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FARMERS AND FARM PRODUCTION IN THE UNITED STATES

(A COOPERATIVE REPORT)

Agricultural Producers and Production
in the United States—A General View



SPECIAL REPORTS



1954 Census of Agriculture

U. S. DEPARTMENT OF COMMERCE
BUREAU OF THE CENSUS

U. S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE

WASHINGTON • 1956

U. S. Department of Agriculture
Ezra Taft Benson, Secretary

Agricultural Research Service
Byron T. Shaw, Administrator

U. S. Department of Commerce
Sinclair Weeks, Secretary

Bureau of the Census
Robert W. Burgess, Director

United States
Census
of
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1954

Volume III
SPECIAL REPORTS
Part 9

Farmers and Farm Production in the United States
(A Cooperative Report)

Chapter IX

Agricultural Producers and
Production in the United
States—A General View

CHARACTERISTICS OF FARMERS and FARM PRODUCTION •
PRINCIPAL TYPES OF FARMS •





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PREFACE

The purpose of this report is to present an analysis of the characteristics of farmers and farm production for the most important types of farms as shown by data for the 1954 Census of Agriculture. The analysis deals with the relative importance, pattern of resource use, some measures of efficiency, and problems of adjustment and change for the principal types of farms.

The data given in the various chapters of this report have been derived largely from the special tabulation of data for each type of farm, by economic class, for the 1954 Census of Agriculture. The detailed statistics for each type of farm for the United States and the principal subregions appear in Part 8 of Volume III of the reports for the 1954 Census of Agriculture.

This cooperative report was prepared under the direction of Ray Hurley, Chief of the Agriculture Division of the Bureau of the Census, U. S. Department of Commerce, and Kenneth L. Bachman, Head, Production, Income, and Costs Section, Production Economics Research Branch, Agricultural Research Service of the U. S. Department of Agriculture.

Jackson V. McElveen, Agricultural Economist, Production, Income, and Costs Section, Production Economics Research Branch, Agricultural Research Service of the U. S. Department of Agriculture, supervised a large part of the detailed planning and analysis for the various chapters.

The list of chapters and the persons preparing each chapter are as follows:

Chapter I.....	Wheat Producers and Wheat Production A. W. Epp, University of Nebraska.	Chapter VI....	Western Stock Ranches and Livestock Farms Mont H. Saunderson, Western Ranching and Lands Consultant, Bozeman, Mont.
Chapter II.....	Cotton Producers and Cotton Production Robert B. Glasgow, Production Economics Research Branch, Agricultural Research Service, United States Department of Agriculture.	Chapter VII....	Cash-grain and Livestock Producers in the Corn Belt Edwin G. Strand, Production Economics Research Branch, Agricultural Research Service, United States Department of Agriculture.
Chapter III....	Tobacco and Peanut Producers and Production R. E. L. Greene, University of Florida.	Chapter VIII..	Part-time Farming H. G. Halcrow, University of Connecticut.
Chapter IV....	Poultry Producers and Poultry Production William P. Mortenson, University of Wisconsin.	Chapter IX....	Agricultural Producers and Production in the United States— A General View Jackson V. McElveen, Production Economics Research Branch, Agricultural Research Service, United States Department of Agriculture.
Chapter V.....	Dairy Producers and Dairy Production P. E. McNall, University of Wisconsin.		

The editorial work for this report was performed by Caroline B. Sherman, and the preparation of the statistical tables was supervised by Margaret Wood.

December 1956

UNITED STATES CENSUS OF AGRICULTURE: 1954

REPORTS

Volume I.—Counties and State Economic Areas. Statistics for counties include number of farms, acreage, value, and farm operators; farms by color and tenure of operator; facilities and equipment; use of commercial fertilizer; farm labor; farm expenditures; livestock and livestock products; specified crops harvested; farms classified by type of farm and by economic class; and value of products sold by source.

Data for State economic areas include farms and farm characteristics by tenure of operator, by type of farm, and by economic class. Volume I is published in 33 parts.

Volume II.—General Report. Statistics by Subjects, United States Census of Agriculture, 1954. Summary data and analyses of the data for States, for Geographic Divisions, and for the United States by subjects.

Volume III.—Special Reports

Part 1.—Multiple-Unit Operations. This report will be similar to Part 2 of Volume V of the reports for the 1950 Census of Agriculture. It will present statistics for approximately 900 counties and State economic areas in 12 Southern States and Missouri for the number and characteristics of multiple-unit operations and farms in multiple units.

Part 2.—Ranking Agricultural Counties. This special report will present statistics for selected items of inventory and agricultural production for the leading counties in the United States.

Part 3.—Alaska, Hawaii, Puerto Rico, District of Columbia, and U. S. Possessions. These areas were not included in the 1954 Census of Agriculture. The available current data from various Government sources will be compiled and published in this report.

Part 4.—Agriculture, 1954, a Graphic Summary. This report will present graphically some of the significant facts regarding agriculture and agricultural production as revealed by the 1954 Census of Agriculture.

Part 5.—Farm-Mortgage Debt. This will be a cooperative study by the Agricultural Research Service of the U. S. Department of Agriculture and the Bureau of the Census. It will present, by States, data based on the 1954 Census of Agriculture and a special mail survey conducted in January 1956, on the number of mortgaged farms, the amount of mortgage debt, and the amount of debt held by principal lending agencies.

Part 6.—Irrigation in Humid Areas. This cooperative report by the Agricultural Research Service of the U. S. Department of Agriculture and the Bureau of the Census will present data obtained by a mail survey of operators of irrigated farms in 28 States on the source of water, method of applying water, number of pumps used, acres of crops irrigated in 1954 and 1955, the number of times each crop was irrigated, and the cost of irrigation equipment and the irrigation system.

Part 7.—Popular Report of the 1954 Census of Agriculture. This report is planned to be a general, easy-to-read publication for the general public on the status and broad characteristics of United States agriculture. It will seek to delineate such aspects of agriculture as the geographic distribution and differences by size of farm for such items as farm acreage, principal crops, and important kinds of livestock, farm facilities, farm equipment, use of fertilizer, soil conservation practices, farm tenure, and farm income.

Part 8.—Size of Operation by Type of Farm. This will be a cooperative special report to be prepared in cooperation with the Agricultural Research Service of the U. S. Department of Agriculture. This report will contain data for 119 economic sub-

regions (essentially general type-of-farming areas) showing the general characteristics for each type of farm by economic class. It will provide data for a current analysis of the differences that exist among groups of farms of the same type. It will furnish statistical basis for a realistic examination of production of such commodities as wheat, cotton, and dairy products in connection with actual or proposed governmental policies and programs.

Part 9.—Farmers and Farm Production in the United States. The purpose of this report is to present an analysis of the characteristics of farmers and farm production for the most important types of farms as shown by data for the 1954 Census of Agriculture. The analysis deals with the relative importance, pattern of resource use, some measures of efficiency, and problems of adjustment and change for the principal types of farms. The report was prepared in cooperation with the Agricultural Research Service of the U. S. Department of Agriculture.

The list of chapters (published separately only) and title for each chapter are as follows:

- Chapter I—*Wheat Producers and Wheat Production*
- II—*Cotton Producers and Cotton Production*
- III—*Tobacco and Peanut Producers and Production*
- IV—*Poultry Producers and Poultry Production*
- V—*Dairy Producers and Dairy Production*
- VI—*Western Stock Ranches and Livestock Farms*
- VII—*Cash-Grain and Livestock Producers in the Corn Belt*
- VIII—*Part-Time Farming*
- IX—*Agricultural Producers and Production in the United States—A General View*

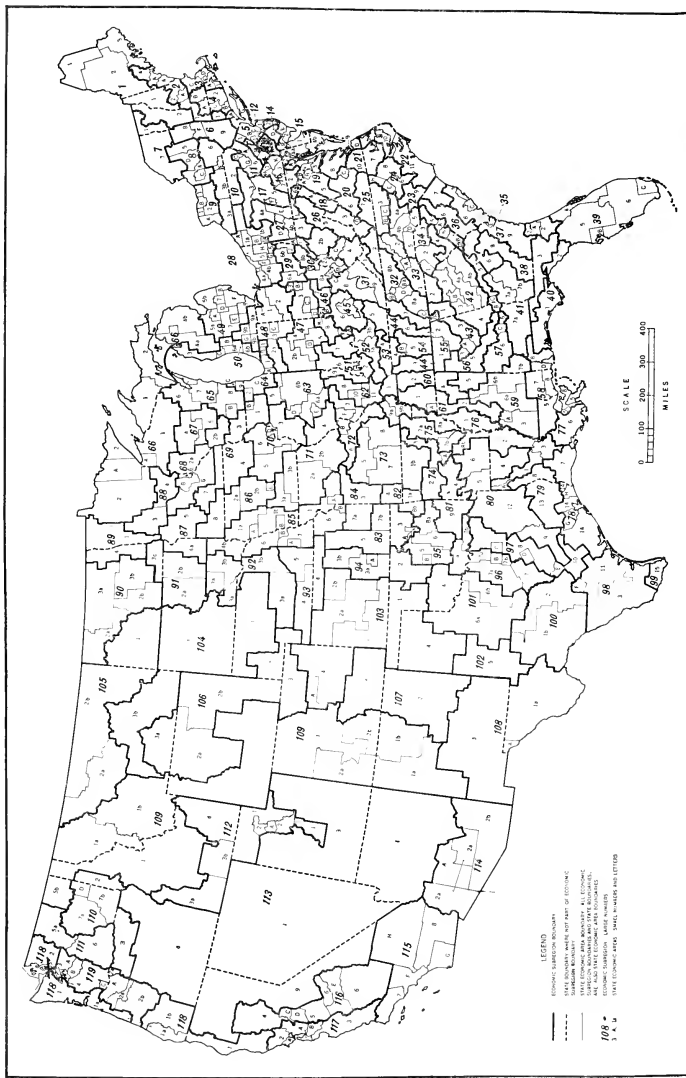
Part 10.—Use of Fertilizer and Lime. The purpose of this report is to present in one publication most of the detailed data compiled for the 1954 Census of Agriculture regarding the use of fertilizer and lime. The report presents data for counties, State economic areas, and generalized type-of-farming areas regarding the quantity used, acreage on which used, and expenditures for fertilizer and lime. The Agricultural Research Service cooperated with the Bureau of the Census in the preparation of this report.

Part 11.—Farmers' Expenditures. This report presents detailed data on expenditures for a large number of items used for farm production in 1955, and on the living expenditures of farm operators' families. The data were collected and compiled cooperatively by the Agricultural Marketing Service of the U. S. Department of Agriculture and the Bureau of the Census.

Part 12.—Methods and Procedures. This report contains an outline and a description of the methods and procedures used in taking and compiling the 1954 Census of Agriculture.

INTRODUCTION

ECONOMIC SUBREGIONS AND STATE ECONOMIC AREAS



INTRODUCTION

Purpose and scope.—American agriculture is exceedingly diverse and is undergoing revolutionary changes. Farmers and their families obtain their income by producing a large variety of products under a large variety of conditions as well as from sources other than farming. The organization of production, type of farming, productivity, income, expenditures, size, and characteristics of operators of the 4.8 million farms in the United States vary greatly. Agriculture has been a dynamic, moving, adjusting part of our economy. Basic changes in farming have been occurring and will continue to be necessary. Adjustments brought by technological change, by changing consumer wants, by growth of population, and by changes in the income of nonfarm people, have been significant forces in changing agriculture since World War II. The transition from war to an approximate peacetime situation has also made it necessary to reduce the output of some farm products. Some of the adjustments in agriculture have not presented relatively difficult problems as they could be made by the transfer of resources from the production of one product to another. Others require substantial shifts in resources and production.

Moreover, a considerable number of farm families, many of whom are employed full time in agriculture, have relatively low incomes. Most of these families operate farms that are small when compared with farms that produce higher incomes. The acreage of land and the amount of capital controlled by the operators of these small farms are too small to provide a very high level of income. In recent years, many farm families on these small farms have made adjustments by leaving the farm to earn their incomes elsewhere, by discontinuing their farm operations, and by earning more nonfarm income while remaining on the farm or on the place they farmed formerly.

One objective of this report is to describe and analyze some of the existing differences and recent adjustments in the major types of farming and farm production. For important commodities and groups of farms, the report aims to make available, largely from the detailed data for the 1954 Census of Agriculture but in a more concise form, facts regarding the size of farms, capital, labor, and land resources on farms, amounts and sources of farm income and expenditures, combinations of crop and livestock enterprises, adjustment problems, operator characteristics, and variation in use of resources and in size of farms by areas and for widely differing production conditions. Those types of farms on which production of surplus products is important have been emphasized. The report will provide a factual basis for a better understanding of the widespread differences among farms in regard to size, resources, and income. It will also provide a basis for evaluating the effects of existing and proposed farm programs on the production and incomes of major types and classes of farms.

Income from nonfarm sources is important on a large number of farms. About 1.4 million of the 4.8 million farm-operator families, or about 3 in 10, obtain more income from off-farm sources than from the sale of agricultural products. More than three-fourths of a million farm operators live on small-scale part-time farms and ordinarily are not dependent on farming as the main source of family income. These part-time farmers have a quite different relation to adjustments, changes, and farm problems than do commercial farmers. A description of and facts regarding these part-time farms and the importance of nonfarm income for commercial farms are presented in Chapter 8.

Except for Chapter 8, this report deals with commercial farms (see economic class of farm). The analysis is limited to the major types of agricultural production and deals primarily with geographic areas in which each of the major types of agricultural production has substantial significance.

Source of data.—Most of the data presented in this report are from special compilations made for the 1954 Census of Agriculture, although pertinent data from research findings and surveys of the U. S. Department of Agriculture, State Agricultural Colleges, and other agencies have been used to supplement Census data. The detailed Census data used for this report are contained in Part 8 of Volume III of the reports of the 1954 Census of Agriculture. Reference should be made to that report for detailed explanations and definitions and statements regarding the characteristics and reliability of the data.

Areas for which data are presented.—Data are presented in this report primarily for selected economic subregions and for the United States. The boundaries of the 119 subregions used for the compilation of data on which this report is based are indicated by the map on page vi. These subregions represent primarily general type-of-farming areas. Many of them extend into two or more States. (For a more detailed description of economic subregions, see the publication "Economic Subregions of the United States, Series Census BAE; No. 19, published cooperatively by the Bureau of the Census, and the Bureau of Agricultural Economics, U. S. Department of Agriculture, July 1953.)

DEFINITIONS AND EXPLANATIONS

Definitions and explanations are given only for some of the more important items. For more detailed definitions and explanations, reference can be made to Part 8 of Volume III and to Volume II of the reports of the 1954 Census of Agriculture.

A farm.—For the 1954 Census of Agriculture, places of 3 or more acres were counted as farms if the annual value of agricultural products, exclusive of home-garden products, amounted to \$150 or more. The agricultural products could have been either for home use or for sale. Places of less than 3 acres were counted as farms only if the annual value of sales of agricultural products amounted to \$150 or more. Places for which the value of agricultural products for 1954 was less than these minima because of crop failure or other unusual conditions, and places operated at the time of the Census for the first time were counted as farms if normally they could be expected to produce these minimum quantities of agricultural products.

All the land under the control of one person or partnership was included as one farm. Control may have been through ownership, or through lease, rental, or cropping arrangement.

Farm operator.—A "farm operator" is a person who operates a farm, either performing the labor himself or directly supervising it. He may be an owner, a hired manager, or a tenant, renter, or sharecropper. If he rents land to others or has land cropped for him by others, he is listed as the operator of only that land which he retains. In the case of a partnership, only one partner was included as the operator. The number of farm operators is considered the same as the number of farms.

Farms reporting or operators reporting.—Figures for farms reporting or operators reporting, based on a tabulation of all farms, represent the number of farms, or farm operators, for which the specified item was reported. For example, if there were 11,922 farms in a subregion and only 11,465 had chickens over 4 months old on hand, the number of farms reporting chickens would be 11,465. The difference between the total number of farms and the number of farms reporting an item represents the number of farms not having that item, provided the inquiry was answered completely for all farms.

Farms by type.—The classification of commercial farms by type was made on the basis of the relationship of the value of sales from a particular source, or sources, to the total value of all farm products sold from the farm. In some cases, the type of farm was determined on the basis of the sale of an individual farm product, such as cotton, or on the basis of the sales of closely related products, such as dairy products. In other cases, the type of farm was determined on the basis of sales of a broader group of products, such as grain crops including corn, sorghums, all small grains, field peas, field beans, cowpeas, and soybeans. In order to be classified as a particular type, sales or anticipated sales of a product or group of products had to represent 50 percent or more of the total value of products sold.

The types of commercial farms for which data are shown, together with the product or group of products on which the classification is based are:

<i>Type of farm</i>	<i>Product or group of products amounting to 50 percent or more of the value of all farm products sold</i>
Cash-grain.....	Corn, sorghum, small grains, field peas, field beans, cowpeas, and soybeans.
Cotton.....	Cotton (lint and seed).
Other field-crop.....	Peanuts, Irish potatoes, sweet-potatoes, tobacco, sugarcane, sugar beets for sugar, and other miscellaneous crops.
Vegetable.....	Vegetables.
Fruit-and-nut.....	Berries and other small fruits, and tree fruits, nuts, and grapes.
Dairy.....	Milk and other dairy products. The criterion of 50 percent of the total sales was modified in the case of dairy farms. A farm for which the value of sales of dairy products represented less than 50 percent of the total value of farm products sold was classified as a dairy farm if— (a) Milk and other dairy products accounted for 30 percent or more of the total value of products sold, and (b) Milk cows represented 50 percent or more of all cows, and (c) Sales of dairy products, together with the sales of cattle and calves, amounted to 50 percent or more of the total value of farm products sold.
Poultry.....	Chickens, eggs, turkeys, and other poultry products.
Livestock farms other than dairy and poultry.	Cattle, calves, hogs, sheep, goats, wool, and mohair, provided the farm did not qualify as a dairy farm.

<i>Type of farm</i>	<i>Product or group of products amounting to 50 percent or more of the value of all farm products sold</i>
General.....	Farms were classified as general when the value of products from one source or group of sources did not represent as much as 50 percent of the total value of all farm products sold. Separate figures are given for three kinds of general farms: (a) Primarily crop. (b) Primarily livestock. (c) Crop and livestock.

Primarily crop farms are those for which the sale of one of the following crops or groups of crops—vegetables, fruits and nuts, cotton, cash grains, or other field crops—did not amount to 50 percent or more of the value of all farm products sold, but for which the value of sales for all these groups of crops represented 70 percent or more of the value of all farm products sold.

Primarily livestock farms are those which could not qualify as dairy farms, poultry farms, or livestock farms other than dairy and poultry, but on which the sale of livestock and poultry products amounted to 70 percent or more of the value of all farm products sold.

General crop and livestock farms are those which could not be classified as either crop farms or livestock farms, but on which the sale of all crops amounted to at least 30 percent but less than 70 percent of the total value of all farm products sold.

Miscellaneous..... This group of farms includes those that had 50 percent or more of the total value of products accounted for by sale of horticultural products, or sale of horses, or sale of forest products.

Farms by economic class.—A classification of farms by economic class was made for the purpose of segregating groups of farms that are somewhat alike in their characteristics and size of operation. This classification was made in order to present an accurate description of the farms in each class and in order to provide basic data for an analysis of the organization of agriculture.

The classification of farms by economic class was made on the basis of three factors; namely, total value of all farm products sold, number of days the farm operator worked off the farm, and the relationship of the income received from nonfarm sources by the operator and members of his family to the value of all farm products sold. Farms operated by institutions, experiment stations, grazing associations, and community projects were classified as abnormal, regardless of any of the three factors.

For the purpose of determining the code for economic class and type of farm, it was necessary to obtain the total value of farm products sold as well as the value of some individual products sold.

The total value of farm products sold was obtained by adding the reported or estimated values for all products sold from the farm. The value of livestock, livestock products except wool and mohair, vegetables, nursery and greenhouse products, and forest

products was obtained by the enumerator from the farm operator for each farm. The enumerator also obtained from the farm operator the quantity sold for corn, sorghums, small grains, hays, and small fruits. The value of sales for these crops was obtained by multiplying the quantity sold by State average prices.

The quantity sold was estimated for all other farm products. The entire quantity produced for wool, mohair, cotton, tobacco, sugar beets for sugar, sugarcane for sugar, broomcorn, hops, and mint for oil was estimated as sold. To obtain the value of each product sold, the quantity sold was multiplied by State average prices.

In making the classification of farms by economic class, farms were grouped into two major groups, namely, commercial farms and other farms. In general, all farms with a value of sales of farm products amounting to \$1,200 or more were classified as commercial. Farms with a value of sales of \$250 to \$1,199 were classified as commercial only if the farm operator worked off the farm less than 100 days or if the income of the farm operator and members of his family received from nonfarm sources was less than the total value of all farm products sold.

Land in farms according to use.—Land in farms was classified according to the use made of it in 1954. The classes of land are mutually exclusive, i. e., each acre of land was included only once even though it may have had more than one use during the year.

The classes referred to in this report are as follows:

Cropland harvested.—This includes land from which crops were harvested; land from which hay (including wild hay) was cut; and land in small fruits, orchards, vineyards, nurseries, and greenhouses. Land from which two or more crops were reported as harvested was to be counted only once.

Cropland used only for pasture.—In the 1954 Census, the enumerator's instructions stated that rotation pasture and all other cropland that was used only for pasture were to be included under this class. No further definition of cropland pastured was given the farm operator or enumerator. Permanent open pasture may, therefore, have been included under this item or under "other pasture," depending on whether the enumerator or farm operator considered it as cropland.

Cropland not harvested and not pastured.—This item includes idle cropland, land in soil-improvement crops only, land on which all crops failed, land seeded to crops for harvest after 1954, and cultivated summer fallow.

In the Western States, this class was subdivided to show separately the acres of cultivated summer fallow. In these States, the acreage not in cultivated summer fallow represents largely crop failure. There are very few counties in the Western States in which there is a large acreage of idle cropland or in which the growing of soil-improvement crops is an important use of the land.

In the States other than the Western States, this general class was subdivided to show separately the acres of idle cropland (not used for crops or for pasture in 1954). In these States, the incidence of crop failure is usually low. It was expected that the acreage figure that excluded idle land would reflect the acreage in soil-improvement crops. However, the 1954 crop year was one of low rainfall in many Eastern and Southern States and, therefore, in these areas the acreage of cropland not harvested and not pastured includes more land on which all crops failed than would usually be the case.

Cultivated summer fallow.—This item includes cropland that was plowed and cultivated but left unseeded for several months to control weeds and conserve moisture. No land from which crops were harvested in 1954 was to be included under this item.

Cropland, total.—This includes cropland harvested, cropland used only for pasture, and cropland not harvested and not pastured.

Land pastured, total.—This includes cropland used only for pasture, woodland pastured, and other pasture (not cropland and not woodland).

Woodland, total.—This includes woodland pastured and woodland not pastured.

Value of land and buildings.—The value to be reported was the approximate amount for which the land and the buildings on it would sell.

Off-farm work and other income.—Many farm operators receive a part of their income from sources other than the sale of farm products from their farms. The 1954 Agriculture Questionnaire included several inquiries relating to work off the farm and non-farm income. These inquiries called for the number of days worked off the farm by the farm operator; whether other members of the operator's family worked off the farm; and whether the farm operator received income from other sources, such as sale of products from land rented out, cash rent, boarders, old age assistance, pensions, veterans' allowances, unemployment compensation, interest, dividends, profits from nonfarm business, and help from other members of the operator's family. Another inquiry asked whether the income of the operator and his family from off-farm work and other sources was greater than the total value of all agricultural products sold from the farm in 1954. Off-farm work was to include work at nonfarm jobs, businesses, or professions, whether performed on the farm premises or elsewhere; also, work on someone else's farm for pay or wages. Exchange work was not to be included.

Specified facilities and equipment.—Inquiries were made in 1954 to determine the presence or absence of selected items on each place such as (1) telephone, (2) piped running water, (3) electricity, (4) television set, (5) home freezer, (6) electric pig brooder, (7) milking machine, and (8) power feed grinder. Such facilities or equipment were to be counted even though temporarily out of order. Piped running water was defined as water piped from a pressure system or by gravity flow from a natural or artificial source. The enumerator's instructions stated that pig brooders were to include those heated by an electric heating element, by an infrared or heat bulb, or by ordinary electric bulbs. They could be homemade.

The number of selected types of other farm equipment was also obtained for a sample of farms. The selected kinds of farm equipment to be reported were (1) grain combines (for harvesting and threshing grains or seeds in one operation); (2) cornpickers; (3) pickup bakers (stationary ones not to be reported); (4) field forage harvesters (for field chopping of silage and forage crops); (5) motortrucks; (6) wheel tractors (other than garden); (7) garden tractors; (8) crawler tractors (tracklaying, caterpillar); (9) automobiles; and (10) artificial ponds, reservoirs, and earth tanks.

