter are for farms classified according to two physical characteristics—all land in farms and acres of cropland harvested. Farm size is a familiar term and might appear to need no explanation, but few terms are used more frequently in farm economics with greater ambiguity. This is due much more to the various ways in which it is used than to any misunderstanding of the term.

There are many ways of measuring size. Total acreage of land in a unit is the measure most commonly used. But acreage alone is not an entirely satisfactory measure. "Size of farm" generally implies more than the total land area used. The major interest is in the "size of business" carried on. A 10-acre nursery may carry on a much larger business than a 540-acre dryland wheat farm. A drylot dairy farm may produce more on 3 acres than a livestock ranch does on 2,500 acres of rangeland. A 5,000-hen laying flock or "egg factory" may produce more on ½ acre than a farming unit in the West consisting of 1,000 acres of irrigated land used for hay production.

Quantity of capital employed is another frequently used measure of size of business. It is a suitable measure for farms with the same general type of organization. But some types, such as dairy and truck farming, require relatively large amounts of capital and labor while cash-grain farms use large amounts of capital and relatively little labor. Using labor as a measure of size involves similar difficulties. No single input—capital, land, labor—takes account of all the various capital-labor combinations found on different types of farms or on the same types of farms in different areas which result in differences in the size of the farm business.

In the 1959 classification of farms by economic class, farms were grouped by the size of the business operated. The 1959 census figures for farms classified by total value of farm products sold during the year are presented in Volume II, Chapter XI: Economic Class of Farm.

Examples of alternative size-of-farm measures which could have been used are: Capital investment in land and production equipment, labor requirements or productive man-work units per farm, number of livestock or livestock units per farm, net farm income, and gross income received from the sale of farm products. A summarization of the types of data which are available from the 1959 enumeration is given under the heading "Other published data." The various classifications by size provide a picture of our agricultural resources and the utilization of these resources by different producing groups.

The 1959 data in this chapter include the total acres of land in farms, the major classes of land use, land under irrigation, and conservation practices. On the basis of a size group classification for all land in farms, an array was made of these statistics and the summaries are presented herein. The classification based on the acres of cropland harvested is limited 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 feed lots, drylot dairies, mushroom cellars, pig "hatcheries," "egg factories," nurseries, greenhouses, and "broiler plants." Examples of extremely large operations, area wise, include the livestock ranches and large wheat farms in the West and Southwest where farming operations are conducted on an extensive scale. Data for farm-opera-

tor characteristics and by farm characteristics other than land and land use, by size of farm, are available for the 1959 census.

Sources of Data.—The data presented in this chapter are from the 1959 Census of Agriculture with comparative data from earlier censuses. Size-of-farm statistics from the 1959 census are based on a tabulation for all farms, except for the tabulation of commercial and noncommercial farms which is based on a sample of approximately 20 percent of all farms.

Presentation of Statistics.—Size-of-farm statistics are presented for the United States for three major regions, for nine geographic divisions, and for each of the States. An outline map showing the regions, geographic divisions, and States for which totals are shown appears in the Introduction to this volume. Some of the tables present data for the 1959 census only, while other tables include comparative data for earlier censuses. Averages, percentages, and other desired figures are provided to aid in the use and analysis of these statistics.

Other Published Data.—Data from the 1959 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 1959, with comparable data for earlier censuses.

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 and chapter XI, as previously mentioned, presents data on farms by economic class.

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, the definition of a farm for census purposes as defined in the Introduction to this volume should be noted. Places of less than 10 acres in 1959 were counted as farms if the estimated sales of agricultural products for the year amounted to at least \$250. Places of 10 or more acres in 1959 were counted as farms if the estimated sales of agricultural products for the year amounted to at least \$50. Places having less than the \$50 and \$250 minimum estimated sales in 1959 were also counted as farms if they could normally be expected to produce sufficient agricultural products to meet the requirements of the definition. This final qualification permitted inclusion as farms of some places farmed for the first time in 1959 and places temporarily affected by crop failure or other unusual conditions.

Changes in the definition of a farm affect the comparability of size-of-farm data for the various censuses. Reference should be made to page XXVII of the Introduction for a discussion of changes in the definition of a farm and the effect of these changes upon the statistics.

Land in Farms.-Except for managed farms, the land to be included in each farm was determined from the answers to questions about the number of acres owned, the number of acres rented from others or worked on shares for others, and the number of acres rented to others or worked on shares by others. The acres owned and the acres rented from others or worked on shares for others were first added together and then the acres rented to others or worked on shares by others were subtracted. The result represented the number of acres in the farm. The number of acres in a managed farm was the difference between the total land managed and that part of the managed land that was rented to others or worked on shares by others.

