

Farm Population

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REVISED ESTIMATES FOR 1941-59

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REVISIONS OF ESTIMATES OF FARM POPULATION, 1941-1959
 (Prepared in the Farm Population Branch, Economic and Statistical
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In 1960, a new and more restrictive definition of the farm population was adopted by the Department of Agriculture and the Bureau of the Census, Department of Commerce, for use in current surveys and censuses. The effect of this definition change has been discussed in detail elsewhere. ^{1/} Its use in the Current Population Survey resulted in a farm population estimate of 15,635,000 in 1960, as compared with 20,541,000 on the old definition.

For certain purposes, there is considerable need for a continuous comparable annual series of farm population estimates, for example, to permit computation of per capita annual farm income figures. For such uses, revision of farm population data to provide a continuous annual series and to eliminate the large break in the series produced by the definition change is deemed necessary, even though it is recognized that there is no exact and definitive way of merging the old and new series.

This report presents revisions of the farm population of the United States for the years 1941 through 1959, and explains the method of revision used.

^{1/} Farm Population, Series Census-AMS (P-27), No. 28. April 17, 1961.

Farm population, 1940-60

Year	Revised	Former Series
	<u>1,000</u>	<u>1,000</u>
1940	30,547	30,547
1941	30,118	30,273
1942	28,914	29,234
1943	26,186	26,681
1944	24,815	25,495
1945	24,420	25,295
1946	25,403	26,483
1947	25,829	27,124
1948	24,383	25,903
1949	24,194	25,954
1950	23,048	25,058
1951	21,890	24,160
1952	21,748	24,283
1953	19,874	22,679
1954	19,019	22,099
1955	19,078	22,438
1956	18,712	22,362
1957	17,656	21,606
1958	17,128	21,388
1959	16,592	21,172
1960	^{1/} 15,635	^{1/} 20,541

^{1/} Includes Alaska and Hawaii.

The problem.--From 1950 to 1960 the farm population on the old definition as measured by the Current Population Survey dropped from 25,058,000 to 20,541,000, a decline of 4,517,000. ^{2/} This 10-year drop is somewhat exceeded by the reduction of farm population resulting from the adoption of the new definition (4,906,000). Thus the change resulting from the new definition is far too large relative to the actual 10-year trend to be absorbed into the series within a few years without seriously exaggerating the amount and rate of recent farm population decline.

The reasoning behind the revisions.--Two circumstances impelled the adoption of a new definition in 1960. The most important was survey evidence which showed that the number of people who reported themselves as farm residents but who in reality had very little economic or residential connection with agriculture was rapidly increasing. Under the old definition, a respondent offered his own opinion as to whether his house was located on a farm (or ranch). No specific criteria were used. Prior to the 1950's this simple and inexpensive procedure appeared to count as farms in population surveys about the same number of places as were listed as farms in the Census of Agriculture under detailed procedures which used minimum amounts of acreage and of products produced or sold as criteria. Beginning in the 1940's, but particularly in the 1950's, there was an increase (1) in the number of people who ceased farming operations on small places but continued to live in their homes and report themselves as farm residents. Some were commuting to work at nonfarm jobs; some had retired (the social security program for farmers began in 1955); some had put their land in the soil bank, a program which began in 1956. And, (2) many farmers quit farming as agricultural conditions prompted consolidation of farms into fewer but larger units. The vacated farm houses were frequently rented for cash by nonfarm workers many of whom were then unintentionally counted as farm people.

The second circumstance which impelled a definition change in 1960 was the fact that it had been decided to make the definition of a farm used in the Census of Agriculture more restrictive than formerly. This was done by raising the amount of land acreage required per place and by requiring that a place sell a specified minimum of products rather than being permitted to qualify through the value of unsold products raised for home consumption. ^{3/} Thus, comparability would have been impaired between the data obtained in the Census of Agriculture and that of the Census of Population regardless of the other growing difficulties in measurement of farm population described in the previous paragraph.

^{2/} A minor amount of the drop--perhaps 250,000--was caused by not classifying people by farm residence in urban areas in 1960. ^{3/} The new farm definition requires a place to have 10 or more acres of land and to sell at least \$50 of products annually. (A smaller place can qualify by selling at least \$250 of products.) In the 1950's, a place needed only 3 or more acres of land and at least \$150 of products sold or produced.