Wheel tractors were to include homemade tractors but were not to include implements having built-in power units such as self-propelled combines, powered buck rakes, etc. Pickup and truck-trailer combinations were to be reported as motortrucks. School buses were not to be reported, and jeeps and station wagons were to be included as motortrucks or automobiles, depending on whether used for hauling farm products or supplies, or as passenger vehicles.

Farm labor.—The farm-labor inquiries for 1954, called for the number of persons doing farmwork or chores on the place during a specified calendar week. Since starting dates of the 1954 enumeration varied by areas or States, the calendar week to which the farm-labor inquiries related varied also. The calendar week was September 26-October 2 or October 24-30. States with the September 26-October 2 calendar week were: Arizona, California, Colorado, Connecticut, Florida, Idaho, Kansas, Kentucky, Louisiana, Maine, Massachusetts, Michigan, Minnesota, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico,

New York, North Dakota, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Dakota, Tennessee, Texas, Utah, Vermont, Washington, Wisconsin, and Wyoming. States with the October 24-30 calendar week were: Alabama, Arkansas, Delaware, Georgia, Illinois, Indiana, Iowa, Maryland, Mississippi, Missouri, North Carolina, Ohio, South Carolina, Virginia, and West Virginia. Farmwork was to include any work, chores, or planning necessary to the operation of the farm or ranch business. Housework, contract construction work, and labor involved when equipment was hired (custom work) were not to be included.

The farm-labor information was obtained in three parts: (1) Operators working, (2) unpaid members of the operator's family working, and (3) hired persons working. Operators were considered as working if they worked 1 or more hours; unpaid members of the operator's family, if they worked 15 or more hours; and hired persons, if they worked any time during the calendar week specified. Instructions contained no specifications regarding age of the persons working.

Regular and seasonal workers.—Hired persons working on the farm during the specified week were classed as "regular" workers if the period of actual or expected employment was 150 days or more during the year, and as "seasonal" workers if the period of actual or expected employment was less than 150 days. If the period of expected employment was not reported, the period of employment was estimated for the individual farm after taking into account such items as the basis of payment, wage rate, expenditures for labor in 1954, and the type and other characteristics of the farm.

Specified farm expenditures.—The 1954 Census obtained data for selected farm expense items in addition to those for fertilizer and lime. The expenditures were to include the total specified expenditures for the place whether made by landlord, tenant, or both.

Expenditures for machine hire were to include any labor included in the cost of such machine hire. Machine hire refers to custom machine work such as tractor hire, threshing, combining, silo filling, baling, ginning, plowing, and spraying. If part of the farm products was given as pay for machine hire, the value of the products traded for this service was to be included in the amount of expenditures reported. The cost of trucking, freight, and express was not to be included.

Expenditures for hired labor were to include only cash payments. Expenditures for housework, custom work, and contract construction work were not to be included.

Expenditures for feed were to include the expenditures for pasture, salt, condiments, concentrates, and mineral supplements, as well as those for grain, hay, and mill feeds. Expenditures for grinding and mixing feeds were also to be included. Payments made by a tenant to his landlord for feed grown on the land rented by the tenant were not to be included.

Expenditures for gasoline and other petroleum fuel and oil were to include only those used for the farm business. Petroleum products used for the farmer's automobile for pleasure or used exclusively in the farm home for heating, cooking, and lighting were not to be included.

Crops harvested.—The information on crops harvested refers to the acreage and quantity harvested for the 1954 crop year. An exception was made for land in fruit orchards and planted nut trees. In this case, the acreage represents that in both bearing and nonbearing trees and vines as of October and November 1954.

Hay.—The data for hay includes all kinds of hay except soybean, cowpea, sorghum, and peanut hay.

Livestock and poultry.—The data on the number of livestock and poultry represent the number on hand on the day of enumeration

(October-November 1954). The data relating to livestock products and the number of livestock sold relate to the sales made during the calendar year 1954.

LABOR RESOURCES

The data for labor resources available represent estimates based largely on Census data and developed for the purpose of making comparisons among farms of various size of operations. The labor resources available are stated in terms of man-equivalents.

To obtain the man-equivalents the total number of farm operators as reported by the 1954 Census were adjusted for estimated man-years of work off the farm and for the number of farm operators 65 years old and over. The farm operator was taken to represent a full man-equivalent of labor unless he was 65 years or older or unless he worked at an off-farm job in 1954.

The man-equivalent estimated for farm operators reporting specified amounts of off-farm work were as follows:

<i>Days worked off the farm in 1954</i>	<i>Estimated man-equivalent</i>
1-99 days.....	0.85
100-199 days.....	.50
200 days and over.....	.15

The man-equivalent for farm operators 65 years of age and older was estimated at 0.5.

Man-equivalents of members of the farm operator's family were based upon Census data obtained in response to the question "How many members of your family did 15 or more hours of farm work on this place the week of September 26-October 2 (or, in some areas, the week of October 24-30) without receiving cash wages?" Each family worker was considered as 0.5 man-equivalent. This estimate provides allowance for the somewhat higher incidence of women, children, and elderly persons in the unpaid family labor force.

In addition, the number of unpaid family workers who were reported as working 15 or more hours in the week of September 26-October 2 was adjusted to take account of seasonal changes in farm employment. Using published and unpublished findings of the U. S. Department of Agriculture and State Agricultural Colleges, and depending largely upon knowledge and experience with the geographic areas and type of farming, each author determined the adjustment factor needed to correct the number of family workers reported for the week of September 26-October 2 to an annual average basis.

Man-equivalents of hired workers are based entirely upon the expenditure for cash wages and the average wage of permanent hired laborers as reported in the 1954 Census of Agriculture.

Value of or investment in livestock.—Numbers of specified livestock and poultry in each subregion were multiplied by a weighted average value per head. The average values were computed from data compiled for each kind of livestock for the 1954 Census of Agriculture. The total value does not include the value of goats. (For a description of the method of obtaining the value of livestock, see Chapter VI of Volume II of the reports for the 1954 Census of Agriculture.)

Value of investment in machinery and equipment.—The data on value of investment in machinery and equipment were developed for the purpose of making broad comparisons among types and economic classes of farms and by subregions. Numbers of specified machines on farms, as reported by the Census, were multiplied by estimated average value per machine. Then the total values obtained were adjusted upward to provide for the inclusion of items of equipment not included in the Census inventory of farm machinery.

The estimates for average value of specified machines and the proportion of total value of all machinery represented by the value of these machines were based largely on published and unpublished data from the "Farm Costs and Returns" surveys conducted currently by the Agricultural Research Service, U. S. Department of Agriculture.¹ Modifications were made as needed in the individual chapters on the basis of State and local studies. The total estimated value of all machinery for all types and economic classes of farms is approximately equal to the value of all machinery as estimated by the U. S. Department of Agriculture.

Value of farm products sold, or gross sales.—Data on the value of the various farm products sold were obtained for 1954 by two methods. First, the values of livestock and livestock products sold, except wool and mohair; vegetables harvested for sale; nursery and greenhouse products; and forest products were obtained by asking each farm operator the value of sales. Second, the values of all other farm products sold were computed. For the most important crops, the quantity sold or to be sold was obtained for each farm. The entire quantity harvested for cotton and cottonseed, tobacco, sugar beets for sugar, hops, mint for oil, and sugarcane for sugar was considered sold. The quantity of minor crops sold was estimated. The value of sales for each crop was computed by multiplying the quantity sold by State average prices. In the case of wool and mohair, the value of sales was computed by multiplying the quantity shorn or clipped by the State average prices.

Gross sales include the value of all kinds of farm products sold. The total does not include rental and benefit, soil conservation, price adjustment, Sugar Act, and similar payments. The total

does include the value of the landlord's share of a crop removed from a farm operated by a share tenant. In most of the tables, detailed data are presented for only the more important sources of gross sales and the total for the individual farm products or sources will not equal the total as the values for the less important sources or farm products have been omitted. (For a detailed statement regarding the reliability and method of obtaining the value of farm products sold, reference should be made to Chapter IX of Volume II of the reports for the 1954 Census of Agriculture.)

Livestock and livestock products sold.—The value of sales for livestock and livestock products includes the value of live animals sold, dairy products sold, poultry and poultry products sold, and the calculated value of wool and mohair. The value of bees, honey, fur animals, goats, and goat milk is not included.

The value of dairy products includes the value of whole milk and cream sold, but does not include the value of butter and cheese, made on the farm, and sold. The value of poultry and products includes the value of chickens, broilers, chicken eggs, turkeys, turkey eggs, ducks, geese, and other miscellaneous poultry and poultry products sold. The value does not include the value of baby chicks sold.

Crops sold.—Vegetables sold includes the value of all vegetables harvested for sale, but does not include the value of Irish potatoes and sweetpotatoes.

The value of all crops sold includes the value of all crops sold except forest products. The value of field crops sold includes the value of sales of all crops sold except vegetables, small fruits and berries, fruits, and nuts.

¹ Farm Costs and Returns, 1955 (with comparisons), Agriculture Information Bulletin No. 158, Agricultural Research Service, U. S. Department of Agriculture, June 1956.

CHAPTER IX

AGRICULTURAL PRODUCERS AND PRODUCTION IN THE
UNITED STATES—A GENERAL VIEW

(1)

CONTENTS

	<i>Page</i>		<i>Page</i>
Major sectors in agriculture.....	7	Characteristics of type of farm by economic class.....	29
Economic classification of farms.....	9	Farm operator characteristics.....	29
Commercial and noncommercial farms.....	9	Color and tenure of operator.....	29
Part-time and residential farms.....	9	Residence of farm operators.....	30
Commercial farms.....	10	Work off the farm and other income.....	30
Economic classes of commercial farms.....	10	Age of operator.....	30
Economic class as a measure of farm size.....	10	Man-equivalents of labor used.....	31
Geographic distribution of economic classes.....	11	Operator labor.....	31
Characteristics and limitations of the economic classification.....	12	Unpaid family labor.....	31
Types of commercial farms.....	12	Hired labor.....	32
A measure of commodity specialization.....	13	Cash wages paid.....	32
Geographic distribution of types of farms.....	13	Class of work power.....	34
Cash-grain farms.....	13	Land in farms.....	31
Cotton farms.....	13	Cropland harvested.....	37
Other field-crop farms.....	13	Value of land and buildings.....	38
Vegetable farms.....	14	Value of livestock.....	19
Fruit-and-nut farms.....	14	Estimated value of machinery.....	40
Dairy farms.....	14	Total value of investment.....	41
Poultry farms.....	15	Value of farm products sold.....	42
Livestock farms other than dairy and poultry.....	15	Gross sales per acre.....	43
General farms.....	15	Yield of corn per acre harvested.....	43
Miscellaneous farms.....	16	Gross sales per \$100 of capital investment.....	43
Type-of-farming areas.....	16	Gross sales per man-equivalent.....	44
Type of farm by economic class.....	17	Limitations of relating sales to resources.....	44
Changes in the structure of commercial farming.....	18	Investment per man-equivalent.....	44
Changes affect farmers differently.....	18	Total farm expenses.....	45
Changes by economic classes.....	18	Cash wages.....	46
Specialization in farming.....	19	Machine hire.....	47
Changes in type of farm.....	20	Purchase of livestock and poultry.....	47
Changes in type by economic class.....	20	Feed for livestock and poultry.....	47
Geographic changes in type and economic class.....	21	Seeds, plants, and trees.....	47
Changes in size of acreage.....	24	Commercial fertilizer and liming materials.....	47
Change in acreage by economic class.....	25	Fuel, repairs, and other operating costs for motor vehicles and farm machinery.....	48
Change in acreage by type of farm.....	26	Marketing cost.....	48
Changes in farm operator characteristics.....	26	Miscellaneous farm operating expenses.....	48
Age of operator.....	26	Property taxes and interest.....	48
Tenure of operator.....	27	Capital expenditures.....	48
Off-farm work and other income.....	27	Total motor vehicle and machinery expenses.....	48
Residence of farm operator.....	27	Census specified expenses.....	49
Changes in farm resources.....	28	Relation of Census specified expenses to total farm expenses.....	49
Tractors on farms.....	28	Estimated value added.....	50
Land resources and market output.....	28	Value added per man-equivalent.....	51
		Value added per \$1,000 of capital investment.....	51
		Home facilities.....	52
		Electricity.....	52
		Index of home facilities.....	52

MAPS AND CHARTS

	<i>Page</i>		<i>Page</i>
Farm labor productivity.....	7	Type-of-farming areas, based on type accounting for 50 percent or more of commercial farms, 1954.....	16
Population: Total, non-farm, and farm, United States, 1910 to 1954.....	7	Cash-grain farms—increase and decrease in number, 1950-1954.....	22
Number of farm operators working off their farms by number of days worked, for the United States and areas, 1930-1954.....	8	Cotton farms—increase and decrease in number, 1950-1954.....	22
Farm income and population.....	8	Other field-crop farms—increase and decrease in number, 1950-1954.....	22
United States farms.....	9	Vegetable farms—increase and decrease in number, 1950-1954.....	22
Part-time farms, number, 1954.....	10	Fruit-and-nut farms—increase and decrease in number, 1950-1954.....	22
Residential farms, number, 1954.....	10	Dairy farms—increase and decrease in number, 1950-1954.....	22
Commercial farms, number, 1954.....	10	Poultry farms—increase and decrease in number, 1950-1954.....	23
Economic Class I farms, number, 1954.....	11	Livestock farms—increase and decrease in number, 1950-1954.....	23
Economic Class II farms, number, 1954.....	11	General farms—increase and decrease in number, 1950-1954.....	23
Economic Class III farms, number, 1954.....	12	Economic Class I farms—increase and decrease in number, 1950-1954.....	24
Economic Class IV farms, number, 1954.....	12	Economic Class II farms—increase and decrease in number, 1950-1954.....	24
Economic Class V farms, number, 1954.....	12	Economic Class III farms—increase and decrease in number, 1950-1954.....	24
Economic Class VI farms, number, 1954.....	12	Economic Class IV farms—increase and decrease in number, 1950-1954.....	24
Cash-grain farms, number, 1954.....	13	Economic Class V farms—increase and decrease in number, 1950-1954.....	24
Cotton farms, number, 1954.....	13	Economic Class VI farms—increase and decrease in number, 1950-1954.....	24
Other field-crop farms, number, 1954.....	14		
Vegetable farms, number, 1954.....	14		
Fruit-and-nut farms, number, 1954.....	14		
Dairy farms, number, 1954.....	14		
Poultry farms, number, 1954.....	15		
Livestock farms, number, 1954.....	15		
General farms, number, 1954.....	15		

TABLES

<i>Table—</i>	<i>Page</i>
1.—Farms and specified farm resources by economic class of commercial farm, for the United States: 1954.....	11
2.—Number of farms in each type of farm by economic class, for the United States: 1954.....	17
3.—Percent distribution of farms in each type of farm by economic class, for the United States: 1954.....	17
4.—Percent distribution of farms in each economic class, by type of farm, for the United States: 1954.....	17
5.—Changes in number and percent distribution of commercial farms, by economic class, for the United States: 1950 to 1954.....	18
6.—Number and proportion of farms having production or sales of specified commodities, for the United States by specified years: 1929 to 1954.....	19
7.—Changes in number and percent distribution of commercial farms, by type of farm, for the United States: 1950 to 1954.....	20
8.—Change in number of farms, for each type of commercial farm, by economic class, for the United States: 1950 to 1954.....	20
9.—Changes in number of farms by size and percent distribution of commercial farms by size, for the United States: 1950 to 1954.....	25
10.—Number and percent distribution of farms, 1954, and change in number of farms, 1950 to 1954; by size and economic class, for the United States.....	25
11.—Number and percent distribution, 1954, and change in number of farms, 1950 to 1954; by size and type of farm, for the United States.....	26
12.—Specified farms and farm-operator characteristics, by type and by economic class for commercial farms, for the United States: 1950 and 1954.....	27
13.—Specified farm resources, percent 1954 is of 1950, by economic class and by type of farm, for the United States.....	28
14.—Proportion of farms operated by owners, part-owners, and managers, and croppers, and by white and nonwhite operators, for each type of farm by economic class, for the United States: 1954.....	29
15.—Percent distribution of farms in each tenure and color group by type and economic class of farm, for the United States: 1954.....	29
16.—Percent of nonresident operators for type of farm by economic class, for the United States: 1954.....	30
17.—Operators working off the farm 100 or more days as percentage of operators reporting as to off-farm work, for each type of farm, by economic class, for the United States: 1954.....	30
18.—Percentage of farms with other income greater than the value of farm products sold, for each type of farm, by economic class, for the United States: 1954.....	30
19.—Median age of operator for type of farm by economic class, for the United States: 1954.....	30
20.—Average man-equivalents of labor used on each type of farm by economic class, for the United States: 1954.....	31
21.—Percentage of farms reporting \$5,000 or more cash wages paid, for each type of commercial farm, by economic class, for the United States: 1954.....	32
22.—Percentage distribution of commercial farms in each type, by economic class of farm, by amount of expenditure for hired labor, for the United States: 1954.....	33
23.—Class of work power: Percentage distribution of farms by type and by specified economic classes, for the United States: 1954.....	34
24.—Percent distribution of total land for each economic class, by type of farm, for the United States: 1954.....	35
25.—Percent distribution of total land in farms for each type of commercial farm, by economic class, for the United States: 1954.....	35
26.—Average size of farm for each type of commercial farm, by economic class, for the United States: 1954.....	35

TABLES—Continued

Table	Page
27.—Number of farms in specified acreage-size groups for each type of commercial farm, by economic class, for the United States: 1954.....	36
28.—Cropland harvested as a percent of total land in farms for each type of farm, by economic class of farm, for the United States: 1954.....	37
29.—Percent distribution of total acreage of cropland harvested for each type of commercial farm by economic class, for the United States: 1954.....	37
30.—Percent distribution of total acreage of cropland harvested for each economic class, by type of farm, for the United States: 1954.....	37
31.—Average acreage of cropland harvested per farm for each type of commercial farm, by economic class, for the United States: 1954.....	37
32.—Average value per acre of land and buildings for each type of commercial farm, by economic class, for the United States: 1954.....	38
33.—Percent distribution of value of land and buildings by type and economic class of commercial farms, for the United States: 1954.....	38
34.—Average value of investment in land and buildings, livestock inventory, machinery, and total investment for each type of commercial farm, by economic class, for the United States: 1954.....	39
35.—Percentage of total investment by source for each type of commercial farm, by economic class, for the United States: 1954.....	41
36.—Percent distribution of total investment by economic class and by type of farm, for the United States: 1954.....	42
37.—Percent distribution of gross sales for each type of farm by economic class, for the United States: 1954.....	42
38.—Average value of farm products sold per farm by type and economic class, for the United States: 1954.....	42
39.—Value of all farm products sold per acre of total land in farms, by type of commercial farm by economic class of farm, for the United States: 1954.....	43
40.—Yield per acre of corn harvested for grain, by type of commercial farm and by economic class of farm, for the United States: 1954.....	43
41.—Value of all farm products sold per \$100 of capital invested in land and buildings, livestock, and machinery, by type of commercial farm by economic class of farm, for the United States: 1954.....	43
42.—Value of all farm products sold per man-equivalent of labor used, by type of commercial farm by economic class of farm, for the United States: 1954.....	44
43.—Capital investment in land and buildings, livestock and machinery per man-equivalent of labor used, by type of commercial farm by economic class of farm, for the United States: 1954.....	44
44.—Cash farm expenditures: Average per farm by type of farm by economic class, for the United States: 1955.....	45
45.—Cash farm expenditures as a percentage of total farm expenditure, by type of farm, by economic class of farm, for the United States: 1955.....	46
46.—Percent distribution of each expenditure by type of farm, for the United States: 1955.....	47
47.—Expenses for purchase and operation of motor vehicles, farm machinery, and equipment as a percentage of total farm expenditure, by type and economic class of commercial farm, for the United States: 1955.....	48
48.—Specified farm expenses, average per farm and as a percentage of the total value of farm products sold, by type of farm by economic class, for the United States: 1954.....	49
49.—Specified group of farm expense items as a percentage of the total cash farm expenses, by type of farm by economic class, for the United States: 1955.....	49
50.—Estimated value added per farm by type of farm by economic class, for the United States: 1954.....	50
51.—Estimated value added as a percent of the total value of farm products sold, by type of farm by economic class: 1954.....	51
52.—Estimated value added per man-equivalent by type of farm, by economic class, for the United States: 1954.....	51
53.—Estimated value added per \$1,000 of capital investment in land and buildings, machinery and livestock inventory, by type of farm by economic class, for the United States: 1954.....	51
54.—Percent of farms reporting electricity by type of farm by economic class, for the United States: 1954.....	52
55.—Index of specified home facilities, commercial farms by economic class and type, for the United States: 1954.....	52

AGRICULTURAL PRODUCERS AND PRODUCTION IN THE UNITED STATES— A GENERAL VIEW

JACKSON V. McELVEEN

MAJOR SECTORS IN AGRICULTURE

One of the striking features of American agriculture is the diversity of farming—the differences in crops and livestock grown on farms in various areas, the wide range in size of farms, and the contrast in the way farm resources are used.

In a Nation so vast in land area, there are wide variations in topography, climate, and soils. The terrain varies from alluvial reaches and flat coastal plains and prairies, to rolling hills, to mountain valleys, and plateaus. Soil types differ in composition and fertility and in their adaptability for crops and grasses. Climatic conditions range from semitropical in the southernmost parts of the country to cooler northern areas that have a growing season of only a few months; and from the relatively heavy rainfall of the East to some western regions where the rainfall can support only the sparsest vegetation.

Along with growth and development of the Nation's economy, basic changes have taken place that have created even greater differences in economic environments. Some of these differences have been due to shifts in concentrations of population and markets, to changes in consumer food habits, and to developments in processing and transportation of farm products. Others relate to technological improvements in farming that have increased the total farm production while reducing the need for so many farm workers.

Differences in farming over the United States are explainable largely in terms of man's efforts in adapting himself to his environment. Each farmer makes the decisions of how to use the land, labor, and capital resources at his disposal. His decisions are made within the framework of his appraisal of his environment and of the relative advantage of alternative courses of action. Because the environment is constantly changing, the process is never complete but one of continuous adjustment to changing conditions in both farm and nonfarm sectors of the economy.

Changes that affect agriculture have been particularly rapid in recent decades. Technological developments in farming have brought about substantial increases in crop and livestock yields. Substitution of tractors for workstock has meant that many acres that were used previously to produce feed for workstock are now devoted to production for human use. The result has been a phenomenal increase in farm output.

Mechanization of farming has enabled a smaller farm labor force to tend and harvest this larger farm output. The output per man-hour of farm labor has increased by nearly 3 times since 1910. (See figure 1.) Farmers have been faced with the fact that fewer people are required to produce the foods and fibers for a growing population of the farms.

At the same time, growth and expansion of the economy has provided increasing job opportunities in the nonfarm sector. Many farm people, particularly farm youth, have left for other occupations. The farm population has decreased by 10 million since 1910 and now comprises only an eighth of the total population in the United States. (See figure 2.)

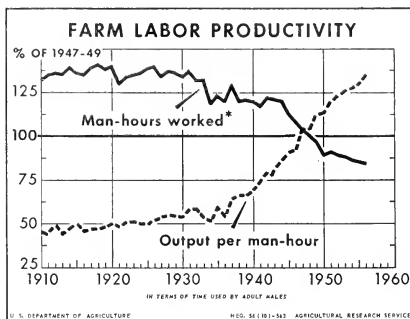


FIGURE 1.

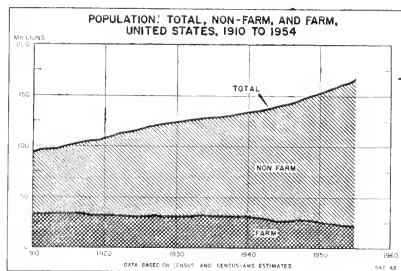


FIGURE 2.

Growth in the agricultural sector has been accompanied by changes in the nature and purpose of individual farm units. Production of many enterprises such as dairying and poultry have become more specialized. Many farmers have increased the scope and efficiency of their farming through the application of improved techniques. At the same time, the pull of opportunities elsewhere has persuaded others to reduce the size of their farm businesses and to take up work in nearby towns and factories. Now that electrification and farm-to-market roads have brought city conveniences to all but the remote rural areas, many city workers have moved to the country. Some of these rural residents raise farm products for home use and incidental sales.

Included in the rural farm population are many farm operators and members of their families who work at other jobs and businesses. (See figure 3.) More than 2 million farm operators reported working off their farms in 1950 and in 1954. Of greater significance in respect to levels of off-farm work, is the number of farm operators who worked off the farm 100 or more days. This figure indicates that off-farm work provides a major source of employment and income. Most of the farm operators in this group worked off their farms 200 or more days. While the number of operators working off their farms less than 100 days has decreased in recent years, those working off the farm 100 days or more has increased in each part of the country.