The acreage designated as "land in farms" consists primarily of "agricultural" land-that is, land used for crops and pasture or grazing. It also includes extensive areas of land not actually under cultivation nor used for pasture or grazing. For example, the entire acreages of woodland and wasteland owned or rented by farm operators are included as land in farms, unless they were being held for nonagricultural purposes or unless the acreages were unusually large. For 1959 and 1954, if places reported 1,000 or more acres of woodland not pastured and wasteland, and if less than 10 percent of the total acreages in the places was used for agricultural purposes, the acreages of woodland not pastured and wasteland were reduced to equal the acreages used for agriculture. 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 in the place 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 provided the place of which it formed a part was a farm. Grazing land operated by grazing associations was to be reported in the name of the person chiefly responsible for conducting the business of the association. Land used rent-free was to be reported as land rented from others. All land in Indian reservations that was used for growing crops or grazing livestock was to be included. Land in Indian reservations that was not reported by individual Indians and that was not rented to non-Indians was to be reported in the name of the cooperative group that used the land. In some instances, an entire Indian reservation was reported as one farm.

Classification of Farms by Size .- In the 1959 census, all sizeof-farm tabulations were classified into 12 size groups based on the total acres of land in farms. For the "under-10-acre" group, separate counts are shown for farms under 3 acres and farms 3 to 9 acres. The size groups used in the 1954 census are based on size-of-farm groups established in 1935. A change was made in the size classification for 1959 by subdividing the 1,000-acreand-over group and by combining two previously recognized groups-10 to 29 acres and 30 to 49 acres. These size groups, established by the census, 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 30, 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 the acreage of land rented to individual croppers or tenants is relatively small under usual conditions, 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 total area of the individual farm unit 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 are shown for the United States in table 1.

Table 1.-FARMS CLASSIFIED BY ACRES OF TOTAL LAND IN FARMS, FOR THE UNITED STATES, 1880 TO 1959; AND ACRES OF IMPROVED LAND, FOR THE UNITED STATES, 1860 AND 1870

				Number of farm	s by acres of tota	l land in farms			
Year	Total	Under 3 acres	3 to 9 acres	10 to 29 acres	30 to 49 acres	50 to 99 acres	100 to 499 acres	500 to 999 acres	1,000 or more acres
1959. 1954 ¹ . 1950. 1945 ¹ . 1940. 1935 ¹ . 1930. 1925 ¹ . 1920. 1910 ¹ . 1910 ¹ .	3,710,503 4,782,416 5,388,437 5,839,169 6,102,417 6,812,350 6,295,103 6,371,640 6,453,991 6,361,502 5,729,657	.99,896 78,110 98,966 37,022 35,573 44,244 15,151 321,158 18,033 41,882	165,245 384,395 410,420 495,995 472,325 535,258 317,755 363,384 ³ 270,348 317,010 226,564	1,241,431 (2,00 (2,03 (2,03 (1,91 (1,91	499,496 624,596 708,796 2,061) 882,164 2,115) 8,692) 3,516) 8,499) 4,797)	1,375,198 1,421,078 1,475,005 1,438,069 1,366,167	1,658,530 1,899,053 2,068,466 2,166,208 2,255,396 2,417,803 2,315,403 2,326,155 22,456,729 2,494,461 2,290,561	200,012 191,697 182,297 173,777 163,711 167,452 159,723 143,852 149,826 125,295	136,42° 130,48: 121,47° 112,89° 100,57° 88,66° 80,66° 63,32° 67,40° 50,13° 47,166°
1890	4,564,641 4,008,907		134,889		8,327) 6,323)	1,121,485 1,032,810	2,008,694	84,395 75,972	31,54 28,57
-		L	L	Number of fe	arms by acres of i	mproved land			
	Total	Under 3 acres	3 to 9 acres	10 to 19 acres	20 to 49 acres	50 to 99 acres	100 to 499 acres	500 to 999 acres	1,000 or more acres
L870	2,659,985 2,044,077	6,875 NA	172,021 54,676	294,607 162,178	847,614 616,558	754,221 608,878	565,054 487,041	15,873 20,319	3,720 5,364

NA Not available.

NA Not available.

Data for Alaeka and Hawaii not included.

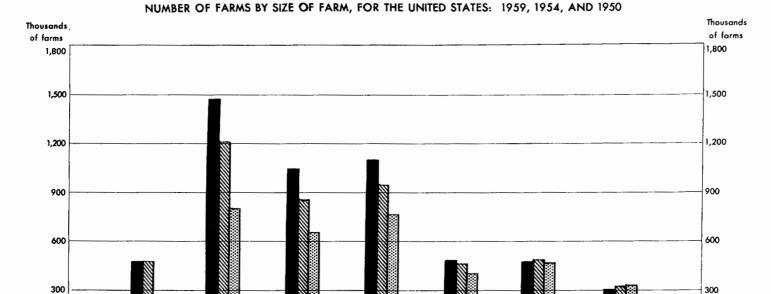
Includes farms of 100 acres or more for Hawaii.