In 1960, the difference in the size of the farm population on the old definition as compared with the new is principally due to the shift from the self-defined residence classification used formerly to the use of objective criteria which eliminate many people previously classed as farm residents who have no real involvement in agriculture. ^{4/} The remainder of the difference (about 20 percent) results from the fact that the objective criteria adopted from the Census of Agriculture and newly employed in defining farm residents were made more restrictive in 1959 than those used in previous censuses of agriculture.

There is evidence that the amounts and relative proportions of these two sources of difference would not have been the same if the new procedure could have been applied to prior years. Specifically, the difference resulting through shift from self-definition to objective criteria would have been less important in 1950 or 1940, whereas the difference due to tightening of the objective criteria themselves would have been larger in earlier years. For example, although 4.6 million people claiming to live on farms in 1957 did not live on places qualifying as farms under agriculture census criteria, the corresponding figure in 1950 was less than 2 million. ^{5/} On the other hand, whereas use of more restrictive criteria in the agriculture census eliminated 232,000 places from the farm count in 1959, use of the same criteria would have eliminated an estimated 425,000 places in 1950 and 550,000 places in 1940. ^{6/}

The census year 1940 can conveniently be regarded as a significant point in time for both these sources of difference. It marked the end of the Depression and thus the end of the period in which large numbers of people were "backed up" on farms for subsistence purposes because of lack of nonfarm jobs. The year 1940 also marked the beginning of a period in which increasing numbers of farm people found it possible to commute to nonfarm employment and gradually to abandon small-scale or marginal farming operations. It also heralded the beginning of two decades of especially rapid change in the organization and techniques of commercial farming and in programs for farming which reduced the number of farm operators and made many farm homes available for occupancy by a growing body of nonagricultural rural residents. For such reasons, the revisions of farm population estimates are taken back through 1941. Data for years prior to 1941 on a broader definition are considered to be appropriate to the agricultural and residential conditions of those times and are not revised.

Method of revision.--Several methods of obtaining new estimates for the years 1941-1959 were tried. A principal premise in evaluating them was the

^{4/} Some small producers who did not think of their places as farms were brought into the farm population by the new criteria. The net change, however, is toward a reduced farm population. ^{5/} Data from unpublished 1957 survey by Bureau of the Census, and 1950 data from Farms and Farm People, a special cooperative study by the Departments of Agriculture and Commerce, June 1953. ^{6/} Data for 1959 from 1959 Census of Agriculture, Summary for the Forty-Eight States, January 1961. Estimates for earlier years from unpublished research of Economic Research Service.

belief that the result should show more of the adjustment due to definition change occurring in the 1950's than in the 1940's. The most important support for this premise lies in the results of the censuses of agriculture which show that both the numerical and relative rates of decline in the number of farms were considerably higher in the 1950's than in the 1940's.

The end amount of adjustment to be made for the 20 years was 4,906,000. It was assumed that the annual average of this adjustment (245,300) was appropriate as the amount of the adjustment to occur in the middle year of the series. Further, it was assumed that the adjustment for other years could be estimated by adding increments on to the 1950 adjustment figure for each succeeding year, and by deducting decrements from the 1950 figure for each preceding year, such that the cumulative whole of annual adjustments would sum to 4,906,000. (The size of most of the increments and decrements applied to the 1950 adjustment figure is 10,000. Some were slightly smaller or larger as needed to sum all adjustments to 4,906,000.)

The cumulative adjustments for each year (beginning in 1941) were subtracted from the existing farm population figure on the old definition for each year. Use of the old annual farm population series as the base to which adjustments are applied serves to retain the general configuration of the old trend line in the new series. The adjustment method chosen has the effect of putting about $\frac{3}{5}$ of the adjustment due to definition change into the 1950's and $\frac{2}{5}$ into the 1940's.

When this procedure was followed, the estimated farm population for 1950 was 23,108,000. This estimate for 1950 proved to be very close to the enumerated rural-farm population in the 1950 Census of Population--23,048,000. The coincidence may be essentially fortuitous, but because of the advantages that would accrue in making other revisions to follow--such as State estimates and migration data--it was decided to substitute and accept the 1950 Census figure in place of the computed estimate for 1950. Minor adjustments were then made in figures for other years to conform to the 1950 benchmark.

Among alternative procedures tried was a formula which provided an estimate of the ratio of farm population to number of farms for each year using 1940 and 1960 data as controls. These ratios were then applied to the estimated annual number of farms to produce annual adjusted farm population figures. This procedure, like the one adopted, also yielded a 1950 estimate of somewhat more than 23,000,000.