Off-farm work of operators is a major indication of the increasing importance of nonfarm sources of income to farm people. In addition, many other members of the families—wives and children—work at jobs removed from the farm. Moreover, many farm people now receive annuities or money from investment funds and savings as a result of the greater coverage of the population in provisions for retirement and for social security, as well as the general increase in income levels. The income to farm families from nonfarm sources has grown steadily since the 1930's; in 1954 it accounted for nearly a third of the farm family income. (See figure 4.)

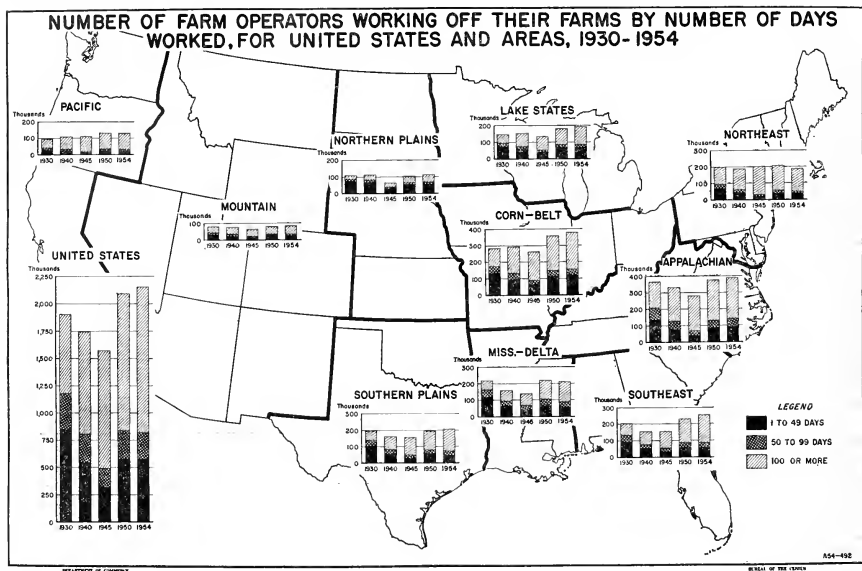


FIGURE 3.

Since the total number of farms has been decreasing, the proportion of operators working off farm 100 or more days has increased more than the increase in the number alone would indicate. The table below shows this proportion for the United States and major geographic regions from Censuses of 1930 to 1954. For the United States this increase was from 12 percent of the farms in 1930 to 28 percent in 1954. The increase has been much more rapid in the South than in other regions—from 11 percent of the farms in 1930 to 30 percent in 1954.

Year	Percent of all farm operators working off farm 100 or more days			
	United States	The North	The South	The West
1929 ¹	Percent	Percent	Percent	Percent
1930 ²	11.5	11.1	10.8	17.8
1939 ²	16.8	16.5	15.8	24.0
1944 ²	18.4	17.8	18.1	27.1
1949 ²	23.9	22.9	24.3	31.6
1954 ²	28.3	25.3	29.6	35.2

¹ Percents based on all farm operators.

² Percents based on operators reporting as to off-farm work.

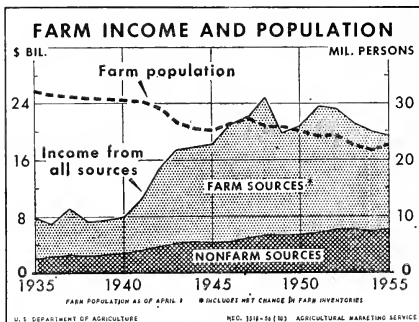


FIGURE 4.

Merging of farm and nonfarm sectors of our economy created a zone in farming that is in contrast to commercial agriculture. In this zone farming provides only supplementary income, and farm-production plans are influenced by considerations that affect employment in the nonfarm sector of the economy.

ECONOMIC CLASSIFICATION OF FARMS

In delineation of major sectors in agriculture, a basic step is the separation of the farms that are operated to provide the major source of employment and income to the farm family from the places that serve primarily as rural homes for urban workers. The economic classification of farms, developed by the Bureau of the Census and the Department of Agriculture, separates farms into two broad categories—commercial farms and other farms. The basis for separation is the value of farm sales, the off-farm work, and the other income of the operator family.

In the economic classification, all farms with a value of farm products sold of \$1,200 or more were considered commercial farms. Indications are that most of the farms with farm sales above this amount are operated to provide a major source of farm-family income. In addition, farms with sales of \$250 to \$1,199 were classified as commercial provided the farm operator was not employed at an off-farm job as much as 100 days during the year and provided the gross income from farm sales exceeded other income of the family.

The category of other farms includes part-time, residential, and abnormal farms. Residential farms are those having farm sales of less than \$250. On these, the size of business is small enough to preclude the likelihood of their being operated to provide the major source of income and employment for the operator family. Part-time farms are those with farm sales of \$250 to \$1,199 but whose operators work 100 or more days of the year at a nonfarm job, or report that income received by the family from other sources is greater than sales from the farm. Abnormal farms are mainly public and private institutional farms, such as college, prison, community, experiment station farms, and grazing associations.

The separation of commercial farms from those that are part-time and residential defines two distinct sectors within agriculture with marked differences in economic interests. Commercial farms are the going concerns in agriculture that produce virtually all of the farm products for sale. The separation of this group of farms for special study provides an improved basis for analysis of production problems and gives greater form and meaning to comparisons of income and of efficiency within agriculture and between farm and nonfarm sectors of the economy.

Commercial and Noncommercial Farms

The other or noncommercial farms are numerous, accounting for approximately a third of all farms in the United States in 1954. (See table below.)

Classification	Number of farms	Land in farms	Cropland harvested	Value of land and buildings	Value of farm products sold
	Percent 100.0	Percent 100.0	Percent 100.0	Percent 100.0	Percent 100.0
All farms.....	100.0	100.0	100.0	100.0	100.0
Commercial farms.....	69.6	89.0	96.2	87.9	98.0
Other farms.....	30.4	11.0	3.8	12.1	2.0

¹ The data in figure 5 are not entirely comparable with the current Census economic classification since the criteria for separation of part-time from commercial were applied to farms in the \$1,200 to \$2,499 value group. See McEvreen, J. V., *Family Farms in a Changing Economy*. Agriculture Information Bulletin 171, Economics Research Division, A.R.S., USDA, March 1957.

Activity on these farms is not oriented to commercial agriculture. This is supported best by the relatively small volume of farm sales, which amounted to less than 2 percent of all farm products sold. Commercial farms comprised over two-thirds of the total number of farms and accounted for 89 percent of the land in farms, 96 percent of the cropland harvested, 88 percent of the investment in land and buildings, and produced 98 percent of the market sales in 1954.

The total number of farms has decreased from 6.3 million in 1930 to 4.8 million in 1954, a decrease of 1.5 million. (See figure 5.) Commercial farms have declined by 1.6 million which is at a more rapid rate than the decrease in all farms.¹ The decrease in commercial farms has been partly offset by an increase in part-time and residential units. A substantial part of the decrease in farm numbers between 1930 and 1954 was among the small subsistence units. These are places that have farm sales of less than \$250 and no apparent sources of income other than from the farm.

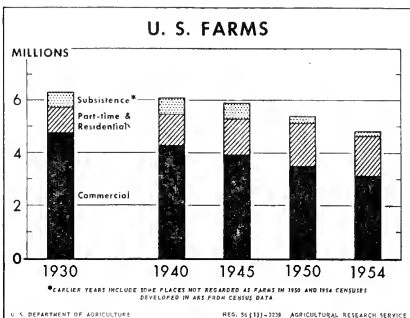


FIGURE 5.

Part-time and residential farms.—The increase in part-time farming is the result of numerous factors associated with general growth and development of both farm and nonfarm sectors of the economy. Farmers have not shared equally in the benefits from improved technology. Hilly land and small fields limited the adaptability of machines in some areas. Many operators of small farms have not found it economic to use even the smallest of the tractors and machines. At the same time, there has been a tremendous increase in retail and other services in rural areas because of the increasing proportion of farm inputs being bought by farmers as well as the larger disposable incomes of farm people. This, along with continued expansion of industries in the open country and small towns has provided local alternatives to farming.

Earnings from farming on some of the smaller units were less than nonfarm wages, so farmers and members of their families took advantage of attractive jobs nearby. Many continued to farm while commuting to other work nearby.

Part-time and residential farms are located in most parts of the country, but are most numerous in the South. Concentrations are noticeable throughout the Appalachian and Cumberland Mountains and in the vicinity of many of the larger cities.

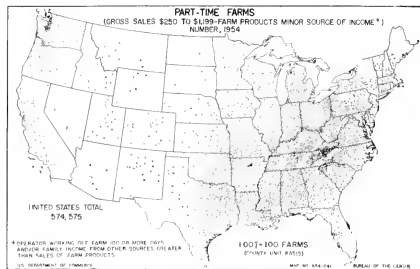


FIGURE 6.

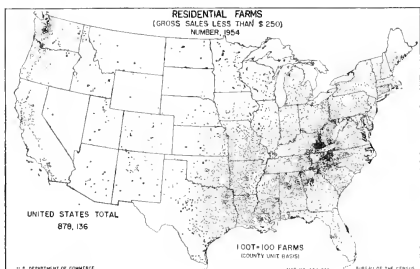


FIGURE 7.

The higher incidence of part-time and residential farms in the South is owing partly to the more recent industrial development there. Growth in manufacturing, in industries, and in trades and services coincided with other developments such as improvement of roads and the prevailing use of automobiles, which made it possible for farm people to commute to jobs in town, while continuing to live on the farms. Rural deification made city conveniences possible in many rural homes and reduced some of the incentive for moving to town. An important factor has been the tendency of the manufacturing industries in the South to decentralize by locating their plants throughout many semirural areas. Also, the South contains a higher proportion of small, low-income farms than other broad regions of the country. Farm families on these small farms have probably had the greatest incentive to supplement their incomes through off-farm work.

A detailed analysis of part-time farming appears in chapter 8 of this report.

Commercial farms.—Commercial farms have a more general and widespread distribution over the United States than is true of the noncommercial farm categories. In most areas east of the 100th meridian there is a uniform and fairly heavy concentration of commercial farms. The density in the Mississippi River flood plains of Arkansas and Mississippi, the tobacco country of the Carolinas, and other scattered locations, reflect the larger numbers of small farms in these areas. The Corn Belt States of Iowa, Indiana, Illinois, and Ohio have a uniformly heavy concentration of commercial farms that is due to the high proportion of land open and suitable for farming.

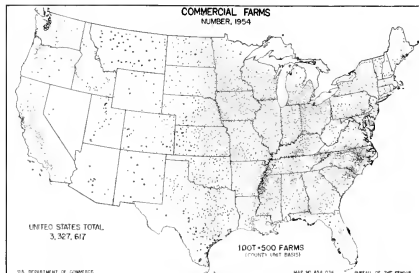


FIGURE 8.

The small number of commercial farms in most of the western half of the United States reflects the low average productivity of a region that has rough terrain and limited rainfall. The farms are large, on the average, except where irrigation has been developed. In the West, wherever large numbers of farms are clustered, the presence of irrigation is indicated. Exceptions are the Willamette Valley of Oregon and the Puget Sound country of Washington, where rainfall is sufficient to allow a variety of crops to be grown without irrigation.

Economic Classes of Commercial Farms

The commercial farms are divided into six economic classes on the basis of the value of farm products sold. The criteria for separating commercial from noncommercial farms and for delineating the economic classes of commercial farms are shown in the table which follows.

Economic class of farm	Criteria	
	Value of farm products sold	Other
Commercial farms		Total of 6 classes below.
Class I	\$25,000 or more	None.
Class II	\$10,000 to \$24,999	None.
Class III	\$5,000 to \$9,999	None.
Class IV	\$2,500 to \$4,999	None.
Class V	\$1,200 to \$2,499	Less than 100 days of off-farm work by operator and income of operator and members of his family from nonfarm sources less than value of all farm products sold.
Class VI	\$250 to \$1,199	
Other farms		Total of categories below.
Part-time	\$250 to \$1,200	Operator worked off farm 100 or more days or other income of family greater than value of all farm products sold.
Residential	Less than \$250	None.
Abnormal		Public and private institutional farms, experiment stations, etc.

Economic class as a measure of farm size.—One of the major uses of the economic classes of commercial farms is in broad analysis of the structure of farming. Information is needed on the extent to which producers on different sizes of farms have been able to make adjustments in production and take advantage of new techniques that have proved efficient. The economic classification, being based on gross sales of farm products, also provides an indirect measure of relative levels of farm income and its distribution.

There is today a great public interest in the size structure of farming. This is because of a real concern about the future of family-type farms. These are farms on which the management and most of the capital and labor are furnished by the operator and members of his family. The apparent growth in the size of farms and the reduction in the number of farms in recent years, have made people wonder whether the family type of farms is declining in importance as the major production unit in the Nation's agriculture. As farming on a commercial scale today requires large capital investments, a question is raised as to the ability of farm families to compete in the adoption of new techniques designed to increase efficiency and output.

TABLE 1.—FARMS AND SPECIFIED FARM RESOURCES BY ECONOMIC CLASS OF COMMERCIAL FARM, FOR THE UNITED STATES: 1954

Economic class of farm	Number of farms	Average per farm			
		Land in farms	Value of land and buildings	Expenditure for hired labor	Value of farm products 2041
	<i>Thousands</i>	<i>Acres</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>
Commercial farms	3,328	310.3	25,429	965	7,302
Class I.....	151	1,509.1	134,169	8,342	57,997
Class II.....	449	537.8	51,510	1,166	14,883
Class III.....	797	341.9	27,992	422	7,178
Class IV.....	812	201.0	15,880	214	3,703
Class V.....	764	134.3	9,829	106	1,831
Class VI.....	463	97.1	6,196	43	756
		Percentage distribution			
Commercial farms	100.0	100.0	100.0	100.0	100.0
Class I.....	4.6	25.2	22.7	56.5	32.0
Class II.....	13.5	23.4	27.4	23.9	27.5
Class III.....	21.2	21.4	23.2	13.5	29.9
Class IV.....	24.4	15.8	15.1	7.8	12.4
Class V.....	22.9	9.0	8.8	3.7	5.8
Class VI.....	13.9	4.4	3.3	0.9	1.4

Class I farms represent the relatively few large operations that had gross sales of \$25,000 or more in 1954. As a group, these farms are characterized by large acreages and large investments in land and buildings. They use considerable hired labor. The average wage bill amounted to \$8,342 per farm in 1954. Although comprising only 4 percent of the commercial farms, Class I farms accounted for 25 percent of the land in farms and 22 percent of the investment in land and buildings. They produced nearly a third of the farm products sold in 1954.

Economic Classes II, III, and IV represent, by and large, the medium to high income family farms that are an outstanding characteristic of American agriculture. They cover a fairly wide range in value of farm products sold, from \$2,500 to \$24,999. These farms as a group comprise the largest segment of commercial agriculture in respect to both numbers and value of production.

Class V farms had sales of farm products that ranged from \$1,200 to \$2,499. Class VI farms sold between \$250 and \$1,199 of farm products. By definition, operators of Class VI farms did not work off the farm as much as 100 days during the year and gross farm sales exceeded the income of the farmer and his family from off-farm sources. Although farms in these two classes comprised 37 percent of the commercial farms, they accounted for only 7 percent of the sales of all farm products. The small size of farm business

on these farms is indicated by the relatively small acreage and small investment in land and buildings.

Geographic distribution of economic classes.—The geographic distribution of each of the six economic classes of commercial farms is shown on the accompanying maps.

Class I farms are most numerous in Illinois, Iowa, the High Plains of Texas, and the irrigated parts of California. Many Class I farms, particularly in Iowa and Illinois, are livestock farms. Many of these purchase cattle and hogs for fattening. Farms with gross sales of \$25,000 are not considered large for this type of farm and the net income may be no larger than that received on many of the smaller economic classes in other types of farming.

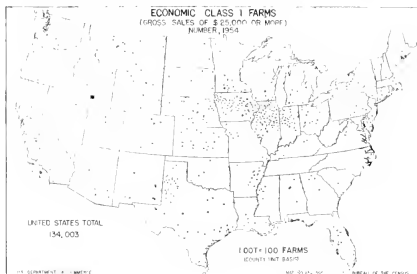


FIGURE 9.

The Corn Belt is the broad area of greatest density of Class II farms. Many farms in this class are also found in the Northeast, in the Plains States, and in the Pacific Coast States. Class III farms are widely distributed in the North. Class IV farms are fairly uniformly distributed throughout the entire country, although a heavy concentration of them is noticeable in the tobacco sections of the Carolinas. Economic Classes V and VI are much more numerous in the South where they are likely to be associated primarily with the growing of cotton and tobacco.

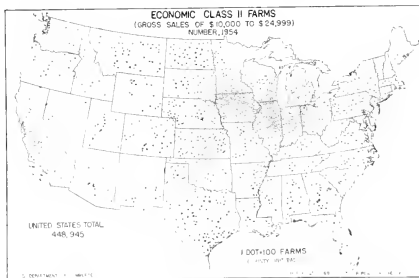


FIGURE 10.

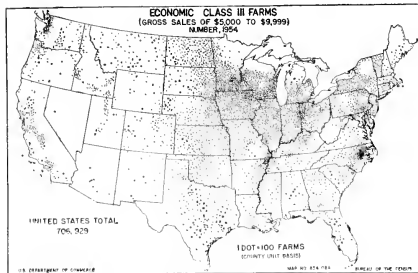


FIGURE 11.

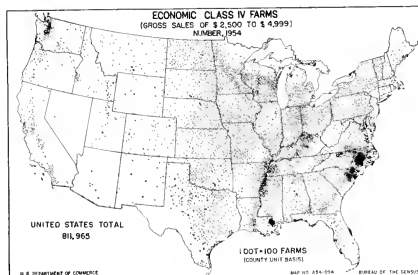


FIGURE 12.

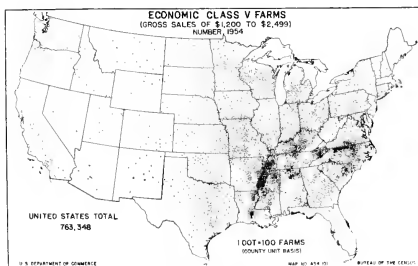


FIGURE 13.

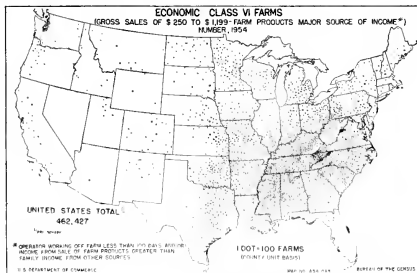


FIGURE 14.

Characteristics and limitations of the economic classification.—The economic classification is subject to certain characteristics which need to be considered when they are used. Probably the most important consideration is that classification on the basis of gross sales rather than net value of production fails to take account of differences in purchased inputs. This needs to be considered when comparisons are made between different types of farms.

In addition, the classification is based on one year's sales of farm products. For the purpose of providing a picture of the normal size of farms, this may not give an accurate picture of any farm that, because of chance factors, had higher or lower than normal yields or sales from inventories. The market output of an individual farm may vary considerably from year to year even though the farm organization remains relatively stable over a period of years in respect to capital, labor, and enterprises. This may be because of fluctuations in yield that arise through vagaries in weather or through higher or lower than normal sales of livestock. Thus, it is possible for farms with fairly similar levels of production over the average of several years to fall in different classes when classified on the basis of sales in a given year.

TYPES OF COMMERCIAL FARMS

The commercial farms are divided into types on the basis of the proportion of gross sales accounted for by sales of various commodities. In general, a farm was placed in a particular commodity type if gross sales of the particular commodity or group of commodities accounted for as much as 50 percent of the total gross sales from the farm. In some cases the type of farm was determined on the basis of the sale of an individual farm product, such as cotton, or on the basis of closely related products, such as dairy products. In other cases the type was determined on the basis of a broader group of products such as corn, sorghums, small grains, field beans, field peas, cowpeas, and soybeans. When the value of products from one source or group of sources did not represent as much as 50 percent of the total value of all farm products sold, the farms were classified as general.

The information on farm sales was only for the year specified. Many farms get a major part of their income from sales of two or more of the commodities used in the criteria for determining type. For these farms, classification by type in the particular year may be influenced to some extent by chance factors, such as the price relationships between commodities in the particular year and abnormalities in crop yield or changes in livestock inventories.

In the classification by type of farm, no recognition is given to products produced but not sold from the farm.

A measure of commodity specialization.—The separation of commercial farms by type of farm identifies the major producers of commodities or commodity groups. The criteria for determining type required that 50 percent or more of the farm income be derived from a particular source. Most types represent a fairly high degree of specialization among the producers classified. In consideration of problems in the production of specific commodities, this permits analysis of the farm organizations, efficiency and income of the producers involved, as well as identification of the areas of the country most affected. It makes possible a more meaningful appraisal of public policies and of the probable effects of alternative programs of assistance.

The number and proportions of the commercial farms by type of farm are shown in the table below.

Type of farm	Number of farms	Percent distribution
Cash-grain farms.....	537,974	16.2
Cotton farms.....	525,463	15.8
Other field-crop farms.....	367,753	11.1
Vegetable farms.....	32,241	1.0
Fruit-and-nut farms.....	82,096	2.5
Dairy farms.....	548,767	16.5
Poultry farms.....	154,251	4.6
Livestock farms other than dairy and poultry.....	654,886	20.9
General farms.....	347,079	10.4
Miscellaneous farms.....	37,057	1.1
Total.....	3,327,889	100.0

Geographic Distribution of Types of Farms

Cash-grain farms.—Out of 3.3 million commercial farms, more than a half-million are cash-grain farms. Cash-grain farms are those on which the value of farm sales from corn, sorghums, small grains, soybeans, cowpeas, and dry field beans and peas was equal to 50 percent or more of the total value of all farm products sold.

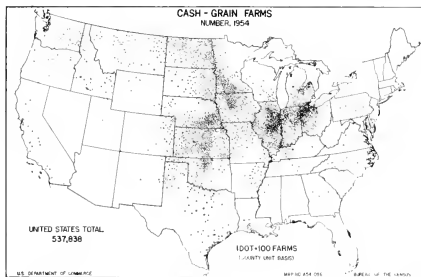


FIGURE 15.

The geographic distribution of cash-grain farms is shown on the map below. Concentrations of these farms are noticeable in areas where one or more of the cash grains are a predominate crop. In the Dakotas, Montana, Idaho, and Oregon, cash-grain farms are primarily spring wheat farms. Farther south, in Nebraska, Kansas, western Oklahoma, and the northern Panhandle of Texas, winter wheat was the grain crop that determined the type. In the Corn Belt States of Iowa, Illinois, Indiana, and Ohio, cash-grain farms represent largely corn and soybean farms. Cash-grain farms in the Gulf Coast of Louisiana and Texas, the Arkansas Prairies, and the Sacramento Valley of California, include many rice farms. In scattered localities the major source of income on cash-grain farms is from sorghum, dry field beans and peas, and small grains other than wheat and rice, but these farms are relatively unimportant numerically.

Cotton farms.—Cotton farms are those on which 50 percent or more of the sales of all farm products was from sales of cotton. The one crop, cotton, was the major source of farm sales on slightly more than one-half million farms, or about 16 percent of the commercial farms in 1954. Cotton farms are located almost entirely in the South and in selected irrigated areas of Texas, New Mexico, Arizona, and California. (See map below.) The northern extent of cotton production is limited sharply by temperature and length of growing season. In general, rainfall is insufficient in the Southwest so cotton can be grown only if irrigated.

The heaviest centers of concentration appear in the Mississippi and Arkansas deltas, in the Upper Piedmont and Coastal Plains of North Carolina, South Carolina, Georgia, Alabama, and Mississippi, and the Black Prairie of east central Texas. Other concentrations are found in southwestern Oklahoma and the high plains and lower Rio Grande Valley of Texas.

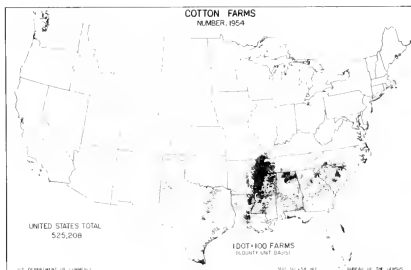


FIGURE 16.

Other field-crop farms.—Farms were classified in this category whenever the value of sales of a variety of major and minor crops accounted for 50 percent or more of the total value of all farm products sold. These crops include tobacco, peanuts, potatoes, sugar beets, sugarcane, and other specialty field crops except cotton. No one area has all these crops. In areas where one or more of them are grown, usually one tends to predominate. This makes it possible to identify the "other field-crop" farms in most areas as a more specific type, such as tobacco farms or peanut farms.