Data for Alaeka not available.

Includes 62 farms for Alaeka, in the under 50 acres size group.

For 1860, the classification 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.

0



100 to 179 acres

180 to 259 acres

50 to 99 acres

The first classification of farms by size, based on the total farm area, was made in 1880. In that year, farms were classifled by size into eight groups. In 1890, the classification provided for only seven 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.

1954

10 to 49 acres

1959

Under 10 acres

1950

In 1935, a revised size classification was established to conform more closely with the Government land-survey system. A total of 17 size groups was 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. For 1959, a separate tabulation includes data for number of farms and all land in farms classified by use for farms of 2,000 acres or more by size of farm (by 1,000-acre intervals, ranging from 2,000 to 2,999 acres to 10,000 acres or more).

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 .- An outstanding characteristic of twentieth century agriculture in the United States has been the growth in farm size. The total acreage of land in farms has changed little in this period and most of the increase in average

size of farm has come from the reduction in farm numbers. In 1959, the average size of farm in the United States was 302.8 acres, an increase of 60.6 acres, or 25 percent, since 1954. This was the largest average size reported at any time during the last century and more than double the average size of 145.1 acres reported only 35 years ago (table 2).

500 acres and over

260 to 499 acres

Table 2.-NUMBER OF FARMS, ALL LAND IN FARMS, AVERAGE SIZE OF FARM, AVERAGE VALUE OF LAND AND BUILDINGS PER FARM AND PER ACRE, FOR THE UNITED STATES: 1850 TO 1959

[Data for value of farms for 1959, 1954, and 1950 are based on reports for only a sample of farms. See text]

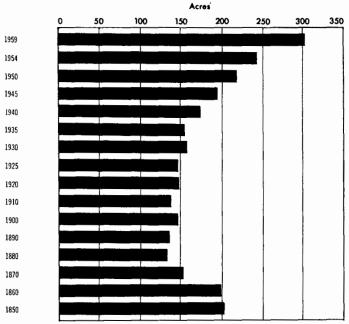
Value of land and buildings Number of farms All land in farms Per-Average size of Percent Percent of Year change from change from Total preced in (dol-(dol ing ing Census farms Census lars) lars) 3,710,503 4,782,416 5,388,437 5,859,169 6,102,417 6,812,350 6,295,103 6,371,640 1959... 1954¹.. -22.6 -11.1 -8.1 -3.3 (Z) 1.5 234,825 49.5 158,191,511 242.2 20,405 84.25 60.8 14,005 7,917 5,532 51.1 59.9 1950... 1945¹.. 1,162,642,888 ,141,615,364 ,065,113,774 ,054,515,111 31.69 46.8 55.4 154.8 4,823 31.16 1930... 1925¹... -1.3 -1.2 6.8 924,319,352 6,453,991 6,366,044 5,739,657 1920 958,676,612 10,295 881,431,469 841,201,546 4.8 34.6 138.5 5,480 39.58 38.8 32.7 28.2 1900... 25.7 19.82 623,218,619 536,081,835 407,735,041 16.3 31.5 0.1 2,909 2,909 2,544 2,799 136.5 1890... 4,564,643 13.9 4,008,907 2,659,985 2,044,077 50.7 30.1 41.1 1880... 153.3 18.26 21.4 38.7 3,251 21.4 293,560,614

Since 1910, the average size of farm has increased 164 acres, with an increase for each census, except 1925 and 1935. Between 1954 and 1959, the number of farms in the 48 States comprising the conterminous United States declined from 4,782,416 to 3,703,894, or 23 percent. The number of farms in 1959 was the

Z Less than 0.05 percent. ¹Data for Alaska and Hawaii not included. ²Value of land and buildings in Hawaii not included for 1959.

smallest number reported by the census of agriculture since 1870. Of the 1,079,000 decrease, approximately 232,000 resulted from the change in definition of a farm. In the period from 1954 to 1959, the number of farms decreased in every one of the 48 States and in all except 42 of the 3,067 counties in the 48 States comprising the conterminous United States. Even though the average size of farm varies considerably by States and geographic areas, an increase in size was reported for every State in the United States from 1954 to 1959. The average size of farm in 1959 varied from 83 acres in North Carolina to 5,558 acres per farm in Arizona.

AVERAGE SIZE OF FARM, FOR THE UNITED STATES: 1850 TO 1959



Alaska and Hawaii not included.