Slightly more than 10 percent of the commercial farms were classified as other field-crop farms in 1954. These farms are heavily concentrated in the Appalachian and southeastern States (see map below). Tobacco is the most important type-determining crop. Farms on which the sale of tobacco was the major source of farm sales accounted for more than two-thirds of the other field-crop farms in 1954. Barley and fire-cured tobacco farms account for most of the other field-crop farms in Kentucky, Tennessee, and western North Carolina. In the eastern Carolinas and Virginia, flue-cured tobacco predominates, although peanuts are grown along the coast of Virginia and North Carolina. The concentration of other field-crop farms in Georgia and Alabama represent primarily peanuts in Alabama and a mixture of peanuts and tobacco in Georgia.

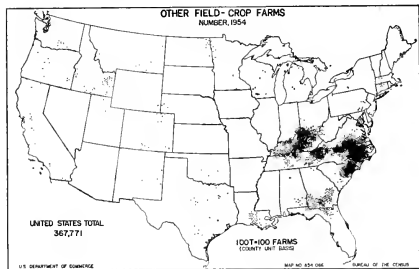


FIGURE 17.

Concentrations of other field-crop farms include potato farms in Aroostook County, Maine, and sugarcane farms in Louisiana. In the Red River Valley area of Minnesota and North Dakota, and in scattered western areas, potatoes and sugar beets are grown in the same areas and frequently on the same farms.

Vegetable farms.—Farms on which the value of all vegetables sold comprised 50 percent or more of the total farm products sold were classified as vegetable farms. They account for only 1 percent of the commercial farms. Many farms that grow vegetables for sale do not grow enough to fall in this specialized category.

Important localized areas of vegetable farms are found in many States across the Continent. (See map below.) Particular areas of concentration are Long Island, the Florida Peninsula, the lower Rio Grande Valley of Texas, southwest Arizona, and the area adjacent to San Francisco Bay.

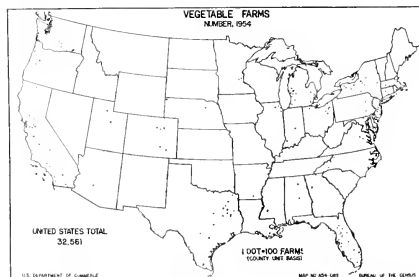


FIGURE 18.

Fruit-and-nut farms.—Like vegetable farms, the fruit-and-nut farms comprise one of the less numerous types. As fruit production on a commercial scale is largely restricted to areas having favorable conditions in respect to temperature, air drainage, and soil moisture, fruit-and-nut farms are highly concentrated in a few localities. (See map below.) The most important are found in California, Oregon, Washington, Michigan, New York, Florida, and Texas.

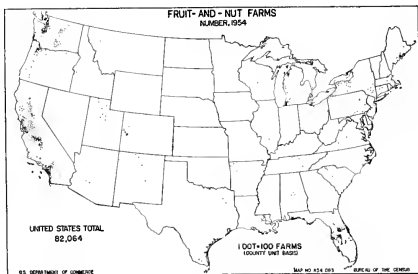


FIGURE 19.

Dairy farms.—Dairying is one of the more important types of farming. More than one-half million farms, comprising nearly 17 percent of the commercial farms, were classified as dairy farms in 1954. Farms were so classified if 50 percent or more of the total sales of farm products were milk or other dairy products; or, if 50 percent of the cows on hand were milk cows, sales of dairy products of 30 percent was sufficient, if together with sales of cattle and calves the two sources accounted for 50 percent of the total sales of farm products.

The principal areas of concentration of dairy producers are the Northeast, the Lake States, and the Pacific Coast States. (See map below.) Smaller areas of concentration are the Central Basin of Tennessee, southwestern Missouri, and the Lower Snake River country of Idaho. Other localized concentrations are found around most of the larger cities everywhere and are referred to frequently as local milksheds.

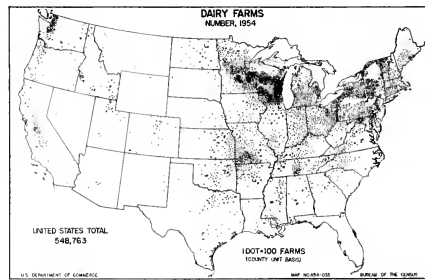


FIGURE 20.

Poultry farms.—Sales of chickens and eggs from the home flock is one of the most common sources of farm sales to farmers. In few cases, are these sales large enough to comprise the 50 percent of total sales of farm products needed to classify farms as poultry farms. Of all commercial farms, slightly less than 5 percent were poultry farms.

In general, poultry producers are most numerous in the north-eastern quarter of the United States. (See map below.) In this broad region, particular areas of concentration are shown in the Delmarva Peninsula, New Jersey, southeastern Pennsylvania, and the three southern New England States. In the southeastern part of the United States, concentrations of poultry farms appear in a few widely scattered localities. Particularly noticeable are the places of broiler production in Georgia, North Carolina, and the northwestern part of Arkansas. Poultry farms are relatively scarce in the West except in the Pacific Coast States.

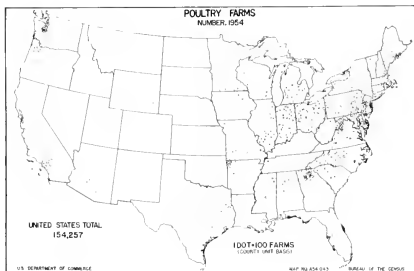


FIGURE 21.

Livestock farms other than dairy and poultry.—These farms, taken together, are the most numerous type in the United States. Over a fifth of the commercial farms (695,000) were classified as livestock farms in 1954. Farms were so classified if the total combined sales of cattle, hogs, sheep, goats, wool, mohair, goat milk, and products from animals slaughtered on the farm accounted for 50 percent or more of the total sales of farm products (provided the farm did not classify as a dairy farm).

Livestock farms show a widespread and fairly uniform distribution over the country (see map below). The areas of greatest concentration are in Iowa, northern Missouri, and western Illinois. Central Indiana, southwestern Ohio, and northeastern Nebraska show areas of almost equal concentration but of smaller geographic scope. These States comprise what is known as the Corn Belt where large quantities of feed grains are grown and the fattening of hogs and cattle is the dominant farm enterprise.

Livestock farms in other parts of the country may vary from vast ranches in the arid West, which may require 40 or more acres per animal unit, to farms in some areas of the South, which occasionally have improved pastures that will carry an animal unit on 1 or 2 acres. Because of the large acreages required per animal unit in the Western States, livestock farms are sparsely distributed even though they are the most important type from the standpoint of numbers. Many livestock farms in the Appalachian and southeastern parts of the country are small farms of a subsistence type where small sales of cattle and hogs are the main farm sales.

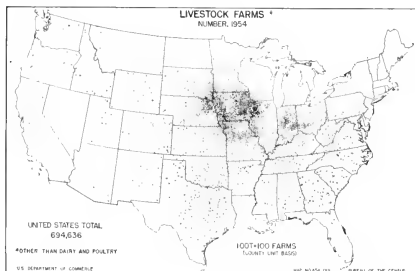


FIGURE 22.

General farms.—Farms were classified as general when none of the specified commodities or commodity groups accounted for as much as 50 percent of gross farm sales. The Census of Agriculture provides data for three types of general farms. These are (1) primarily crop, (2) primarily livestock, and (3) crop and livestock.

As a group, general farms account for 10 percent of the commercial farms. Their geographic distribution is more uniform over the United States than any other type (see map below). Relatively heavy concentrations are found in areas that are transitional between the more specialized farming areas; that general farms are likely to be less specialized versions of the major types. The combination of livestock production with the growing of grains is the most frequent reason for farms being classified as general. In the Plains States, for example, wheat production is often combined with cattle raising or fattening. Farther east, hog and beef fattening is combined with dairying and with growing corn and other feed grains. Livestock is produced along with tobacco in the burley and fire-cured tobacco country of Kentucky and Tennessee, and with cotton throughout the Southeast. More than three-fourths of the general farms were classified as primarily livestock or crop and livestock.

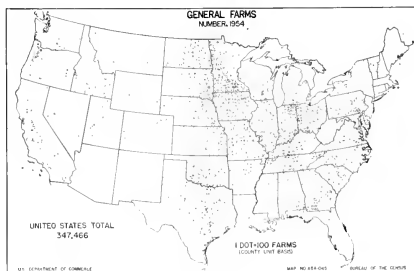


FIGURE 23.

Miscellaneous farms.—This category includes relatively unimportant types as to number, such as forest-products farms, horse farms, nurseries, and greenhouses. Taken together, these farms accounted for only 1 percent of all commercial farms. The main purpose in classifying miscellaneous farms was to exclude them from the other types in order that the classification would be more meaningful.

Type-of-Farming Areas

Any attempt to outline type-of-farming areas in the United States must necessarily be very general. It is typical in some regions that a particular type of farm predominates, but other regions are characterized by a mixture of types, none of which predominate numerically.

The accompanying map shows the type of farm that accounted for 50 percent or more of the commercial farms in each county for 1954. (See map below.) Mixed-farming counties are those in which no single type comprised as much as half the commercial farms.

On this basis, several major type-of-farming areas stand out: The dairy areas of New England and the Lake States; the tobacco areas of North Carolina and Kentucky; the cotton area which covers most of the South as well as parts of Texas, New Mexico, Arizona, and California; the livestock areas which predominate

in the West and extend into the Midwest; the cash-grain areas of the Midwest, North Dakota, Kansas, and the Northwest; and the fruit-and-nut areas of central California and the Florida peninsula. In addition to these, there are many smaller areas in which certain types of farms predominate.

But the mixed areas cover a greater geographic extent than does any specific type. These usually border the more specialized areas. In some instances they are transitional areas in which two or more major types of farming merge. In this respect, it is interesting to observe the mixed nature of farming in the Midwest, long known for its corn, hogs, and cattle feeding. With the exception of livestock areas of Iowa and Missouri and the cash-grain areas of Illinois and Indiana, this region appears as predominantly a mixed-farming area. Production of feed grains and feeding of livestock are interrelated to the extent that neither enterprise predominates in most of this region.

In reviewing the type-of-farming area maps shown here, it must be recalled that they are based upon numbers of farms having a major source of income from a particular source. For this reason, type-of-farming areas may not represent the major source of income for the area. This would be true in cases in which relatively small numbers of farms with large sales volumes were of basically different types. In most situations a cash-grain or dairy area, for example, will approximate the area outlined by the major source of income.

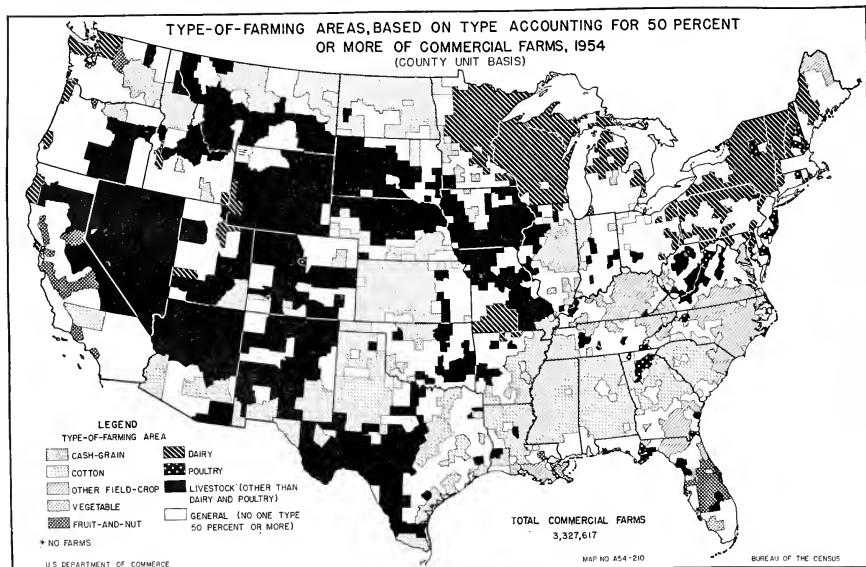


FIGURE 24.

TYPE OF FARM BY ECONOMIC CLASS

Substantial differences exist between types of farms in regard to the proportions that fall into the various economic classes. The number of each type of commercial farm by economic class is shown in table 2.

TABLE 2.—NUMBER OF FARMS IN EACH TYPE OF FARM BY ECONOMIC CLASS, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
All commercial farms	3,327,889	134,064	448,847	706,852	812,108	763,515	662,503
Cash-grain.....	537,974	21,965	110,597	190,357	129,642	82,789	33,214
Cotton.....	525,463	15,289	25,985	47,013	116,163	187,298	134,235
Other field-crop.....	307,733	5,585	15,414	47,796	114,222	117,121	67,585
Vegetable.....	32,581	3,751	4,480	5,094	6,384	6,495	6,377
Fruit-and-nut.....	82,696	10,475	15,330	16,367	16,876	15,853	6,995
Dairy.....	548,767	11,698	76,483	156,506	153,660	102,836	47,954
Poultry.....	154,254	13,187	28,554	28,582	27,665	28,923	27,450
Livestock other than dairy and poultry.....	694,888	39,835	121,287	152,413	143,072	137,460	100,791
General:							
Primarily crop.....	80,669	3,784	9,655	14,417	30,255	21,054	10,774
Primarily livestock.....	63,197	592	7,156	16,414	18,662	13,804	6,569
Crop and livestock.....	203,843	3,292	28,578	56,470	59,015	41,565	14,923
Miscellaneous.....	37,057	4,484	8,828	5,533	7,122	8,357	5,736

Class I farms (farms with a total value of farm products sold of \$25,000 or more) are not numerous, nationally. They numbered 134,064 in 1954 and comprised only 4 percent of the commercial farm numbers. Most of the Class I farms are found among types of farms that are numerically important. Livestock farms, for example, account for 21 percent of all commercial farms. About 30 percent of the Class I farms are of this type. Cash-grain and cotton farms, also numerous nationally, accounted for 16 percent and 11 percent, respectively of the Class I farms. Of these types, however, Class I farms comprise a small proportion of the number of farms. Only 3 percent of the cotton farms, and 4 percent of the cash-grain farms were classified in Class I.

In some types of farming, farms with sales of \$25,000 or more account for a sizable proportion of the farms. These are primarily highly specialized types that are not numerous nationally. Fruit-and-nut farms accounted for less than 3 percent of the commercial farms, but among farms of this type 13 percent were classified as Class I. More than 11 percent of the vegetable farms and 8 percent of the poultry farms had sales of \$25,000 or more.

Classes II, III, and IV are often referred to as the family-size farms. The value of farm products sold ranges from a lower limit of \$2,500 on Class IV farms to an upper limit of \$25,000 on Class II farms. About three-fifths of all commercial farms fall in these classes. But farms in these economic classes are much more typical of some types of farming than others.

Economic Classes II, III, and IV comprised about 75 percent of the total number of cash-grain farms, and only slightly less of the dairy farms and general farms. Substantially more than half of the farms in each of the other types were in these economic classes with the exception of cotton farms, other field-crop farms, and vegetable farms. More than 60 percent of the cotton farms, 50

percent of the other field-crop farms, and 40 percent of the vegetable farms fell in Classes V and VI (gross farm sales of less than \$2,500). These farms are often referred to as "low-production" or "low-income" farms.

TABLE 3.—PERCENT DISTRIBUTION OF FARMS IN EACH TYPE OF FARM BY ECONOMIC CLASS, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
All commercial farms	100.0	4.0	13.5	21.2	24.4	22.9	13.9
Cash-grain.....	100.0	4.1	20.6	26.8	24.0	15.4	6.2
Cotton.....	100.0	2.9	4.9	8.9	22.1	35.6	25.5
Other field-crop.....	100.0	1.5	4.2	13.0	31.1	31.8	18.4
Vegetable.....	100.0	11.5	13.8	15.6	16.6	18.9	18.6
Fruit-and-nut.....	100.0	13.0	18.7	19.9	20.6	19.3	8.5
Dairy.....	100.0	2.1	13.9	28.5	28.0	18.7	8.7
Poultry.....	100.0	8.5	18.5	18.5	17.9	18.8	14.5
Livestock other than dairy and poultry.....	100.0	5.7	17.5	21.9	20.6	19.8	14.8
General:							
Primarily crop.....	100.0	4.7	12.4	18.0	25.3	26.3	13.2
Primarily livestock.....	100.0	0.9	11.3	26.0	29.5	21.8	10.4
Crop and livestock.....	100.0	1.6	14.0	27.7	29.0	30.4	7.3
Miscellaneous.....	100.0	12.1	15.7	14.9	19.2	22.6	15.5

TABLE 4.—PERCENT DISTRIBUTION OF FARMS IN EACH ECONOMIC CLASS, BY TYPE OF FARM, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
All commercial farms	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Cash-grain.....	16.2	16.4	24.6	22.7	15.9	10.8	7.2
Cotton.....	15.8	11.4	5.7	6.7	14.3	24.5	29.0
Other field-crop.....	11.0	4.2	3.4	6.7	14.1	15.3	14.6
Vegetable.....	1.0	2.8	1.0	0.7	0.8	0.9	1.4
Fruit-and-nut.....	2.5	8.0	3.4	2.3	2.1	2.1	1.5
Dairy.....	16.5	8.7	17.0	22.1	18.9	13.5	10.4
Poultry.....	4.6	9.8	6.4	4.0	3.4	3.8	5.9
Livestock other than dairy and poultry.....	30.9	29.7	27.0	21.6	17.6	18.0	21.8
General:							
Primarily crop.....	2.4	2.8	2.2	2.0	2.5	2.8	2.3
Primarily livestock.....	1.9	6.4	1.5	2.3	2.3	1.8	1.4
Crop and livestock.....	6.1	2.5	6.4	8.0	7.3	5.4	3.2
Miscellaneous.....	1.1	3.3	1.3	0.8	0.9	1.1	1.2

To summarize, cash-grain farms, dairy farms, livestock farms, and general farms are characterized by a small proportion of very large farms or of extremely small farms, when measured in terms of gross sales. Poultry farms, fruit-and-nut farms, and vegetable farms have a relatively high proportion of operations which grossed \$25,000 or more in 1954 and somewhat fewer farms in the medium-size groups. Vegetable and poultry farms are also characterized by a fairly high proportion of small operations which had gross sales of less than \$2,500. Relatively few fruit-and-nut farms produce at this small volume of business.

Few of the cotton and other field-crop farms sold as much as \$25,000 of farm products. More than half sold less than \$2,500 of farm products. More than two-fifths of all Class V and Class VI farms were of these two types.

CHANGES IN THE STRUCTURE OF COMMERCIAL FARMING

CHANGES AFFECT FARMERS DIFFERENTLY

Agriculture is confronted with many problems of production and is undergoing basic adjustments. These problems, and the kinds of adjustments that may be needed, vary considerably by types and sizes of farms.

Changes that have affected agriculture have had different impacts upon the several types and sizes of farms. This is true for new developments in farm-production practices, changes in demand, and prices of products, as well as for the more general changes.

Improved techniques designed to increase yields and decrease labor needs in farming have varied in their adaptability to different crop and livestock enterprises and different sizes of farms. Differential rates of progress have been characteristic in the invention of machinery to mechanize completely the production of the major cash crops. Notable examples are the cash grains, which for many years have been grown and harvested almost entirely with machinery; and tobacco, which still requires a great deal of hand labor, particularly at harvest. Mechanization has been more feasible for farmers on larger acreage units and for those with land that is fairly level and in sizable tracts. Because of the high capital requirements, the financial and credit positions of farmers have also been important factors bearing on the rate of mechanization.

Farmers have not benefited equally even in the more simple practices of increasing yields. The results from use of commercial fertilizer, which have been so noticeable in humid eastern areas, have not proven as effective in areas where rainfall is more limited. Crop yields have been increased by using a wide variety of improved plants and seeds, but only a few crops have had such spectacular success as hybrid corn, which has affected the farmers in the Corn Belt, primarily.

More general changes, that have originated in the economic growth of the Nation, have also had different impact upon the various sectors of agriculture. With increasing concentration of population in cities, farmers have needed to produce the products demanded by urban tastes and customs. Substitutions of commodities have taken place. Consumers are buying less of the starchy foods in the form of bread, flour, potatoes, and rice, and are buying more meats, milk, eggs, and fresh vegetables. Vegetable oils have increased in demand for both household and industrial uses.

Rapid transportation and new processes for freezing foods have changed the locational advantages of farmers. These developments have enabled some farmers who are far from population centers to compete for what were formerly local markets. The development and production of synthetic fibers, the decline in foreign markets, and the competition of foreign agricultural producers, each has a distinct impact upon the structure of American agriculture.

Commercial farms have become fewer but they are much larger when measured by either the volume of farm sales or the acres of land in farms. The larger farms have become more numerous and there are fewer small farms. At the same time, there have been shifts in farming from one type to another. Along with the reduction in the number of commercial farms, most types of farms have decreased in actual number, but at different rates. Some types have increased as a proportion of the commercial farms. The changing structure is also reflected in adjustments made in the composition and use of farm resources.

Changes in agriculture are gradual. Most of the comparisons of changes, which follow, are based upon the Censuses of 1950 and 1954. The time period is too short to permit isolation of long-run trends or to warrant conclusions regarding the implications of these changes. Some of the changes that have occurred between 1950 and 1954 are thought to be illustrative of basic and long-run adjustments that are being made. Others may reflect only short-run variations that resulted from conditions peculiar to one or the other years under consideration.

The Censuses of 1950 and 1954 are selected as the basis of these comparisons because of the comparability of classifications used. Both Censuses provide data on the characteristics of farms grouped by economic class and by type of farm. The criteria used by the two Censuses for determining economic class and type of farm were identical. These classifications permit a more detailed examination of changes in commercial agriculture than has been possible previously.

CHANGES BY ECONOMIC CLASSES

Between 1950 and 1954 the number of commercial farms decreased by 378,523, a decrease of approximately 10 percent. The number of Class I farms increased by 30,833. This represents an increase of more than a fourth in the number of these large operations. As a proportion of the total commercial farms, however, Class I farms comprised less than 3 percent in 1950 and only 4 percent in 1954. (See table 5.)

TABLE 5.—CHANGES IN NUMBER AND PERCENT DISTRIBUTION OF COMMERCIAL FARMS, BY ECONOMIC CLASS, FOR THE UNITED STATES: 1950 TO 1954

Economic class of farm	Number		Increase or decrease (-) from 1950 to 1954		Percent of farms	
	1950	1954	Number	Percent	1949	1954
Commercial farms	3,796,412	3,327,889	-378,523	-10.2	100.0	100.0
Class I.....	163,231	194,064	30,833	29.9	2.8	4.0
Class II.....	384,151	448,847	67,696	17.8	10.4	13.5
Class III.....	721,211	796,852	75,641	10.5	19.6	21.2
Class IV.....	882,592	812,108	-70,494	-8.0	23.8	24.4
Class V.....	901,316	763,515	-137,801	-15.3	24.2	22.9
Class VI.....	717,201	462,553	-254,648	-34.1	19.1	13.9

The number of farms in Class II increased by 63,000—an increase of 16 percent. Farms in this class comprised about 13 percent of the commercial farms in 1954, compared with 10 percent in 1950.

Farms in the smaller economic classes decreased in number. This decrease was relatively small for Economic Classes III and IV. While decreasing in actual number, farms in these classes comprised a slightly larger proportion of the commercial farms in 1954 than in 1950. Most of the reduction in the number of commercial farms was among the small farms producing less than \$2,500 of farm products for sale. Class V farms decreased by 132,156, a decrease of 15 percent, and Class VI farms decreased in number by 245,561, a decrease of 35 percent. These classes, taken together, accounted for 36 percent of the commercial farms in 1954 compared with 43 percent 5 years earlier.

The average prices received by farmers for all farm products sold were at approximately the same level in both 1949 and 1954. The economic classifications based on farm sales in each of these years are comparable in terms of the physical volume of farm production represented. Changes in the number of farms by economic class between 1950 and 1954 indicate the substantial increase in farm production that took place. This alone would have been sufficient to cause many farms to fall in larger economic classes. But in addition, there was a reduction in the number of farms and this land was incorporated in the remaining farms giving them a larger acreage base. The shift to larger economic classes was a combination of the increase in production per acre and per animal unit and the larger acreage base per farm.

The increase in size of farm is a part of technological progress in agriculture. The greater use of farm machinery enables a smaller work force to tend more acres and more animal units and to harvest a larger production. The increase in farm size does not necessarily indicate a shift toward large-scale farms employing large numbers of hired workers. In fact all indications are that substantial growth took place on farms operated primarily with family labor. Many of these farms acquired additional land in order to utilize their machinery more efficiently.

SPECIALIZATION IN FARMING

Changing conditions have also had their impact upon the types of farming—the commodities produced, the number of producers, and the combination of farm enterprises. A question of current interest relates to specialization in agriculture; more specifically, whether or not recent developments have encouraged farmers to specialize in one or more enterprises rather than produce several different commodities in more diversified types of farming.

A conclusive answer to this question would require a more detailed analysis than is given in this report. However, some indication of probable trends may be drawn from changes in the number and proportion of farms that produced one or more of several major commodities during the 25-year period ending in 1954. These changes are shown in table 6.

The trend of the last 25 years indicates that most major commodities are now produced by fewer farms and by a smaller proportion of the farms. This trend is much more pronounced in the

production of some commodities than others. In the case of tobacco the trend is in the opposite direction.

In interpretation of these trends one must consider recent developments in methods of production, marketing and processing, changes in consumer demand, the time period under consideration, and the types of Government programs in effect.

One of the major pressures for greater specialization in agriculture has been the need for efficient utilization of machinery and other capital equipment. Investments in farm machinery and in improved housing and facilities for livestock and poultry have not been profitable unless the enterprise was carried on in sufficient volume. In order to gain the advantages from use of new technology, many farmers have found it necessary to concentrate on one or a few enterprises rather than several.

The small change in the proportion of farms producing wheat is owing largely to the time period. Mechanization in the production of small grains was well underway prior to 1929. The changes in production techniques of the last 25 years have not been so important as those that occurred during the preceding two decades. In contrast, mechanization of cotton production has been a more recent occurrence. Its impact on the number and proportion of farms producing cotton is apparent.

The increasing number and proportion of farms producing tobacco are attributable to the lack of progress in developing labor-saving equipment to perform certain crucial operations, and the lack of more profitable alternatives to tobacco for many farmers in the producing areas. Government programs—acreage allotments and price supports—may have also contributed to the trend.

The increase in the proportion of farms selling milk is in accord with the greater consumption of fluid milk by a growing population.

Production of broilers and eggs and of vegetables for sale show noticeable trends toward greater specialization. The sale of eggs and chickens from home flocks has been supplanted by modern efficient highly specialized operations. This change reflects improvements in disease control, feeding and housing, and other developments that enable fewer workers to care for a larger number of birds. Along with developments in transportation and processing, vegetable production, which used to be centered in environs of most of the larger cities, has shifted to areas having other natural advantages.

TABLE 6.—NUMBER AND PROPORTION OF FARMS HAVING PRODUCTION OR SALES OF SPECIFIED COMMODITIES, FOR THE UNITED STATES BY SPECIFIED YEARS: 1929 TO 1954

Item	1929		1939		1949		1954	
	Number of farms	Percent of all farms	Number of farms	Percent of all farms	Number of farms	Percent of all farms	Number of farms	Percent of all farms
Corn grown for all purposes	4,597,949	73.1	4,456,259	73.1	3,463,965	63.2	2,844,369	59.5
Wheat threshed	1,298,368	19.2	1,385,774	22.7	1,147,710	21.3	1,166,607	19.2
Cotton produced	1,986,726	31.5	1,589,723	25.1	1,110,876	20.6	864,138	18.1
Tobacco raised	432,975	6.9	498,348	8.2	2,581,922	49.9	7,513,346	147.7
Vegetables harvested for sale other than Irish potatoes and sweetpotatoes	627,452	10.0	462,552	7.6	346,528	6.4	279,606	5.8
Whole milk sold	893,431	14.2	953,808	15.6	1,696,650	32.4	931,143	19.3
Cream sold	(NA)	(NA)	1,464,883	24.0	962,128	18.0	549,556	11.3
Chickens sold	3,129,715	49.5	2,519,076	41.3	1,713,435	31.8	1,030,287	21.5
Eggs sold	3,872,482	61.6	(NA)	(NA)	2,420,718	45.0	1,684,531	35.2
Cattle sold	(NA)	(NA)	2,625,783	43.1	2,982,616	55.4	2,611,631	54.6
Hogs sold	(NA)	(NA)	1,842,704	30.2	2,067,867	39.0	1,425,943	29.8

NA Not available.

¹ Totals for States for which data are available.

² Includes some duplication of farms reporting different types of wheat.

³ Includes some duplication of farms reporting different types of tobacco.

CHANGES IN TYPE OF FARM

Between 1950 and 1954 there was a decrease in number of each type of farm except cash-grain farms. (See table 7.) Cash-grain farms increased by more than 100,000, or about a fourth. The greatest reduction in absolute number occurred among dairy farms and general farms, which decreased by about 150,000 each. Among general farms, those classified as primarily livestock decreased by nearly half. Other livestock farms and cotton farms, among the most numerous types nationally, decreased by 111,000 and 84,000, respectively. Fruit-and-nut farms and vegetable farms are specialized types that are not numerous nationally. Fruit-and-nut farms remained about the same in number while vegetable farms decreased by nearly a third.

TABLE 7.—CHANGES IN NUMBER AND PERCENT DISTRIBUTION OF COMMERCIAL FARMS, BY TYPE OF FARM, FOR THE UNITED STATES: 1950 TO 1954

Type of farm	Number		Increase or decrease (-) from 1950 to 1954		Percent of farms	
	1950	1954	Number	Percent	1950	1954
	Commercial farms	3,706,412	3,327,889	-378,523	-10.2	100.0
Cash-grain.....	430,389	537,974	107,585	24.8	11.6	16.2
Cotton.....	609,307	525,463	-83,844	-13.8	16.4	15.8
Other field-crop.....	409,421	367,733	-41,688	-10.2	11.0	11.1
Vegetable.....	46,415	32,581	-13,834	-29.8	1.3	1.0
Fruit-and-nut.....	82,178	82,096	-82	-0.1	2.2	2.5
Dairy.....	602,053	548,767	-53,286	-8.9	16.2	16.3
Poultry.....	175,876	154,251	-21,625	-12.3	4.7	4.6
Livestock other than dairy and poultry.....	806,080	694,888	-111,192	-13.8	21.7	20.9
General:						
Primarily crop.....	494,285	347,679	-147,206	-29.8	13.3	10.4
Primarily crop.....	84,569	80,039	-4,530	-5.4	2.3	2.4
Primarily livestock.....	134,666	63,197	-71,469	-53.1	3.6	1.9
Crop and livestock.....	275,020	293,843	17,977	6.5	7.4	6.4
Miscellaneous.....	50,368	37,057	-13,311	-26.4	1.4	1.1

Changes in types of farms by economic class.—Cash-grain farms were the only type that increased numerically between 1950 and 1954. Fruit-and-nut farms remained about the same. There were decreases in the number of all other types. Decreases also occurred among farms in each of the smaller economic classes—Classes III through VI. The larger farms, Classes I and II, increased substantially.

These changes in number have brought about noticeable differences in the size structure of the individual type of farm (see table 8). There was an increase in the number of Class I farms for each type. Numerically, this increase was greatest on cash-grain farms, an increase of 8,000 Class I farms. This type accounted for more than a fourth of the total increase in Class I farms.

The next largest increase in Class I farms occurred among fruit-and-nut farms. The increase of 5,000 Class I farms represented an increase to twice the number of these farms in 1950. Sizable increases in the number of Class I farms also occurred for cotton, poultry, and other livestock farms.

The number of Class II farms increased for most types. Over half of the increase was for cash-grain farms and a fourth of the increase was for dairy farms. The decreases in Class II farms were of relatively minor proportions where they occurred.

The changes in the number of Class III farms occurred only for a few types. The decreases were virtually all for other livestock, general livestock, and general crop and livestock farms; a total decrease of 60,000 farms. This was partially offset by substantial increases for cash-grain and other field-crop farms. Changes in the number of Class III farms were slight for the remaining types.

TABLE 8.—CHANGES IN NUMBER OF FARMS, FOR EACH TYPE OF COMMERCIAL FARM, BY ECONOMIC CLASS, FOR THE UNITED STATES: 1950 TO 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
		[A minus sign (-) indicates a decrease]					
Increase or decrease, 1950 to 1954:							
Commercial farms.....	-378,523	30,833	67,696	-14,359	-70,194	-137,801	-254,698
Cash-grain.....	107,585	8,252	36,951	32,560	19,227	14,748	-3,710
Cotton.....	-83,844	3,953	-1,657	2,041	24,786	-8,693	-104,314
Other field-crop.....	-41,688	740	2,341	10,390	-95	-26,132	-28,932
Vegetable.....	-13,834	677	-378	-2,864	6,071	-3,229	-5,291
Fruit-and-nut.....	-82	5,429	4,308	876	-2,653	-4,071	-4,568
Dairy.....	-53,286	1,746	14,331	2,526	-26,245	-20,581	-15,563
Poultry.....	-21,625	4,489	6,233	155	-6,425	-14,110	-11,737
Livestock other than dairy and poultry.....	-111,192	2,982	-1,618	-36,674	-33,508	-15,218	-27,156
General:							
Primarily crop.....	-4,530	1,455	3,015	2,053	1,184	-2,673	-9,564
Primarily livestock.....	-71,469	41	-715	-15,637	-23,244	-18,592	-13,582
Crop and livestock.....	-17,207	968	5,905	-10,569	-18,948	-23,462	-24,201
Miscellaneous.....	-13,311	114	26	-1,064	-2,009	-4,348	-6,630
1954 as percent of 1950:							
Commercial farms.....	90	139	118	98	92	85	64
Cash-grain.....	125	160	149	126	118	122	90
Cotton.....	86	189	94	105	127	96	56
Other field-crop.....	90	115	118	128	106	82	70
Vegetable.....	70	122	97	76	69	60	55
Fruit-and-nut.....	100	203	139	106	89	80	60
Dairy.....	91	117	124	102	85	77	75
Poultry.....	88	152	127	101	81	67	70
Livestock other than dairy and poultry.....	86	108	99	81	81	90	79
General:							
Primarily crop.....	95	162	143	117	106	80	52
Primarily livestock.....	47	107	91	52	45	42	33
Crop and livestock.....	74	142	121	84	76	64	38
Miscellaneous.....	74	103	100	84	78	66	49

Decreases in the number of Class IV farms took place for all types except cash-grain and cotton farms. The bulk of the decrease was for dairy farms and the livestock types listed in the preceding paragraph. Class IV cash-grain and cotton farms increased by a fifth and a fourth, respectively.

With the exception of cash-grain farms, the number of Class V farms decreased substantially for each type. The net decrease of 132,000 was a decrease of 15 percent from the number in 1950. The greatest proportionate decrease was for general livestock farms, a decrease of 60 percent.

There was a decrease of 246,000 in Class VI farms. The number of these small farms declined for each type of farm. The greatest numerical decrease was for cotton farms, a decrease of 104,000. The greatest proportionate decrease was for general livestock and general crop and livestock farms. On these types the number of Class VI farms declined to only a third their number in 1950.

Increases and decreases in some types of farms are closely related to changes in relative prices received by farmers for different commodities, and changes in cost-price relationships that affect alternative enterprises on the farm. Type of farm was based upon sales of farm products in the particular year. Farms having substantial sales from two or more commodities (or commodity groups) may have been classified in some cases as one type in 1950 and another type in 1954. This shifting between types probably accounts for a considerable part of the increase in cash-grain farms and the decrease in livestock farms and general farms between 1950 and 1954.

Along with the decrease in total commercial farm numbers, farms of most types have declined in number. But within the overall decrease there have been differences in the changes geographically.

Geographic changes in type and economic class.—The decline in the number of the smaller economic classes of farms, the increase in the larger classes, and the overall reduction in the total number of commercial farms between 1950 and 1954, is but a continuation of the trend in recent decades. The changes in the number of farms by type and their size distribution, however, is primarily useful in a description of the current 5-year period rather than for use in plotting long-run trends or making future projections. Changes in the number of farms by type as well as by economic class include shifts from one type or class into another.

The maps on the following pages show the geographic location of the changes in economic classes and types of farms. These maps show a fairly high degree of correlation in some areas between decreases in some types and classes of farms and associated increases in other types and classes. Because of the overall decline in the number of commercial farms, however, it is not always possible to distinguish between the shifts between classes and types and the complete disappearance of farms of any given type and class.

The increase in cash-grain farms between 1950 and 1954 was highly concentrated in the feed-grain sections of Indiana and Ohio, southeastern Illinois, north-central Iowa, and south-central Minnesota. In the wheat-producing areas further west, increases in cash-grain farms occurred in central Kansas and other scattered areas.

Increases also took place on the Delmarva Peninsula largely because of an increased production of soybeans. For the most part, increases in cash-grain farms in the wheat areas were compensated by decreases in adjoining areas. The acreage in wheat declined throughout the Plains. Even in Kansas, where increases in cash-grain farms occurred, the acreage of wheat declined while that of grain sorghums increased.

Increases in cash-grain farms are closely associated with decreases that occurred in general farms (primarily livestock and primarily crop and livestock) and other livestock farms. The increase in cash-grain farms in each of the midwestern and Plains areas coincided with decreases in the number of livestock and general farms. Furthermore, the increases in the former and decreases in the latter types are of approximately the same magnitude.

The shift from livestock and general to cash-grain farms between 1950 and 1954 is due largely to changes in the relative prices of grains and livestock. The prices farmers received for feed grains were higher relative to livestock prices in 1949 than in 1954. The table below shows the index of prices received by farmers for feed grains and livestock for the years 1949 to 1954. In order to show the relative change between 1949 and 1954, the index has been computed with 1949 equal to 100.

Year	Index of prices received by farmers (1949=100)	
	Feed grains and hay	Meat animals
1949.....	100	100
1950.....	109	109
1951.....	128	132
1952.....	132	114
1953.....	118	95
1954.....	116	91

In areas affected by the shift from general and livestock to cash-grain farms, feed grains and livestock are usually grown on the same farms, and income is derived from sales of both products. A change in price of one relative to the other may change the Census classification of these farms even though the farm organization remains the same. Also, during a period in which prices for feed grains are high relative to prices for livestock, more of the grain is sold, resulting first in animals being marketed at lighter weights, followed by curtailment of the production of meat animals by reduction in breeding stock. During this period sales of corn and soybeans increased substantially.

Decreases in livestock and general farms in Kentucky and Tennessee are related to increases in other field-crop farms and, in western Kentucky, to a slight increase in cash-grain farms. While the number of farms reporting sales of tobacco decreased slightly between 1949 and 1954, yields were higher in the latter year and also the value of tobacco sold. This, along with lower prices for livestock, meant that many of the farms that were classified as livestock and general in 1950, were classified in the other field-crop category in 1954.

Decreases in livestock and general farms in these States are also related to the reduction in the number of commercial farms. A high proportion of the livestock and general farms were in the smaller economic classes of farms that have been disappearing rapidly in recent decades.

The other field-crop farms (primarily tobacco and peanut farms) decreased in all areas, except for the increases in Kentucky and Tennessee. These decreases are closely related to the large reduction in Class V and VI farms in the flue-cured tobacco and peanut areas of Virginia, the Carolinas, Georgia, and Alabama. In the Georgia-Alabama area part of the decreases represent shifts from tobacco and peanuts to cotton, livestock, and general types of farming.

In central Louisiana the decrease in other field-crop farms represents a decline in sugarcane farms. There was a sharp decrease in the acreage and yield as well as the number of farmers growing sugarcane. These decreases were compensated by an almost identical increase in cotton farms.

The number of cotton farms decreased throughout most of the old Cotton Belt, extending from the Carolinas westward to east Texas. These decreases are closely related to decreases in Class VI farms. The number of these small cotton farms decreased by more than 100,000. In the old Cotton Belt, however, increases in cotton farms occurred in the Coastal Plains of the Carolinas, the southern Georgia-Alabama and the central Louisiana areas discussed previously, and throughout central and southern Mississippi. In Mississippi, the increase in cotton farms was compensated by decreases in livestock and general farms, this shift being due primarily to differences in yields and prices in respect to cotton and livestock, between 1949 and 1954.

Cotton farms increased in number in the western areas, particularly in the High Plains area of northwest Texas. There the increased numbers of cotton farms are associated with an increase in irrigation.

The number of dairy farms decreased throughout the North-east and Lake Dairy areas. There was some shifting of type from dairy to cash-grain farms in the cash-grain dairy transition areas. For the most part, however, the decrease in dairy farms is related to fewer farms, particularly in Economic Classes IV and V and the combination of farms into larger units.

Dairy farms have a widespread distribution over the country. In addition to the major dairy regions mentioned, there are numerous smaller areas of concentration around many of the larger population centers. Many of these so-called milksheds show increases in the number of dairy farms whereas outside of these special areas, the number has declined.

The 5-year period ending in 1954 saw poultry farming becoming increasingly specialized and highly concentrated in specific localities. The greatest increases occurred in the Piedmont of North Carolina, Georgia, and Alabama, in central Arkansas, and east Texas. Sizable decreases in poultry farms took place in both the Pacific Coast and Middle Atlantic areas.

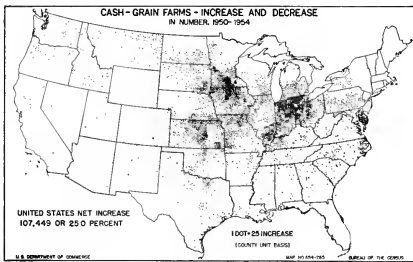


FIGURE 25.

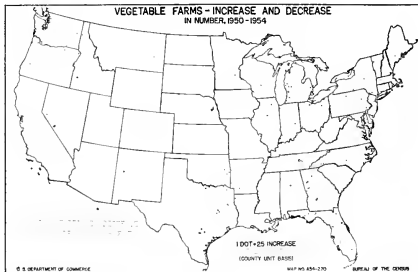


FIGURE 28.

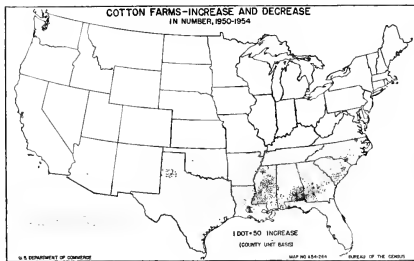


FIGURE 26.

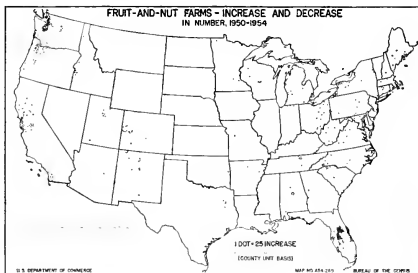


FIGURE 29.

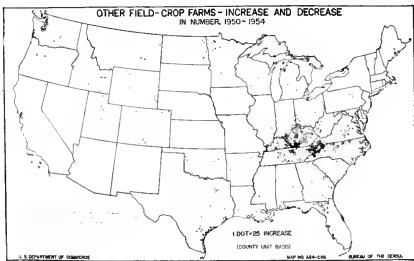


FIGURE 27.

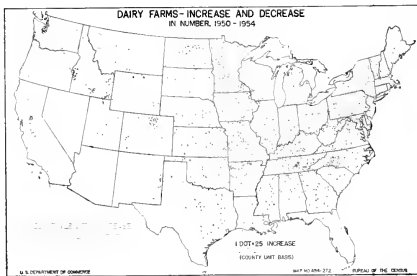


FIGURE 30.

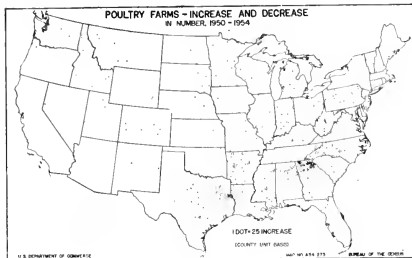


FIGURE 31.

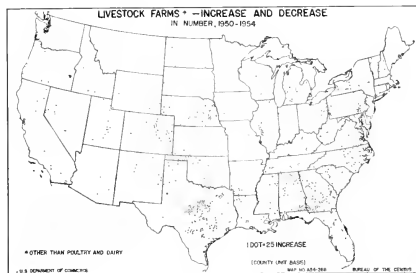


FIGURE 32.

Most of the fruit-and-nut farms are located on the Pacific Coast and the Florida peninsula. The significant change in the number of these farms was the decrease in the Los Angeles area of Southern California and the increase in central Florida. The decrease in the number of fruit-and-nut farms in Southern California was probably due to the combining of farms into larger production units. The acreage in fruit and nut trees, as well as the production, remained about the same, but was distributed among fewer farmers. In central Florida the land in fruit orchards, groves, vineyards, and planted nut trees, increased by more than a third. This is one of the few areas in which the total number of farms increased between 1950 and 1954.

The number of vegetable farms decreased by nearly a third between 1950 and 1954. This decrease was fairly general in most areas. Because of the small number of vegetable farms and their geographic dispersion, no attempt is made here to indicate the relation of these decreases to changes in other types of farms. The number of vegetable farms decreased in each economic class except Class I.

Along with changes in types of farms there were notable changes in the geographic distribution of the economic classes of farms. As mentioned, there was an increase in the number of Class I farms for each type of farm. These increases in Class I farms

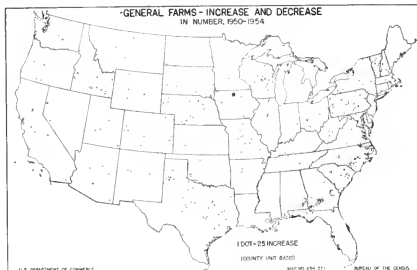


FIGURE 33.

were mostly confined to specific areas. The area of greatest increase was in northern Iowa, Illinois, and Indiana. Here they are associated closely with the increase in cash-grain farms. From the areas shown on the map it is apparent that most of the increases in Class I cash-grain farms were among those with a major source of income from sales of corn and soybeans rather than of wheat. In the wheat areas, increases in Class I farms were confined mainly to the spring-wheat area of Montana and the white-wheat area of Washington.

There was an increase in Class I cotton farms in the Mississippi Delta and the High Plains of Texas. In the Mississippi Delta the increase was due largely to a reduction in the number of cropper farms. Part of the increase represents cotton farms, formerly operated as multiple units, which decreased the number of croppers and reorganized production to use hired labor in mechanized operations.

Increases in the High Plains of Texas resulted from increased production from irrigated acreages. The irrigated land in cotton farms nearly doubled between 1950 and 1954. Despite a sharp decrease in the acreage, the production increased by nearly a third. The number of cotton farms did not change appreciably but more of them were classified in the larger economic classes.

Increases in Class I farms in other areas are associated with poultry farms, fruit-and-nut farms, and a mixture of types in the Pacific Coast States; fruit-and-nut farms in central Florida; and cash-grain (rice) farms in southern Louisiana.

Decreases in the number of Class I farms were distributed fairly generally over the United States. These were more noticeable, however, among cash-grain and general farms in the Plains area extending from Texas to Nebraska.

Changes in the geographic distribution of farms in Economic Classes II through VI are not discussed separately except as mentioned previously in relation to changes in types of farms. In general, most areas that show an increase in the larger economic classes show a corresponding decrease in the smaller economic classes. These changes are related to the combinations of small farms into larger units and to continued increases in production that have resulted from application of better farming practices. Increases in the number of farms in the smaller economic classes in specific localities are probably due largely to abnormalities in production in 1954. Sales may have been below normal because of poor yields in that particular year.

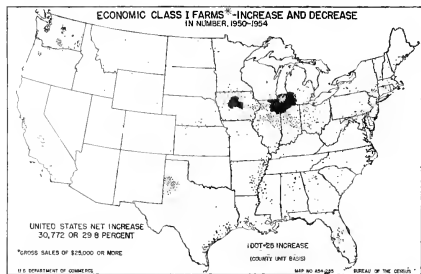


FIGURE 34.

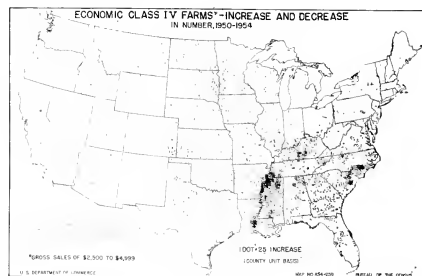


FIGURE 37.

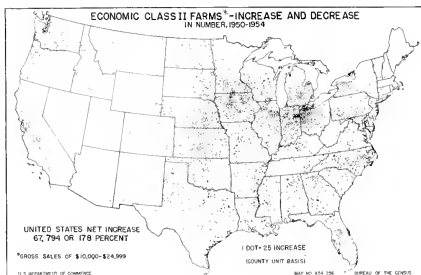


FIGURE 35.

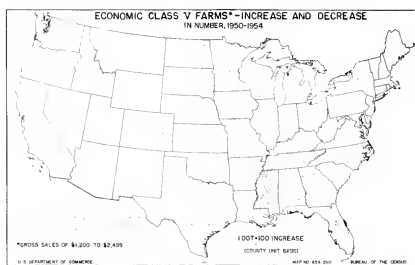


FIGURE 38.

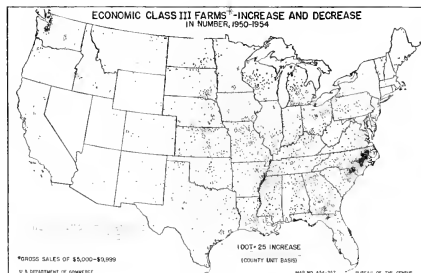


FIGURE 36.