Table 3.—NUMBER OF FARMS AND PERCENT CHANGE IN NUMBER OF FARMS, BY SIZE OF FARM, FOR THE UNITED STATES: 1959, 1954, AND 1950

	Number of farms						Percent change1	
Size of farm	1959	19541	19 <i>5</i> 0	Increase or decrease (-)1		-	Ī	
				1954 to 1959	1950 to 1954	1954 to 1959	1950 to 1954	
Total	3.710.503	4.782.416	5,388,437	-1,078,522	-599,746	-22.6	-11.	
inder 10 acres	244,328					-50.3	-0.3	
.0 to 49 acres	813,216		1,479,596	-401,629	-265,019	-33.1	-17.	
10 to 29 acres	, NA	713,335	855,000	NA.			-16.	
30 to 49 acres	NA	499,496	624,596	NA.	-124,746	NA.	-20.	
0 to 69 acres	258,195	346,323	427,025	-88,280	-80,564	-25.5	-18.	
0 to 99 acres	399,795			-118,098			-16.	
.00 to 139 acres	394,505	491,458		-97,063	-87,653	-19.8	-15.	
40 to 179 acres	378,003	461,651	523,659	-83,805	-61,800	-18.2	-11.	
.80 to 2I9 acres	225,576	257,189	275,049	-31,670	-17,820	-12.3	-6.	
20 to 259 acres	188,899	206,509		-17,655			-2.	
60 to 499 acres	471,547	482,246					.0.	
00 to 999 acres	200,012	191,697		8,268	9,433	4.3	5.	
,000 acres and over	136,427	130,481	121,473	5,818	9,119	4.5	7.	
1,000 to 1,999 acres	79,101	NA.	NA.	NA.	NA	NA	N	
2,000 acres and over	57,326	NA	NA.	NA.	NA	NA	N	

NA Not available.

Date for Alaska and Hawaii not included.

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 dryland range country in Arizona. Changes in 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 4.—NUMBER OF FARMS UNDER 3 ACRES IN SIZE, FOR THE UNITED STATES: 1880 TO 1959
[Figures for States in Table 137]

	Farms under 3 acres in size				
Year	Number	Percent of all farms			
1959	79,083 99,896 78,110 98,966	2.1 2.1 1.4 1.7			
1940. 1935 ¹ 1930.	37,022 35,573 44,244	0.6 0.5 0.7			
1925 ¹ 1920 ² 1910 ¹ 1900. 1890.	15,151 21,158 18,033 41,882 NA 4,352	0.2 0.3 0.3 0.7 NA 0.1			

NA Not available. ¹Data for Alaska and Hawaii not included. ²Data for Alaska not available.

The total area of land in farms and the distribution by size groups for the various census periods for some States are 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 1954 and 1959, the number of farms in the "Under-10-acres" group declined approximately 50 percent but the percentage of all farms represented by farms under 10 acres in size decreased from 10.1 percent in 1954 to 6.5 percent in 1959. Table 5 shows the number of farms included in the "Under-10-acres" group for each census beginning with 1880. The change in the definition of a farm accounted for a large part of the decline in the number of farms from 1954 to 1959 (see page XXXII of the Introduction). Farms of under 10 acres increased from 139,241 in 1880, to 594,561 in 1945, then decreased to 244,328 in 1959.

Table 5.-NUMBER OF FARMS UNDER 10 ACRES IN SIZE, WITH LAND IN FARMS, FOR THE UNITED STATES: 1880 TO 1959

[Figures for States in Table 13]									
	Under	10 acres	Under 3	acres	3 to 9 acres				
Year	Number of farms	Land in farms (acres)	Number of farms	Land in farms (acres)	Number of farms	Land in farms (acres)			
1959. 1954. 1950. 1945. 1940. 1933. 1930.	244,328 484,291 488,530 594,561 509,347 570,831 361,999	1,052,591 2,259,817 2,451,013 2,805,435 2,679,405 3,057,166 1,922,230	79,083 99,896 78,110 98,966 37,022 35,573 44,244	NA NA NA 141,252 52,334 51,269 63,210	165,245 384,395 410,420 495,595 472,325 535,258 317,755	NA NA 2,664,183 2,627,071 3,005,897 1,859,020			
1925 ¹ 1920 ¹ 1910 ¹ 1900 1890 1880	378,535 288,772 335,043 268,446 150,194 139,241	2,096,610 1,600,287 NA 1,481,899 NA NA	15,151 20,350 18,033 41,882 NA 4,352	22,976 33,613 NA 79,508 NA NA	363,384 268,422 317,010 226,564 NA 134,889	2,073,634 1,566,674 NA 1,402,391 NA			

NA Not available.

Data for Alaska and Hawaii not included.