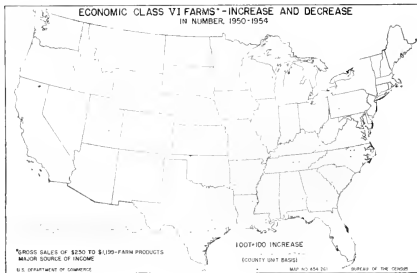


FIGURE 39.

CHANGES IN SIZE OF ACREAGE

In terms of acreage, commercial farms are becoming both larger and smaller. Farms under 10 acres and farms with more than 200 acres have increased in number. (See table 9.) Those in the size groups between 10 acres and 200 acres have decreased. Farms in these size groups, however, comprise more than 85 percent of the commercial farms.

The greatest rate of decrease among commercial farms came in the acreage-size group between 10 and 100 acres. Farms of this size which account for nearly two-fifths of all commercial farms, decreased in number by nearly a fifth between 1950 and 1954. Farms between 100 and 220 acres comprise nearly a third of the commercial farms. These decreased in number by about 10 percent, or about the same rate as the overall decrease in commercial farms.

TABLE 9.—CHANGES IN NUMBER OF FARMS BY SIZE AND PERCENT DISTRIBUTION OF COMMERCIAL FARMS BY SIZE, FOR THE UNITED STATES: 1950 to 1954

Acreage size	Number		Increase or decrease (-) from 1950 to 1954		Percent of farms	
	1950	1954	Number	Percent	1950	1954
	Commercial farms	3,706,412	3,327,889	-378,523	-10.2	100.0
Under 10 acres.....	136,835	145,640	8,565	6.3	3.7	4.4
10 to 49 acres.....	762,236	622,921	-139,405	-18.3	20.6	18.7
50 to 99 acres.....	710,876	580,660	-130,216	-18.3	19.2	17.4
100 to 219 acres.....	1,162,419	1,026,664	-135,755	-11.7	31.3	30.9
220 to 499 acres.....	642,018	642,333	315	0.5	17.3	19.3
500 to 999 acres.....	174,389	182,550	8,170	4.7	4.7	5.5
1,000 acres and over	117,558	127,363	9,805	8.3	3.2	3.8

Farms of less than 10 acres are not numerous in commercial agriculture. They are much more common in the noncommercial farming sector where many part-time and residential farmers have small acreages. Of the 481,000 farms that are under 10 acres, 70 percent (339,000) were classified as part-time or residential farms. Among commercial farmers, less than 5 percent (145,000) had farms of less than 10 acres. These farms increased in number by 6 percent during a period in which commercial farms as a group declined by 10 percent.

The increase in the number of farms in the larger acreage size groups between 1950 and 1954 is but a continuation of a trend toward larger acreage units. Farms between 220 and 500 acres remained about the same numerically, but increased as a proportion of the commercial farms. These farms comprised a fifth of all commercial farms in 1954. Farms with more than 500 acres account for less than 10 percent of all farms. These farms increased numerically by 18,000. The greatest increase came among farms of 1,000 acres and more—an increase of 8 percent.

Change in acreage by economic class.—There was a substantial increase in the number of larger farms between 1949 and 1954 as measured by gross sales of farm products. Also, the larger acreage units increased in number. These parallel increases in size, measured by both volume of market sales and acreage, portray a much closer relationship between the two measures of size than actually exists.

The increase in the number of Class I farms between 1949 and 1954 was accompanied by increases in each of the acreage size groups (see table 10). There was an increase of nearly a fifth even in the few small units of less than 10 acres that sold farm products valued at \$25,000 or more. The bulk of the increase in the number of Class I farms was among farms of less than 500 acres. The greatest proportionate increase was among farms of 100 to 219 acres. There was an increase of 60 percent in the number of farms in this acreage-size group that grossed \$25,000 or more from sales of farm products. Numerically, the greatest increase was among farms between 220 and 500 acres. These accounted for half of the increase in Class I farms.

The number of farms in Economic Class II also increased between 1950 and 1954, an increase of 67,696. This increase took place among all acreage-size groups of farms. Most of the increase in Class II farms (over three-fourths) came among farms of 100 to 500 acres. Less than 5 percent of the increase was among farms of 500 or more acres.

Farms in each economic class below Class II (sales of less than \$10,000) decreased in number. These decreases were mostly among the intermediate acreage groups. Among these classes,

farms below 10 acres and those above 500 acres increased in number.

The decrease of nearly 400,000 farms in Economic Classes V and VI (sales of less than \$2,500) was almost entirely among farms between 10 and 220 acres. For these classes taken together, farms of less than 10 acres and farms larger than 500 acres increased in number.

TABLE 10.—NUMBER AND PERCENT DISTRIBUTION OF FARMS, 1950 to 1954; BY SIZE AND ECONOMIC CLASS, FOR THE UNITED STATES

Item and economic class of farm	Total	Farms by size					
		Under 10 acres	10 to 99 acres	100 to 219 acres	220 to 999 acres	500 to 999 acres	1,000 acres and over
Number of farms, 1954:							
Commercial farms.....	3,327,889	145,400	1,203,581	1,026,664	642,333	182,550	127,363
Class I.....	134,664	4,340	14,817	19,127	40,199	24,807	30,774
Class II.....	418,487	8,873	49,246	132,168	169,824	48,875	38,546
Class III.....	706,822	11,843	136,738	287,915	191,131	49,087	30,138
Class IV.....	812,168	19,735	319,015	285,790	134,865	35,905	16,948
Class V.....	753,213	46,801	263,345	263,345	75,266	18,494	8,374
Class VI.....	462,503	52,808	272,995	98,279	30,643	5,927	2,351
Percent distribution, 1954:							
Commercial farms.....	100.0	4.4	36.2	30.9	19.3	5.5	3.8
Class I.....	100.0	3.2	11.1	14.3	30.0	18.5	23.0
Class II.....	100.0	2.2	11.0	29.4	37.8	10.9	8.6
Class III.....	100.0	1.7	19.3	40.7	27.6	7.0	4.7
Class IV.....	100.0	2.4	39.3	35.2	16.6	4.4	2.1
Class V.....	100.0	6.1	53.8	20.6	10.0	2.4	1.1
Class VI.....	100.0	11.4	59.0	21.5	6.5	1.3	0.5
Increase or decrease, 1950 to 1954:							
Commercial farms.....	-378,523	8,565	-269,621	-135,755	315	8,170	9,805
Class I.....	39,853	664	4,271	5,894	119	5,986	905
Class II.....	-67,696	1,478	10,823	27,830	25,299	2,880	857
Class III.....	-14,359	213	13,853	-22,896	-6,836	-1,512	2,749
Class IV.....	-20,194	1,489	-6,639	-32,451	-16,353	373	2,840
Class V.....	-137,801	5,429	-95,872	-46,527	-8,500	1,268	2,201
Class VI.....	-254,698	-4,455	-196,200	-47,352	-6,508	-434	251
1954 as percent of 1950:							
Commercial farms.....	89.8	106.3	81.7	88.3	100.0	104.7	108.3
Class I.....	129.9	118.6	140.5	114.5	148.4	131.8	103.0
Class II.....	117.8	114.9	126.5	126.1	117.6	105.4	102.3
Class III.....	98.0	101.8	111.3	92.6	96.5	97.0	110.0
Class IV.....	92.6	80.9	98.1	84.5	89.2	101.1	126.2
Class V.....	84.7	125.2	81.1	81.4	100.0	107.6	135.7
Class VI.....	64.5	92.2	58.2	67.5	82.2	98.2	112.0

The changes in acreage as related to economic class show that among Class I farms there has been an increase in the proportion of smaller acreage units and a decrease in the larger acreage units. On the farms with less than \$25,000 of farm products sold, the trend has been toward fewer medium-size acreage units and an increasing proportion of farms below 10 acres and above 220 acres.

Changes in the number of farms include substantial shifting of farms between economic classes and acreage-size groups. The total number of commercial farms decreased by 376,000. Most land in those farms was consolidated with other farms. The increase in production from the larger farmed acreage resulted in many farms being classified in groups of higher value of sales. At the same time, increased yields per acre and per animal unit served to increase market sales per farm. This also caused farms to shift into groups of higher value of sales. Shifts between economic classes also resulted from reorganizations of farming systems toward enterprises that were yielding a greater return per acre of land.

The increase in the number of units of smaller acreage with sales of \$25,000 or more is indication of the greater possibilities for developing fairly sizable business operations on modest acreages.

Change in acreage by type of farm.—Among most types of farms there were fewer small farms (measured in acres) and more of the larger ones. The exception was found among cash-grain farms which was the only type to grow in number during the period 1950 to 1954. While the number of farms increased in each acreage-size group for cash-grain farms, there was a greater proportionate increase in the smaller farms. This came from the shifts to cash-grain of many midwestern livestock and general farms,

TABLE 11.—NUMBER AND PERCENT DISTRIBUTION, 1954, AND CHANGE IN NUMBER OF FARMS, 1950 TO 1954; BY SIZE AND TYPE OF FARM, FOR THE UNITED STATES

Item and type of farm	Total	Farms by size					
		Under 10 acres	10 to 99 acres	100 to 249 acres	250 to 499 acres	500 to 999 acres	1,000 acres and over
Number of farms:							
Commercial farms.....	3,327,889	145,400	1,203,581	1,026,664	642,333	182,350	127,361
Cash-grain.....	537,574	1,513	52,800	170,300	174,114	63,933	35,216
Cotton.....	525,463	29,104	335,840	97,390	44,114	13,129	5,892
Other field-crop.....	367,739	31,721	233,823	74,530	22,100	4,091	1,445
Vegetable.....	32,581	2,889	29,146	5,752	2,412	822	559
Fruit-and-nut.....	82,096	10,660	53,804	10,535	4,623	1,510	964
Dairy.....	548,787	5,664	159,315	255,303	109,857	15,116	3,222
Poultry.....	154,251	40,633	76,290	26,667	8,802	1,577	582
Livestock other than dairy and poultry.....	694,888	11,232	139,057	237,889	186,476	60,101	69,133
General.....	347,679	1,285	90,295	140,868	85,479	20,432	8,599
Primarily crop.....	180,639	263	29,177	57,106	15,038	3,921	2,805
Primarily livestock.....	63,197	59	18,151	36,696	12,211	1,781	488
Crop and livestock.....	243,845	490	13,066	85,727	57,634	13,650	5,306
Miscellaneous.....	37,057	11,206	11,021	6,705	4,561	1,828	1,736
Percent distribution, 1954:							
Commercial farms.....	100.0	4.4	36.2	30.9	19.3	5.5	3.8
Cash-grain.....	100.0	0.2	17.3	31.7	32.4	11.9	6.5
Cotton.....	100.0	5.5	63.9	18.5	8.4	2.5	1.1
Other field-crop.....	100.0	8.6	63.9	20.6	6.0	1.1	0.4
Vegetable.....	100.0	8.8	61.8	17.7	7.4	2.5	1.7
Fruit-and-nut.....	100.0	13.0	65.5	12.8	5.6	1.8	1.2
Dairy.....	100.0	1.0	29.0	46.6	20.0	2.8	0.6
Poultry.....	100.0	26.3	49.5	17.2	5.6	1.0	0.4
Livestock other than dairy and poultry.....	100.0	1.6	18.7	34.2	26.8	8.6	9.9
General.....	100.0	0.4	26.0	40.6	24.6	5.9	2.5
Primarily crop.....	100.0	0.3	36.0	33.9	19.5	6.3	3.5
Primarily livestock.....	100.0	0.9	28.7	47.5	19.3	2.8	0.8
Crop and livestock.....	100.0	0.2	21.1	41.1	28.3	6.7	2.6
Miscellaneous.....	100.0	30.2	29.7	18.1	12.3	4.9	4.7
Increase or decrease, 1950 to 1954:							
Commercial farms.....	-378,323	8,565	-269,621	-135,755	315	8,170	9,803
Cash-grain.....	107,285	480	20,067	34,276	30,269	7,929	4,570
Cotton.....	-83,844	6,539	-74,838	-17,945	-990	1,549	1,649
Other field-crop.....	-41,688	12,294	-37,583	-12,488	-2,962	-383	-23
Vegetable.....	-13,834	-1,360	-10,425	-2,105	-18	51	20
Fruit-and-nut.....	-82	700	-1,221	-582	723	197	191
Dairy.....	-53,826	-669	-63,319	-20,252	18,289	1,822	613
Poultry.....	-21,625	-2,030	-16,100	-3,851	189	117	170
Livestock other than dairy and poultry.....	-111,192	-1,305	-96,513	-52,192	13,163	-939	2,920
General.....	-147,206	-2,906	-64,115	-58,341	-21,657	-1,759	66
Primarily crop.....	-4,530	-805	-6,480	-73	1,438	641	229
Primarily livestock.....	-71,469	-1,110	-38,799	-31,664	-11,308	-1,065	-111
Crop and livestock.....	-71,207	-585	-30,836	-27,222	-11,207	-1,805	-112
Miscellaneous.....	-13,311	-4,661	-5,078	-2,992	-1,059	-312	227
1954 as percent of 1950:							
Commercial farms.....	90	106	82	88	100	105	108
Cash-grain.....	125	150	148	125	121	114	115
Cotton.....	86	129	82	85	98	112	122
Other field-crop.....	90	103	86	85	88	91	98
Vegetable.....	70	68	66	73	99	107	104
Fruit-and-nut.....	100	107	98	95	119	115	125
Dairy.....	91	89	79	93	108	114	123
Poultry.....	88	95	82	87	102	108	141
Livestock other than dairy and poultry.....	86	90	74	82	93	98	104
General.....	88	39	59	71	80	92	101
Primarily crop.....	85	46	82	100	110	115	109
Primarily livestock.....	47	34	40	49	82	62	81
Crop and livestock.....	74	44	58	75	84	91	99
Miscellaneous.....	74	73	68	69	91	87	115

types that are typically smaller in acreage than the wheat farms in the Plains and western areas.

Less than a tenth of the cash-grain farms have 500 or more acres. (See table 11.) The number of cash-grain farms with more than 500 acres increased by 15 percent. This increase, however, accounted for virtually all of the increase that took place in commercial farms of 500 to 1,000 acres and nearly half of the increase in farms of 1,000 acres and over.

Farms of less than 100 acres decreased for most types of farms but increased substantially for cotton and other field-crop farms. This increase was probably due to the reduction in acreage allotments of cotton and tobacco. Many of these farms are operated by croppers. A reduction in the allotment on a multiple-unit operation, unless accompanied by a corresponding decrease in the number of croppers, usually means that fewer acres of land are assigned to each cropper. On other field-crop farms this was the only acreage-size group that increased in number.

All of the net decrease in the number of commercial farms took place among farms that had between 10 and 220 acres. Decreases occurred in each type except cash-grain farms.

Farms of 500 acres or more increased in number for most types. The exceptions are other field-crop, livestock, and general farms. Two-thirds of the increase was among cash-grain farms. Sizeable increases also occurred for cotton, dairy, and other livestock farms.

To summarize, changes in the distribution of farms by type and size show a trend toward increasing acreage in farms, for most types. This is to be expected during a period in which modern machinery has enabled a given labor force to handle a greater acreage. Cash-grain farms appear to be an exception, but this is mainly because of shifts to cash-grain from livestock and general farms in the Midwest.

CHANGES IN FARM OPERATOR CHARACTERISTICS

Along with changes in types and sizes of farms, there have been noticeable changes in the characteristics of the farm operators. These changes are shown for types and economic classes of farms in table 12. The changes in operator characteristics are interrelated with the shifts that have taken place between types, economic classes, and acreage-size groups of farms as well as the overall reduction in commercial farm numbers and the substantial migration from agriculture to nonfarm occupations. The data are more adequate for describing the characteristics in each year than for making precise estimates of changes in each particular type or economic class.

Age of operator.—By economic class of farm, the median age of farm operators increased between 1950 and 1954 for all except Class I and Class II farms. On Class VI farms (which decreased in number by 236,000), the median age increased from 53 to 58 years.

These changes reflect the movement of young men out of agriculture to part-time or full-time nonfarm jobs and fewer young men taking up farming on the smaller farms. The incomes from these smaller farms probably do not compare favorably with earnings from wages and salaries in nonfarm occupations. The decrease in median age for Class I farms (along with an identical age on Class II farms) indicates that some of the younger farmers have taken advantage of opportunities for increasing their volume of farm sales.

By type of farm, the median age of operators increased for each type except poultry farms. As each type of farm has a large proportion of the farms in the smaller economic classes, the effect of decreasing age among Class I and II farmers does not become apparent. Decreasing age among poultry farmers is related to the increasing specialization in broiler and egg production. It is probable that many younger farmers, having small acreage, have reorganized the farms for specialized poultry production.

TABLE 12.—SPECIFIED FARMS AND FARM-OPERATOR CHARACTERISTICS, BY TYPE AND BY ECONOMIC CLASS FOR COMMERCIAL FARMS, FOR THE UNITED STATES: 1950 AND 1954

Economic class and type of farm	Median age of operator (years)	Owners, part-owners, and managers (percent)	Working off farm 100 days or more (percent)	Other income greater than farm sales (percent)	Residing on farm operated—percent residence (percent)	Farms reporting	
						Tractors, excluding garden (percent)	Tractors with horses or mules (percent)
Commercial farms by economic class:							
All commercial farms.....	1950.....	47.6	69.1	9.1	9.1	95.2	57.9
	1954.....	49.0	71.2	13.0	10.8	93.8	71.1
Class I.....	1950.....	46.1	81.7	8.1	4.6	84.6	84.8
	1954.....	45.6	77.8	7.8	4.6	84.5	91.0
Class II.....	1950.....	45.2	71.3	6.3	4.2	83.5	88.2
	1954.....	45.2	69.5	7.4	4.4	93.0	92.4
Class III.....	1950.....	45.5	70.3	7.0	5.3	95.5	85.0
	1954.....	46.5	70.6	10.2	6.4	94.4	89.3
Class IV.....	1950.....	46.9	70.0	11.0	10.2	95.5	67.9
	1954.....	48.5	70.4	16.2	12.6	94.2	76.0
Class V.....	1950.....	47.9	67.1	17.4	20.7	95.6	41.9
	1954.....	50.3	69.9	24.4	24.3	93.0	56.3
Class VI.....	1950.....	53.3	66.4	.....	.....	96.5	9.3
	1954.....	58.0	75.2	.....	.....	95.4	32.4
Commercial farms by type:							
Cash-grain.....	1950.....	44.1	62.2	9.8	7.2	88.4	85.2
	1954.....	47.3	67.2	14.6	10.4	89.0	69.7
Cotton.....	1950.....	44.7	35.3	5.4	6.0	96.3	30.8
	1954.....	47.3	40.7	7.9	7.3	94.5	41.6
Other field-crop.....	1950.....	44.2	53.3	5.8	6.1	96.4	28.2
	1954.....	46.2	56.6	8.4	6.5	94.8	44.0
Vegetable.....	1950.....	48.6	78.5	11.5	11.1	90.4	56.9
	1954.....	50.3	82.9	15.2	13.7	87.8	73.9
Fruit-and-nut.....	1950.....	54.0	93.9	21.5	19.8	87.6	59.2
	1954.....	54.8	96.7	27.7	26.1	84.5	65.7
Dairy.....	1950.....	48.7	85.0	10.2	9.3	98.0	71.5
	1954.....	49.0	86.4	14.0	10.1	97.7	85.4
Poultry.....	1950.....	54.4	92.7	18.2	21.6	97.7	29.0
	1954.....	53.9	93.6	24.1	23.3	97.1	46.9
Livestock other than dairy and poultry.....	1950.....	49.7	78.9	9.5	9.8	94.8	67.8
	1954.....	51.0	80.4	13.4	12.4	93.1	80.6
General:							
Primarily crop.....	1950.....	47.1	71.5	9.6	10.4	93.2	57.4
	1954.....	49.2	75.4	15.8	14.9	91.2	75.9
Primarily livestock.....	1950.....	50.4	80.2	7.0	7.7	98.6	79.6
	1954.....	50.9	81.8	9.8	7.6	97.7	83.6
Crop and livestock.....	1950.....	47.6	73.6	6.7	7.3	97.7	73.7
	1954.....	48.7	75.2	10.1	8.5	97.1	88.5
Miscellaneous.....	1950.....	52.1	92.6	18.1	20.4	90.6	29.1
	1954.....	53.5	94.7	22.4	23.5	88.9	47.2

Tenure of operator.—On Class I and Class II farms, the proportion of tenancy increased. This may indicate that many of the younger farmers are renting their land and equipment, and using any cash reserves to increase the scope of their operations rather than investing in ownership. Increasing ownership among the smaller economic classes of farms is associated with the overall decline in tenancy, particularly among croppers on cotton and tobacco farms. Also, an increasing proportion of the smallest economic classes of farms are probably serving as retirement units for elderly persons who own their farms. Three-fourths of the Class VI farms were owned, in full or in part, in 1954. This is the highest proportion for any economic class except Class I.

There was an increase in the proportion of operators that were full and part owners for each type of farm. In general, this increase was smallest among types already predominantly owner operated. On the other hand, cotton and other field-crop farms—types that have a relatively high proportion of tenant operators—showed only small increases in farms operated by owners and part owners.

Off-farm work and other income.—The proportion of commercial farm operators working off their farms 100 or more days and those having a family income from off-farm sources exceeding the value of farm sales, increased substantially between 1950 and

1954. These increases took place among each economic class, except Class I, and for each type of farm. A much higher proportion of the operators on the smaller economic classes worked off the farm and had a greater off-farm income than sales from the farm.

The types of farms differ considerably in respect to the proportions of each type that reported 100 or more days of off-farm work and other income exceeding sales. For example, approximately a fourth of the fruit-and-nut and poultry farms reported these items compared with less than 10 percent of the cotton and other field-crop farms.

Residence of farm operator.—Virtually all (94 percent) of the farm operators live on the farms they operate. The proportion of nonresident landlords is highest among Class I farms, about 15 percent. The smaller economic classes show small difference in respect to residence, having only about 5 percent nonresident operators. By type of farm, the proportion of nonresident operators ranges from a high of 15 percent on fruit-and-nut farms to a low of 2 to 3 percent on dairy, poultry, and general livestock farms.

Nonresident operators increased between 1950 and 1954 among each economic class except Class I and among each of the types of farms.

CHANGES IN FARM RESOURCES

Tractors on farms.—Mechanization of farms continued between 1950 and 1954. Whereas 58 percent of the commercial farms reported a tractor (excluding garden tractors) in 1950, the proportion had increased to 71 percent in 1954. Approximately 90 percent or more of Economic Classes I, II, and III reported tractors. On the smaller economic classes, fewer farms have a tractor. The proportion of the smaller farms reporting a tractor, however, increased substantially between 1950 and 1954.

Increasing mechanization (as indicated by tractor numbers) took place for all types of farms. The increase was less for cash-grain farms than for other types because these farms were already highly mechanized. More than 90 percent reported a tractor in 1954. In general, the greatest rate of increase was among types that are comparatively low in the proportion of farms reporting tractors, such as cotton and other field-crop farms.

Noticeable also, between 1950 and 1954, was the sharp increase in the number of farms that depend upon tractors alone as a source of work power. The proportion of all commercial farms that reported a tractor and no workstock increased from 27 percent to 45 percent. The trend toward complete dependency on tractors as a source of work power is evident on each economic class and each type of farm. "Horsesh farming" is more common, however, to Economic Classes II and III and among cash-grain, fruit-and-nut, vegetable, dairy, and general farms.

Land resources and market output.—Between 1949 and 1954, the value of farm products sold by commercial farmers increased by 12 percent (see table 13). This increase was accomplished on approximately the same land acreage in farms. The total land in commercial farms increased by only 1 percent. There was a slight decrease in the land that was in harvested crops and an increase in the land that was pastured. More of the land was irrigated, an increase of 16 percent. Irrigated land, however, accounted for only 3 percent of the total land in farms. In 1954, farmers valued their farmland and buildings 29 percent higher than in 1950.

The larger economic classes of farms accounted for an increasing amount of land resources and of market sales. The value of farm products sold was a third greater for Class I farms and a fifth greater for Class II farms. On Class I farms, the land in harvested crops was a fifth greater. This increase in harvested cropland among Class I farms was due largely to the greater number of cash-grain farms that were included in Class I in 1954. The acreage of land pastured on Class I farms did not change, but the acreage of land irrigated increased by nearly two-fifths.

The greatest increase in total land was among Class II farms, an increase of 12 percent. Among farms in this class, the cropland harvested, land pastured, and land irrigated each increased by more than 10 percent. The land pastured increased on the smaller economic classes of farms whereas there were decreases in both total land and land in harvested crops. The value of farm products sold was approximately the same for Economic Class III and decreased on Classes IV, V, and VI.

By type of farm, there was an increasing concentration of land resources and market sales on cash-grain farms. The value of farm products sold on cash-grain farms increased by more than two-fifths. The land in farms and the harvested cropland increased substantially, but the greatest change was in land pastured—an increase of a fourth in acreage. This increase was influenced by the shift into the cash-grain category of many farms classified in 1950 as livestock and general. A higher proportion of the cash-grain farms in 1954 were in the Midwest. These farms have a larger proportion of the land in pasture than the cash-grain farms in the Plains area farther west. There was a decrease of nearly half in the land resources contained in general livestock farms between 1950 and 1954.

By far the greatest increase in land irrigated was on cotton farms—an increase of 60 percent. This came about mostly in the western cotton-producing areas.

TABLE 13.—SPECIFIED FARM RESOURCES, PERCENT 1954 IS OF 1950, BY ECONOMIC CLASS AND BY TYPE OF FARM, FOR THE UNITED STATES

Economic class and type of farm	Number of farms (per cent)	Land in farms (per cent)	Crop-land harvested (per cent)	All land pastured (per cent)	Land irrigated (per cent)	Value of land and buildings (per cent)	Value of all farm products sold (per cent)
Economic class of farm:							
All commercial farms	90	101	98	105	116	129	112
Class I	130	104	119	100	139	167	134
Class II	118	112	113	112	115	145	121
Class III	98	103	96	110	94	119	101
Class IV	92	97	89	106	86	111	94
Class V	85	93	81	100	86	108	87
Class VI	64	74	58	90	75	84	88
Type of farm:							
All types	90	101	98	105	116	129	112
Cash-grain	125	119	116	124	122	153	145
Cotton	86	99	94	116	159	135	118
Other field-crop	90	88	85	99	106	120	108
Vegetable	70	88	80	98	102	126	104
Fruit-and-nut	100	124	102	117	97	149	160
Dairy	91	100	100	101	115	122	107
Poultry	88	94	85	106	82	116	124
Livestock other than dairy and poultry	85	101	91	104	106	125	98
General:							
Primarily crop	95	103	112	99	122	145	134
Primarily livestock	47	52	51	55	64	65	60
Crop and livestock	74	84	84	88	96	105	96
Miscellaneous	74	102	85	129	120	127	105

Notwithstanding decreases in the number of farms for most types of farms, there was an increase in irrigated land among all types except fruit-and-nut, poultry, general livestock, and general crop and livestock farms.

The value of land and buildings for commercial farms increased by 29 percent between 1950 and 1954. Part of this increase is due to improvements, such as improved pastures and new and better houses and farm buildings, made to the land. The increases also reflect increases in land values.

Between 1950 and 1954, land values rose much more than market sales for each economic class and type of farm. The increase of two-thirds in the value of land and buildings on Class I farms is associated with an increase of only a third in gross farm sales and an increase of but a fifth in the number of farms. On Class II farms, land value increased more than two-fifths; sales of farm products increased by one-fifth. On the smaller economic classes as well, there was an increase in value relative to the volume of farm sales.

Increasing land values relative to market sales took place on each type of farm with the exception of fruit-and-nut farms and poultry farms. Prices received by farmers for fruits were 12 percent higher in 1954 than in 1949; poultry and egg prices, however, were 20 percent lower. The increase in market sales relative to land value probably relates to shifts in the geographic concentration of poultry production and to developments that have encouraged more intensive production of broilers and eggs on fairly small acreages.

The increase in land values between 1950 and 1954 can be explained partly by the strong demand for land by farmers who wanted to enlarge their farms, for the increasing mechanization of farms means that more land can be handled with the same or a smaller labor force. Farmers that bought tractors and related equipment have frequently been faced with the need to enlarge their farms in order to utilize their machinery more efficiently, and provide full employment for their labor force. It is also probable that increasing land values have resulted from the growth of towns and cities and the increasing demand for land for residential and other purposes.

CHARACTERISTICS OF TYPE OF FARM BY ECONOMIC CLASS

The structure of farming today reflects the changes that have affected farmers so differently. Close attention to this structure is basic to an understanding of the problems confronting farmers and of the adjustments that are needed in a changing Nation.

Farm Operator Characteristics

Color and tenure of operator.—In 1954, 71 percent of the operators of commercial farms were owners, part owners, or managers. (See table 14.) This was an increase from 69 percent in

TABLE 14.—PROPORTION OF FARMS OPERATED BY OWNERS, PART-OWNERS, AND MANAGERS, AND CROPPERS, AND BY WHITE AND NONWHITE OPERATORS, FOR EACH TYPE OF FARM BY ECONOMIC CLASS, FOR THE UNITED STATES: 1954

Item	Total	Economic class of farm					
		I	II	III	IV	V	VI
FULL OWNERS, PART OWNERS, AND MANAGERS							
All commercial farms, total.....	71.2	77.8	69.5	70.6	70.4	69.9	75.2
Cash-grain.....	47.2	70.3	58.5	62.0	70.0	77.9	81.8
Other field-crop.....	49.7	69.8	58.6	61.7	55.9	54.9	46.2
Other field-crop.....	46.7	66.7	58.0	67.6	45.6	58.6	74.1
Vegetable.....	82.9	78.5	82.2	81.2	85.3	84.9	82.9
Fruit-and-nut.....	95.7	95.7	94.6	95.3	96.4	96.5	96.1
Dairy.....	96.4	82.2	79.7	81.3	88.5	90.9	92.4
Poultry.....	96.6	91.4	95.5	94.5	95.9	94.1	95.4
Livestock other than dairy and poultry.....	80.4	71.7	66.4	74.7	84.4	89.2	94.8
General:							
Primarily crop.....	75.4	80.3	71.5	69.5	72.2	78.9	84.8
Primarily livestock.....	81.8	82.1	69.3	72.7	84.4	89.8	94.0
Crop and livestock.....	75.2	77.0	64.0	67.1	77.6	85.7	88.9
Miscellaneous.....	94.7	95.3	92.7	93.9	94.7	95.3	96.3
White operators, total.....							
Cash-grain.....	76.0	77.8	69.6	72.0	76.0	79.4	84.3
Other field-crop.....	67.3	70.2	58.5	62.0	70.1	78.1	82.5
Cotton.....	54.4	69.9	58.9	50.4	49.0	51.7	61.7
Other field-crop.....	64.0	81.7	70.0	55.2	54.9	65.7	77.8
Vegetable.....	85.1	79.3	83.4	84.6	86.9	87.2	85.8
Fruit-and-nut.....	96.4	96.5	95.7	96.1	96.5	96.9	96.5
Dairy.....	86.5	82.1	79.7	81.3	88.6	90.9	92.6
Poultry.....	93.6	91.1	91.4	91.3	94.9	94.2	93.4
Livestock other than dairy and poultry.....	80.4	71.7	66.4	74.7	84.5	89.3	92.2
General:							
Primarily crop.....	78.2	80.2	71.9	71.6	77.2	82.7	86.8
Primarily livestock.....	81.8	82.1	69.2	72.7	84.4	89.8	94.0
Crop and livestock.....	75.2	76.8	64.0	67.1	77.6	85.9	89.4
Miscellaneous.....	95.3	95.6	93.1	95.0	95.3	95.8	96.6
Nonwhite operators, total.....							
Cash-grain.....	28.7	75.9	60.7	24.3	29.3	25.9	41.1
Other field-crop.....	22.7	68.8	49.5	18.7	15.6	16.8	34.3
Other field-crop.....	30.9	64.7	30.3	16.4	20.5	15.5	57.3
All other types.....	68.5	78.9	71.1	60.6	57.9	67.1	76.9
CROPPERS							
All commercial farms, total.....	7.3	0.4	0.6	2.9	9.0	13.1	9.6
Cotton.....	28.7	1.4	3.5	16.5	32.5	37.6	25.0
Other field-crop.....	21.3	0.7	6.0	22.7	28.1	22.0	12.8
All other types.....	6.5	0.2	0.3	0.4	0.6	0.8	0.9
White operators, total.....							
Cash-grain.....	3.2	0.4	0.5	1.6	4.2	5.5	4.3
Cotton.....	14.4	1.4	3.1	9.5	17.4	19.3	14.4
Other field-crop.....	14.7	0.6	4.4	14.9	18.8	16.3	9.9
All other types.....	6.4	0.2	0.2	0.2	0.4	0.6	0.7
Nonwhite operators, total.....							
Cash-grain.....	43.5	0.9	11.3	45.5	22.2	49.5	29.7
Cotton.....	47.5	8.9	17.0	49.0	55.7	55.4	33.1
Other field-crop.....	44.5	1.7	34.2	34.7	53.0	40.4	25.9
All other types.....	10.2	0.1	2.0	10.8	19.0	12.1	6.4

1950. All tenants (including croppers) operated 29 percent of the commercial farms.

Ownership of the land is more common among operators of some types of farms than others. More than 90 percent of the operators of fruit-and-nut and poultry farms were included in the ownership group. The lowest proportions of owners are among cotton farmers (41 percent), other field-crop farmers (57 percent), and cash-grain farmers (67 percent). On all other types of farms the ownership ranged between 75 percent and 90 percent.

For all commercial farms as a group, the highest proportion of ownership is found among Class I farms (78 percent) followed closely by Class VI farms (75 percent). This varies considerably by type of farm, however. On vegetable farms, dairy farms, poultry farms, and other livestock farms, ownership is lowest among Classes I and II.

A much higher proportion of the white operators, than of nonwhite operators, were owners, part owners, and managers, in 1954: 76 percent for white operators compared with 29 percent for nonwhite operators. Among both white and nonwhite operators, ownership was lowest among operators of cotton and other field-crop farms. Among these types of farms, ownership was lowest for the intermediate classes and highest on Class I and Class VI.

The high proportion of tenancy among cotton and other field-crop farms and among nonwhite operators is influenced by the counting of cropper units as farms. Most of the croppers (95 percent) are found among cotton and other field-crop farms. (See table 15.) Also more than 90 percent of the nonwhite operators are found among these two types of farms.

Nearly half of the nonwhite operators on cotton and other field-crop farms were croppers in 1954. They were concentrated in the smaller economic classes of farms.

TABLE 15.—PERCENT DISTRIBUTION OF FARMS IN EACH TENURE AND COLOR GROUP BY TYPE AND ECONOMIC CLASS OF FARM, FOR THE UNITED STATES: 1954

Type and economic class of farm	Owners, part-owners, and managers	All tenants	Croppers	White operators	Nonwhite operators
Type of farm:					
All types.....	100.0	100.0	100.0	100.0	100.0
Cash-grain.....	15.3	18.4	1.2	17.9	1.0
Cotton.....	9.0	32.5	62.3	10.0	67.1
Other field-crop.....	8.8	16.6	32.3	9.6	24.1
Vegetable.....	1.1	0.6	0.2	1.0	0.9
Fruit-and-nut.....	3.3	0.4	(Z)	2.7	0.8
Dairy.....	20.4	7.7	0.5	18.5	0.6
Poultry.....	6.4	1.0	0.3	5.1	0.3
Livestock other than dairy and poultry.....	23.6	14.2	0.8	23.0	1.8
General:					
Primarily crop.....	2.5	2.0	1.6	2.4	2.2
Primarily livestock.....	2.2	1.2	(Z)	2.1	0.1
Crop and livestock.....	6.5	5.3	0.6	6.7	0.7
Miscellaneous.....	1.5	0.2	0.4	1.2	0.4
Economic class of farm:					
All commercial farms.....	100.0	100.0	100.0	100.0	100.0
Class I.....	4.4	3.1	0.2	4.4	0.5
Class II.....	13.2	14.3	1.2	14.9	1.2
Class III.....	21.1	21.6	8.6	22.9	9.3
Class IV.....	24.1	25.1	30.3	24.4	24.4
Class V.....	22.5	24.0	41.3	21.2	38.8
Class VI.....	14.7	12.0	18.4	12.2	28.8

Z Less than 0.05 percent.

Residence of farm operators.—Most farm families live on the farm they operate. In 1954, only 6 percent of all commercial farm operators reported that they did not live on the farm (see table 16). The highest proportions of nonresident operators were on fruit-and-nut farms (15 percent), vegetable farms (12 percent), and cash-grain farms (11 percent). The lowest proportions of nonresident operators were on dairy, poultry, and general farms.

TABLE 16.—PERCENT OF NONRESIDENT OPERATORS FOR TYPE OF FARM BY ECONOMIC CLASS, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
All commercial farms	6.2	15.5	7.0	5.6	5.8	6.1	4.6
Cash-grain.....	11.0	16.2	9.0	9.0	12.1	14.2	11.6
Cotton.....	5.5	23.0	13.2	7.7	4.7	4.0	3.8
Other field-crop.....	5.2	18.0	7.2	3.9	4.1	5.7	5.5
Vegetable.....	12.2	33.8	14.6	10.1	9.2	9.1	6.0
Fruit-and-nut	15.5	21.1	16.9	17.2	15.4	13.2	5.4
Dairy.....	2.3	7.7	3.5	2.2	1.9	2.0	1.7
Poultry.....	2.9	8.2	3.3	2.6	2.5	2.2	1.6
Livestock other than dairy and poultry.....	6.9	12.2	6.2	5.8	7.0	8.5	5.2
General:							
Primarily crop.....	8.8	22.2	9.2	7.8	7.4	8.7	8.4
Primarily livestock.....	1.7	6.7	2.2	1.8	0.4	1.5	1.4
Crop and livestock.....	2.9	9.4	3.4	2.5	2.9	2.6	2.2
Miscellaneous.....	11.1	24.0	15.3	11.6	9.8	7.0	4.0

Among operators of each type of farm the proportion of non-residence was higher for Class I farms than for the smaller economic classes. Except for Class I, however, there is no strong relationship between residence of the operator and the value of farm sales.

A substantially higher proportion of the farmers on Class I farms lived away from their farms, where the major source of farm sales was from crops. A third of the operators of Class I vegetable farms and approximately a fifth of those on Class I cotton farms, other field-crop farms, fruit-and-nut farms, and general farms did not live on their farms in 1954. On Class I dairy and poultry farms, for example, only about 8 percent of the operators were nonresidents.

Work off the farm and other income.—The proportion of farm operators working off their farms 100 or more days, or reporting that family income from nonfarm sources exceeded the value of farm sales, was greater among the smaller economic classes of farms (see tables 17 and 18). These proportions were lowest among cotton and other field-crop farms and highest among fruit-and-nut and poultry farms. Fruit-and-nut farms also reported the highest proportion of nonresident operators and poultry farms were among the lowest.

Approximately half of the operators of Class V fruit-and-nut farms and two-fifths of those on poultry farms worked off their farms 100 or more days or had other income that exceeded farm sales. In contrast, only a tenth of the cotton and other field-crop farms so reported.

Age of operator.—The median age of operator increased with decreasing size (as measured by gross sales of farm products) for each type of farm (see table 19). On several types (cash-grain, dairy, other livestock, and general farms) the operators of Class I farms were older than those of Class II farms. The median age of Class VI farm operators was over 65 years on poultry farms and nearly 65 years on fruit-and-nut and general livestock farms.

TABLE 17.—OPERATORS WORKING OFF THE FARM 100 OR MORE DAYS AS PERCENTAGE OF OPERATORS REPORTING AS TO OFF-FARM WORK, FOR EACH TYPE OF FARM, BY ECONOMIC CLASS, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
All commercial farms	13.3	8.0	7.6	10.4	16.5	24.6	-----
Cash-grain.....	15.0	4.9	5.6	9.9	21.1	36.4	-----
Cotton.....	7.9	7.3	9.3	9.8	9.5	12.0	-----
Other field-crop.....	8.5	8.0	7.2	6.1	7.7	15.2	-----
Vegetable.....	15.4	8.1	9.7	14.6	25.2	31.5	-----
Fruit-and-nut	27.9	13.3	19.2	28.9	37.4	47.1	-----
Dairy.....	14.4	8.3	6.8	10.0	18.2	28.3	-----
Poultry.....	24.7	14.5	20.2	29.8	36.5	40.1	-----
Livestock other than dairy and poultry.....	13.7	6.1	5.3	8.6	18.4	33.9	-----
General:							
Primarily crop.....	16.0	8.2	7.9	11.6	17.8	30.4	-----
Primarily livestock.....	10.1	10.0	5.0	6.6	11.3	19.8	-----
Crop and livestock.....	10.5	5.1	4.5	6.6	12.2	20.8	-----
Miscellaneous.....	23.0	10.2	17.0	22.7	32.8	41.4	-----

TABLE 18.—PERCENTAGE OF FARMS WITH OTHER INCOME GREATER THAN THE VALUE OF FARM PRODUCTS SOLD, FOR EACH TYPE OF FARM, BY ECONOMIC CLASS, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
All commercial farms	10.8	4.6	4.4	6.4	12.6	24.3	-----
Cash-grain.....	11.9	2.2	4.6	14.0	33.3	-----	
Cotton.....	6.3	2.8	4.4	5.8	6.5	11.3	-----
Other field-crop.....	6.5	3.1	2.9	3.4	5.3	13.4	-----
Vegetable.....	13.7	4.5	4.4	10.7	18.9	34.7	-----
Fruit-and-nut	26.1	7.1	13.2	24.1	36.5	53.8	-----
Dairy.....	10.1	6.4	3.6	5.8	11.6	28.2	-----
Poultry.....	23.3	9.8	16.0	25.7	34.7	45.5	-----
Livestock other than dairy and poultry.....	12.4	4.2	3.4	6.3	16.0	34.6	-----
General:							
Primarily crop.....	14.9	3.9	5.2	7.9	15.6	32.9	-----
Primarily livestock.....	7.7	7.8	1.9	2.8	8.0	19.6	-----
Crop and livestock.....	8.6	4.1	2.0	3.5	9.8	21.6	-----
Miscellaneous.....	23.6	7.5	14.7	20.9	32.7	48.8	-----

TABLE 19.—MEDIAN AGE OF OPERATOR FOR TYPE OF FARM BY ECONOMIC CLASS, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
All commercial farms	49.0	45.6	45.2	46.5	48.5	50.3	58.0
Cash-grain.....	47.3	44.0	43.9	45.6	50.0	53.8	59.6
Cotton.....	47.3	43.2	44.9	45.8	46.1	46.4	51.9
Other field-crop.....	46.2	44.8	44.1	45.3	43.8	46.4	54.2
Vegetable.....	50.5	44.8	47.0	47.9	50.1	51.5	57.3
Fruit-and-nut	54.8	50.6	52.5	54.3	55.7	55.5	63.4
Dairy.....	49.0	47.1	45.8	45.9	45.6	52.0	61.2
Poultry.....	53.9	45.7	47.7	50.4	53.3	57.0	65.4
Livestock other than dairy and poultry.....	51.0	45.6	45.1	48.0	51.5	53.9	61.2
General:							
Primarily crop.....	49.2	46.3	45.0	46.4	47.7	50.7	59.4
Primarily livestock.....	50.9	45.3	43.1	45.2	50.7	56.2	64.8
Crop and livestock.....	48.7	45.7	43.6	43.2	49.2	53.0	60.9
Miscellaneous.....	53.5	50.0	50.4	51.0	52.4	54.6	61.9

Man-Equivalents of Labor Used

For the purpose of showing the amount of farm labor used on commercial farms, all labor was converted to a man-equivalent basis. This was necessary in order that meaningful comparisons might be made between the different types and sizes of farms.

Getting an estimate of the labor used is more difficult in agriculture than for most other industries. Farming, generally, is highly seasonal. Certain farming operations performed during the year, such as cultivating and harvesting, usually require more labor than is needed for the remainder of the year.

The seasonal needs for labor in farming vary between different types of farms and between farms in different geographic locations. Therefore, data on the number of workers, if based on any given week, are likely to be less representative of the annual average on some farms than on others. Many wives and children of farmers work part time at field work and chores. The farmer himself frequently does not work full time on the farm but may have a nonfarm job or business.

For these reasons, the total farm labor used was estimated in man-equivalents from use of other data obtained by the Census. As used in this report, a man-equivalent of labor is a relative measure of employment. The estimates are designed primarily toward the objective of securing rough comparability in the amount of labor used between types and sizes of farms. A man-equivalent, as used here, represents approximately a man-year of farm work, but no attempt is made to specify the exact number of days or hours represented.

Operator labor.—The farm operator was considered to be equal to 1 man-equivalent of farm labor unless he worked off the farm or was 65 years of age or older. Farm operators who worked off the farm 1 to 99 days were estimated at 0.85, those working off the farm 100 to 199 days at 0.5 and those working off the farm 200 or more days at 0.15 man-equivalents of labor. A reduction of 0.5 man-equivalents was made for each operator who was 65 years or older.

As estimated in this report, farm-operator labor per farm is a fairly constant factor in the labor force. For most types of farms his labor amounted to between 0.7 and 0.8 man-equivalents (see table 20). Operator labor on cotton and other field-crop farms was slightly higher and on fruit-and-nut farms and poultry farms was slightly lower than this range.

By economic class of farm, operator labor tended to be higher on Class I farms for most types and decreased with decreasing size of farm. For each type of farm, however, operator labor per farm was higher on Class VI than on Class V farms. This is because Class VI farms, by definition, had no operators who worked off the farm as much as 100 days. The relatively small amount of operator labor on Class VI farms is due to the higher proportion of operators who were 65 years or older.

Unpaid family labor.—The number of family members who were reported working 15 or more hours without pay during the specified calendar week (September 26-October 2 or October 24-30, depending on the date of enumeration) were estimated at 0.5 man-equivalents each. This reduction was made in recognition of the higher composition of children and elderly persons in the unpaid family labor force. Individually, these are not usually considered the equivalent of an able-bodied adult worker.

Unpaid family labor, as estimated, amounted only from one-fourth to one-half as much as the operator labor. The larger economic classes of farms naturally had the most operator labor. Unpaid family labor was most important on the intermediate sizes (Classes II, III, and IV); it ranged from one-third to one-half man-equivalents on most types. Highest in use of unpaid family labor were cotton, other field-crop, dairy, and general livestock farms. The lowest were fruit-and-nut, cash-grain, and other livestock farms.

TABLE 20.—AVERAGE MAN-EQUIVALENTS OF LABOR USED ON EACH TYPE OF FARM BY ECONOMIC CLASS, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
All commercial farms.....	1.46	5.42	1.81	1.43	1.27	1.09	1.04
Operator labor.....	0.78	0.86	0.86	0.83	0.77	0.70	0.79
Unpaid family labor.....	0.34	0.27	0.35	0.38	0.39	0.34	0.23
Hired labor.....	0.34	4.29	0.60	0.22	0.11	0.65	0.02
Cash-grain.....	1.23	3.67	1.51	1.23	1.00	0.83	0.93
Operator labor.....	0.77	0.89	0.87	0.82	0.70	0.60	0.77
Unpaid family labor.....	0.25	0.27	0.31	0.29	0.24	0.19	0.14
Hired labor.....	0.20	1.91	0.33	0.12	0.07	0.64	0.02
Cotton.....	1.70	7.76	2.31	1.93	1.68	1.40	1.21
Operator labor.....	0.86	0.90	0.87	0.87	0.87	0.84	0.86
Unpaid family labor.....	0.48	0.16	0.25	0.27	0.25	0.31	0.33
Hired labor.....	0.36	6.70	1.39	0.49	0.15	0.65	0.02
Other field-crop.....	1.51	8.59	2.42	1.79	1.50	1.21	1.07
Operator labor.....	0.85	0.86	0.87	0.89	0.88	0.80	0.83
Unpaid family labor.....	0.40	0.29	0.41	0.37	0.49	0.35	0.22
Hired labor.....	0.27	7.44	1.14	0.33	0.13	0.06	0.02
Vegetable.....	3.57	17.82	3.59	2.60	1.43	1.08	1.08
Operator labor.....	0.76	0.88	0.84	0.78	0.72	0.63	0.80
Unpaid family labor.....	0.31	0.23	0.40	0.37	0.35	0.30	0.24
Hired labor.....	2.49	16.71	2.35	1.85	0.36	0.15	0.05
Fruit-and-nut.....	2.46	9.01	2.63	1.61	1.12	0.86	0.98
Operator labor.....	0.64	0.80	0.74	0.65	0.56	0.49	0.72
Unpaid family labor.....	0.19	0.18	0.22	0.22	0.19	0.18	0.16
Hired labor.....	1.62	8.04	1.67	0.74	0.36	0.18	0.10
Dairy.....	1.44	5.36	1.97	1.46	1.25	1.05	0.99
Operator labor.....	0.77	0.85	0.86	0.85	0.76	0.65	0.75
Unpaid family labor.....	0.40	0.33	0.44	0.45	0.45	0.37	0.23
Hired labor.....	0.26	4.17	0.67	0.19	0.07	0.03	0.01
Poultry.....	1.16	2.71	1.43	1.13	0.94	0.77	0.81
Operator labor.....	0.65	0.83	0.77	0.67	0.59	0.51	0.65
Unpaid family labor.....	0.29	0.36	0.38	0.36	0.30	0.24	0.14
Hired labor.....	0.21	1.52	0.27	0.10	0.05	0.02	0.01
Livestock other than dairy and poultry.....	1.30	3.27	1.61	1.33	1.12	0.88	0.94
Operator labor.....	0.76	0.87	0.87	0.83	0.73	0.60	0.75
Unpaid family labor.....	0.26	0.28	0.32	0.31	0.27	0.21	0.24
Hired labor.....	0.28	2.12	0.42	0.19	0.12	0.07	0.03
General, primarily crop.....	1.61	7.93	2.07	1.53	1.25	1.00	0.96
Operator labor.....	0.76	0.86	0.85	0.82	0.77	0.65	0.75
Unpaid family labor.....	0.30	0.24	0.31	0.33	0.33	0.28	0.19
Hired labor.....	0.56	6.82	0.90	0.35	0.15	0.07	0.02
General, primarily livestock.....	1.29	3.79	1.69	1.42	1.26	1.05	0.91
Operator labor.....	0.79	0.82	0.88	0.86	0.79	0.68	0.70
Unpaid family labor.....	0.40	0.49	0.49	0.46	0.42	0.34	0.21
Hired labor.....	0.11	2.48	0.31	0.10	0.05	0.03	0.01
General, crop and livestock.....	1.37	4.33	1.74	1.42	1.26	1.07	1.04
Operator labor.....	0.81	0.87	0.88	0.86	0.80	0.70	0.77
Unpaid family labor.....	0.38	0.40	0.44	0.42	0.39	0.32	0.25
Hired labor.....	0.18	3.06	0.42	0.14	0.07	0.04	0.02
Miscellaneous.....	2.73	12.29	2.80	1.56	1.16	0.86	0.95
Operator labor.....	0.68	0.82	0.77	0.72	0.62	0.54	0.75
Unpaid family labor.....	0.22	0.20	0.27	0.28	0.24	0.20	0.16
Hired labor.....	1.83	11.26	1.76	0.66	0.30	0.12	0.04

Hired labor.—Man-equivalents of hired labor were computed by dividing the expenditure for hired labor by the annual cash wage reported for regular hired workers for each type of farm.

Hired labor is relatively unimportant in commercial farming as a whole. The man-equivalents of hired labor per farm totaled about 0.3 man-equivalent per farm in 1954. Only on vegetable, fruit-and-nut, and general crop farms, did hired labor exceed this amount. However, hired labor is of considerable importance on the larger economic classes of farms. The average for Class I farms of all types was more than 4 man-equivalents per farm in 1954. The average vegetable farm in Class I hired the equivalent of 17 full-time workers that year. Eight man-equivalents of hired labor were used on Class I fruit-and-nut farms and 7 man-equivalents on Class I cotton and other field-crop, and general crop farms. In contrast, Class I cash-grain and poultry farms used less than 2 man-equivalents of hired labor per farm.

Hired labor comprises a very small part of the farm labor force on farms in the smaller economic classes. For economic classes smaller than Class I it was less important than family labor on all types, with the exception of Class II cotton, vegetable, and fruit-and-nut farms. The use of hired labor decreases with decreasing size of farm for all types.

Cash Wages Paid

The land and labor resources and the value of investment for types of farms classified by economic class is useful as a measure of overall distribution of resources of production. When these resources are taken together there is a close association between the amount and value of resources and the value of farm products sold.

Both the value of investment and the value of farm products are frequently used as measures of farm size. In the purely physical sense they appear to represent fairly adequate measures. But interest in farm size also stems from concern over the human factor in farming. As farms increase in size, measured by business volume, there is a tendency for the farming to involve more work than can be handled by the farm family, and for hired labor to become an increasingly important element in the day-to-day operations. Many persons have taken the increases in size of farm to mean a trend toward large-scale farms and a corresponding increase in the use of hired labor in agriculture.

Since the economic classification has, as its largest size grouping, farms that had sales of farm products valued at \$25,000 or more, there is a tendency for these to be treated as representing large-scale operations employing much hired labor. Actually, many of these farms do employ a great deal of hired work. On many others the work is done primarily by members of the family. Furthermore, there is considerable variation by type of farm among Class I farms in the amount of hired labor employed.

Table 21 and table 22 show the number and proportion of farms reporting specified amounts paid for hired labor for types of farms by economic class. Even among Class I farms, only two-fifths reported an expenditure of \$5,000 or more. An expenditure of \$5,000 would probably represent the hiring of 2 to 3 full-time workers at current wage rates for hired labor.

By type of farm, Class I farms show striking differences in the proportion that paid \$5,000 or more for hired labor. Only a fifth of the Class I cash-grain farms hired this amount of farm labor, reflecting the outstanding progress that has been made in mechanization of the entire farming operation of the cash-grains. In contrast, other types of farming having a major source of income from crops use much more hired labor in producing \$25,000 or more of farm products for sale. On cotton, other field-crop, and fruit-and-nut farms, two-thirds to three-fourths, and on vegetable farms nearly 90 percent, of the Class I farms had \$5,000 or more expended for hired work. On these types of farms much labor is needed because many of the peak harvest operations are not completely mechanized. Much of the labor hired on these farms is seasonal.

Livestock and poultry production is associated with relatively small use of hired labor, relative to sales. Even on Class I farms only a fifth of the poultry and a fourth of the livestock farms had a labor expenditure of \$5,000 or more. About half of the dairy farmers in Class I reported an expenditure of \$5,000 or more. Dairy and poultry farms characteristically buy large quantities of feed. Many livestock farmers, particularly those engaged in cattle and hog fattening, have high expenditures for purchases of feeder cattle and pigs. On these types of farms a smaller proportion of the gross sales is net than for most specialized crop farms.

Farms with expenditures for hired labor of \$5,000 or more are not restricted to Class I farms, however. More than a fourth of the farms employing this much hired work were classified as Class II. A fairly high proportion of Class II cotton, other field-crop, vegetable, and fruit-and-nut farms, reported hiring this much farm labor.

On the smaller economic classes of farms (those with sales of farm products valued at less than \$10,000) few farms of any type reported as much as \$5,000 expended for hired labor.

TABLE 21.—PERCENTAGE OF FARMS REPORTING \$5,000 OR MORE CASH WAGES PAID, FOR EACH TYPE OF COMMERCIAL FARM, BY ECONOMIC CLASS, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
All commercial farms	2.4	40.2	4.7	0.5	0.2	(Z)	(Z)
Cash-grain.....	1.2	21.2	1.1	0.2	0.1	(Z)	(Z)
Cotton.....	2.8	70.8	13.7	0.5	(Z)	(Z)	(Z)
Other field-crop.....	1.5	64.8	10.9	0.4	(Z)	(Z)	(Z)
Vegetable.....	16.7	88.0	41.3	4.8	0.9	.....	.....
Fruit-and-nut.....	14.7	73.5	22.8	3.5	0.8	0.3	0.1
Dairy.....	1.8	51.5	4.2	0.2	(Z)	(Z)	.....
Poultry.....	1.7	17.1	1.0	0.2	0.2	.....	(Z)
Livestock other than dairy and poultry.....	1.9	21.2	2.4	0.7	0.4	0.1	(Z)
General:							
Primarily crop.....	3.8	56.5	7.5	0.8	0.2	0.1	.....
Primarily livestock.....	0.4	28.5	1.0	0.1	(Z)	.....	.....
Crop and livestock.....	1.0	34.8	2.2	0.3	(Z)	(Z)	.....
Miscellaneous.....	15.2	77.9	28.2	4.9	2.3	0.4	0.2

Z 0.05 percent or less.

TABLE 22.—PERCENTAGE DISTRIBUTION OF COMMERCIAL FARMS IN EACH TYPE, BY ECONOMIC CLASS OF FARM, BY AMOUNT OF EXPENDITURE FOR HIRED LABOR, FOR THE UNITED STATES: 1954

Economic class and expenditure for hired labor	Type of farm												
	All commercial farms	Cash-grain	Cotton	Other field-crop	Vegetable	Fruit-and-nut	Dairy	Poultry	Livestock other than dairy and poultry	General—			Miscellaneous
										Primarily crop	Primarily live-stock	Crop and live-stock	
All classes	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
None.....	41.6	45.1	39.0	30.5	25.8	15.2	46.0	61.1	43.1	32.1	60.8	41.9	36.8
\$1 to \$999.....	45.8	44.6	48.9	60.7	35.8	39.8	41.4	29.1	43.8	50.2	44.1	49.8	50.2
\$1,000 to \$2,499.....	7.3	6.8	6.5	3.6	14.3	18.8	7.8	5.5	8.0	9.6	6.6	5.5	10.4
\$2,500 to \$4,999.....	3.0	2.4	2.8	1.7	8.4	11.4	3.0	2.6	3.2	4.3	0.9	1.7	7.5
\$5,000 and over	2.4	1.2	2.8	1.5	16.7	7.7	1.8	1.7	1.9	3.8	0.4	1.0	15.2
\$5,000 to \$9,999.....	1.4	0.8	1.6	0.9	7.0	7.8	1.2	1.1	1.2	2.2	0.3	0.7	6.6
\$10,000 to \$19,999.....	0.6	0.2	0.8	0.4	5.1	4.4	0.4	0.5	0.5	0.9	0.1	0.2	5.0
\$20,000 and over.....	0.4	0.1	0.4	0.3	4.7	2.6	0.2	0.1	0.2	0.7	(Z)	0.1	3.5
Class I	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
None.....	7.0	6.4	1.0	1.7	0.3	2.1	4.5	19.6	9.5	3.6	6.9	6.8	4.0
\$1 to \$999.....	15.5	20.0	3.0	1.9	1.4	3.0	8.3	20.3	24.1	8.5	18.9	15.5	5.9
\$1,000 to \$2,499.....	18.3	27.5	10.1	3.9	7.2	13.5	20.5	24.5	15.2	23.8	23.5	23.5	5.4
\$2,500 to \$4,999.....	19.0	24.9	15.9	16.5	6.3	14.2	22.2	16.5	20.6	18.2	21.8	24.4	8.8
\$5,000 and over	40.2	21.2	70.8	64.8	88.0	73.5	61.5	17.1	21.2	56.5	28.5	34.8	77.9
\$5,000 to \$9,999.....	18.3	14.0	31.0	27.0	15.8	27.3	26.7	10.8	11.9	25.1	14.7	19.1	18.9
\$10,000 to \$19,999.....	13.2	5.2	28.5	21.1	32.0	26.8	17.7	4.9	6.1	15.8	10.6	10.9	30.0
\$20,000 and over.....	8.7	2.0	15.3	16.7	40.2	19.4	7.1	1.5	3.2	15.6	3.2	4.8	25.0
Class II	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
None.....	21.8	25.1	4.5	5.3	3.7	4.6	18.9	41.5	29.9	11.5	26.9	23.6	12.5
\$1 to \$999.....	42.2	52.2	16.7	23.3	8.9	16.8	37.0	60.1	48.6	33.4	51.5	49.1	17.1
\$1,000 to \$2,499.....	20.3	16.8	29.7	34.5	17.8	25.4	25.1	12.8	17.2	29.3	16.2	18.0	19.2
\$2,500 to \$4,999.....	11.1	4.8	35.4	24.0	28.3	30.4	13.8	4.6	6.9	18.3	4.4	7.1	23.1
\$5,000 and over	4.7	1.1	13.7	10.9	41.3	22.8	8.2	1.0	2.4	7.5	1.0	2.2	28.2
\$5,000 to \$9,999.....	4.0	0.9	12.6	10.0	32.3	18.8	3.8	0.6	0.4	6.6	0.5	2.0	20.0
\$10,000 to \$19,999.....	0.7	0.1	1.2	0.9	8.7	3.9	0.4	0.1	0.4	4.9	0.1	0.2	7.6
\$20,000 and over.....	(Z)	(Z)	(Z)	(Z)	0.3	0.1	(Z)	(Z)	(Z)	0.1	(Z)	(Z)	0.1
Class III	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
None.....	53.3	41.2	14.4	11.1	11.9	8.5	36.9	56.1	18.1	42.2	37.8	26.9	26.9
\$1 to \$999.....	51.1	52.8	42.0	65.5	27.5	36.2	50.5	37.7	21.9	57.9	52.8	54.3	35.2
\$1,000 to \$2,499.....	11.6	5.0	36.7	20.2	38.2	36.9	10.6	4.8	8.4	19.1	4.3	6.5	20.2
\$2,500 to \$4,999.....	2.4	0.8	6.4	2.8	12.6	13.9	1.8	1.2	2.2	4.2	0.6	1.0	12.9
\$5,000 and over	0.5	0.2	0.5	0.4	4.8	3.5	0.2	0.2	0.7	0.8	0.1	0.3	3.9
\$5,000 to \$9,999.....	0.4	0.1	0.5	0.3	4.2	3.0	0.2	0.2	0.6	0.6	0.1	0.2	3.7
\$10,000 to \$19,999.....	0.1	(Z)	0.1	0.1	0.6	0.5	(Z)	(Z)	0.1	0.2	(Z)	1.1	1.1
\$20,000 and over.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	0.1
Class IV	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
None.....	41.6	53.8	29.9	21.4	20.9	14.8	51.1	66.7	44.8	28.8	52.7	43.7	39.4
\$1 to \$999.....	55.6	43.6	64.0	74.6	54.4	59.9	46.0	30.9	48.9	64.6	45.9	53.9	42.7
\$1,000 to \$2,499.....	4.1	2.1	5.8	3.7	20.0	21.9	2.6	1.8	4.9	5.5	1.4	2.2	12.9
\$2,500 to \$4,999.....	0.6	0.4	0.3	0.2	3.8	3.5	0.3	0.4	1.1	1.0	0.1	0.2	2.7
\$5,000 and over	0.2	0.1	(Z)	(Z)	0.9	0.8	(Z)	0.2	0.4	0.2	(Z)	(Z)	2.3
\$5,000 to \$9,999.....	0.1	0.1	(Z)	(Z)	0.4	0.6	(Z)	0.2	0.3	0.1	(Z)	(Z)	2.1
\$10,000 to \$19,999.....	(Z)	(Z)	(Z)	(Z)	0.5	0.1	(Z)	(Z)	0.1	0.1	(Z)	(Z)	0.2
\$20,000 and over.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
Class V	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
None.....	51.1	64.1	44.5	36.0	35.2	28.2	62.6	76.4	54.6	43.0	61.6	51.6	43.4
\$1 to \$999.....	47.5	34.6	55.0	65.3	37.9	63.8	36.6	22.2	41.8	54.8	37.9	47.4	50.5
\$1,000 to \$2,499.....	1.3	1.0	0.7	5.7	6.2	0.7	0.7	2.8	1.8	0.4	0.9	4.4	4.4
\$2,500 to \$4,999.....	0.2	0.2	(Z)	0.1	1.2	1.5	0.1	0.1	0.6	0.3	0.1	0.2	1.1
\$5,000 and over	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	0.1	0.1	(Z)	(Z)	0.4
\$5,000 to \$9,999.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	0.1	0.1	(Z)	(Z)	0.4
\$10,000 to \$19,999.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	0.1	0.1	(Z)	(Z)	0.4
\$20,000 and over.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
Class VI	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
None.....	66.1	74.2	58.6	57.8	57.6	48.2	77.3	84.6	63.5	63.6	74.8	66.7	68.5
\$1 to \$999.....	25.1	25.1	41.3	42.0	40.3	47.7	22.6	14.9	29.3	35.8	24.9	28.9	28.6
\$1,000 to \$2,499.....	0.4	0.5	0.1	0.2	1.7	2.5	0.2	0.3	1.0	0.3	0.3	0.3	1.3
\$2,500 to \$4,999.....	0.1	0.2	(Z)	(Z)	0.5	1.4	(Z)	0.1	0.2	0.2	0.3	0.1	0.4
\$5,000 and over	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	0.2
\$5,000 to \$9,999.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	0.2
\$10,000 to \$19,999.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	0.2
\$20,000 and over.....	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	0.2

Z. 0.05 percent or less.

TABLE 23.—CLASS OF WORK POWER: PERCENTAGE DISTRIBUTION OF FARMS BY TYPE AND BY SPECIFIED ECONOMIC CLASSES, FOR THE UNITED STATES: 1954

Percentage distribution by type of farm	Economic class of farm				Percentage distribution by type of farm	Economic class of farm			
	Total	I	II, III, and IV	V and VI		Total	I	II, III, and IV	V and VI
Total all types	100.0	100.0	100.0	100.0					
No tractor, horses or mules.....	14.9	6.9	9.1	25.1	Poultry	100.0	100.0	100.0	100.0
No tractor, and 1 or more horses and/or mules.....	14.0	2.3	6.3	27.6	No tractor, horses or mules.....	41.9	30.5	38.5	49.5
Tractor and horses and/or mules.....	25.8	36.3	29.5	18.7	No tractor, and 1 or more horses and/or mules.....	11.2	4.3	10.2	14.5
Tractor and no horses or mules.....	45.3	54.5	55.1	28.5	Tractor and horses and/or mules.....	11.0	16.3	12.3	7.9
					Tractor and no horses or mules.....	34.8	48.9	39.0	28.1
Cash-grain	100.0	100.0	100.0	100.0	Livestock other than dairy or poultry	100.0	100.0	100.0	100.0
No tractor, horses or mules.....	6.3	1.5	3.9	15.6	No tractor, horses or mules.....	8.8	2.3	4.1	18.0
No tractor, and 1 or more horses and/or mules.....	2.9	0.4	0.8	6.3	No tractor, and 1 or more horses and/or mules.....	10.7	4.4	4.8	22.1
Tractor and horses and/or mules.....	22.0	37.9	22.5	17.4	Tractor and horses and/or mules.....	35.9	49.0	36.9	28.3
Tractor and no horses or mules.....	69.7	60.1	72.8	60.7	Tractor and no horses or mules.....	44.6	44.3	52.2	31.5
Cotton	100.0	100.0	100.0	100.0	General, primarily crop	100.0	100.0	100.0	100.0
No tractor, horses or mules.....	29.3	1.7	4.1	34.7	No tractor, horses or mules.....	10.9	2.0	6.4	18.3
No tractor, and 1 or more horses and/or mules.....	29.1	6.4	12.7	40.1	No tractor, and 1 or more horses and/or mules.....	12.2	0.4	6.8	23.8
Tractor and horses and/or mules.....	15.9	37.1	22.4	11.0	Tractor and horses and/or mules.....	25.5	38.0	34.6	21.2
Tractor and no horses or mules.....	25.7	60.8	42.5	14.1	Tractor and no horses or mules.....	46.4	69.7	52.2	36.7
Other field-crops	100.0	100.0	100.0	100.0	General, primarily livestock	100.0	100.0	100.0	100.0
No tractor, horses or mules.....	32.8	1.5	23.7	42.4	No tractor, horses or mules.....	6.0	2.5	2.7	12.0
No tractor, and 1 or more horses and/or mules.....	26.1	32.1	35.2	17.2	No tractor, and 1 or more horses and/or mules.....	9.2	0.3	4.3	19.6
Tractor and horses and/or mules.....	17.8	49.6	23.5	11.0	Tractor and horses and/or mules.....	29.8	34.3	29.6	26.9
					Tractor and no horses or mules.....	56.0	62.8	64.4	40.6
Vegetable	100.0	100.0	100.0	100.0	General, crop and livestock	100.0	100.0	100.0	100.0
No tractor, horses or mules.....	11.2	1.0	4.6	22.2	No tractor, horses or mules.....	2.6	1.1	2.2	7.4
No tractor, and 1 or more horses and/or mules.....	19.7	20.2	22.2	18.2	No tractor, and 1 or more horses and/or mules.....	37.8	0.8	3.5	23.6
Tractor and horses and/or mules.....	55.1	72.0	64.8	38.2	Tractor and horses and/or mules.....	33.7	46.0	34.4	31.2
					Tractor and no horses or mules.....	54.9	52.1	60.9	39.9
Fruit-and-nut	100.0	100.0	100.0	100.0	Miscellaneous	100.0	100.0	100.0	100.0
No tractor, horses or mules.....	28.8	9.8	27.1	41.4	No tractor, horses or mules.....	37.9	35.2	39.3	37.0
No tractor, and 1 or more horses and/or mules.....	5.5	0.7	3.2	12.7	No tractor, and 1 or more horses and/or mules.....	14.9	2.2	9.3	26.4
Tractor and horses and/or mules.....	10.5	17.1	18.1	9.9	Tractor and horses and/or mules.....	18.3	17.9	19.9	16.2
Tractor and no horses or mules.....	55.1	72.4	59.4	38.0	Tractor and no horses or mules.....	28.9	44.8	31.5	26.4
Dairy	100.0	100.0	100.0	100.0					
No tractor, horses or mules.....	6.5	6.8	3.1	15.1					
No tractor, and 1 or more horses and/or mules.....	8.1	2.0	3.8	19.7					
Tractor and horses and/or mules.....	29.4	39.2	31.7	25.0					
Tractor and no horses or mules.....	55.9	52.1	61.4	42.2					

Class of Work Power

Some indication of the level of mechanization practiced by types and economic classes of farms may be gained from data on class of work power. Tractors are more common to some parts of commercial agriculture than others and there remains considerable difference in the extent to which they now constitute the sole source of power.

"Horseless farming" is much more a reality on cash-grain farms than most other types (see table 23). Three-fifths of even the smaller economic classes of farms reported a tractor and no horses or mules.

In general, Class I farms of each type are highly dependent on tractors as the only source of power. The same is true for Classes II through IV for several types; namely, cash-grain, vegetable, fruit-and-nut, dairy, and general farms.

Many of the smaller economic classes of farms had neither tractors nor work stock. This was most common on fruit-and-nut farms and poultry farms. It was also common on cotton and other field-crop farms, largely influenced by the fairly high pro-

portion of cropper operators included in the smaller economic classes.

For several types of farms, cash-grain, dairy, other livestock, general livestock, and general crop and livestock farms, a higher proportion of the farms in Classes II through IV than in Class I reported tractors and no work stock.

Land in Farms

Of the total land area in the United States, encompassing about 3 billion square miles, 60.8 percent is in farms. In 1954, the land in farms totaled 1,158 million acres of which 1,032.5 million acres, or 89 percent, was in commercial farms.

Nearly half of the land in commercial farms was in livestock farms and about a fifth was in cash-grain farms (see table 24). These two types, which comprise 37 percent of the commercial farm numbers, accounted for more than two-thirds of the land in commercial farms in 1954. If general livestock and general crop and livestock farms are included, the proportion of the land in farms of the livestock and cash-grain types exceeds three-fourths of the land in all commercial farms.

TABLE 24.—PERCENT DISTRIBUTION OF TOTAL LAND FOR EACH ECONOMIC CLASS, BY TYPE OF FARM, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
All commercial farms	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Cash-grain.....	19.8	12.7	25.6	26.4	29.6	13.6	9.0
Cotton.....	6.3	6.0	4.0	4.2	7.1	11.6	16.2
Other field-crop.....	3.3	1.4	1.5	2.7	5.5	7.5	8.2
Vegetable.....	0.5	0.9	0.3	0.2	0.3	0.4	0.7
Fruit-and-nut.....	6.9	1.9	0.8	0.5	0.6	0.7	0.7
Dairy.....	9.1	2.3	8.5	13.4	11.4	12.7	10.4
Poultry.....	1.2	0.8	1.1	1.0	1.2	1.6	3.1
Livestock other than dairy and poultry.....	49.2	66.6	50.1	39.8	36.6	39.1	41.2
General:							
Primarily crop.....	2.1	1.7	1.9	2.0	2.4	3.0	3.0
Primarily livestock.....	1.1	0.2	0.7	1.5	2.0	2.9	1.6
Crop and livestock.....	5.2	1.5	4.6	7.5	8.5	6.5	4.9
Miscellaneous.....	1.6	1.0	0.9	1.0	1.4	1.4	1.7

The distribution of land in farms is affected by the different land requirements for farms in different parts of the country. Many of the livestock and cash-grain farms are in western regions where, because of limited rainfall, the yields of crops and pastures are low, and considerable acreages are required to provide an efficient farm organization. On many western livestock farms 20 or more acres are required to furnish pasture for one animal unit. In much of the western plains, wheat can be grown only in alternate years. Part of the land is "fallowed" each year to accumulate enough moisture for the next year's crop.

Although less than 10 percent of the livestock farms are in the West, these comprise 40 percent of the land in all livestock farms. The western region contains only about a tenth of the total number of cash-grain farms, but a fifth of the land in such farms is in the western region. Similarly, the average acreage of livestock farms in the West is several times the acreages in northern and southern regions. Cash-grain farms in the West average more than twice as large as those in other regions.

Of the 1,032 million acres of land in commercial farms in 1954, 25 percent was in Class I farms, about 60 percent in Classes II, III, and IV, and slightly less than 15 percent in Class V and VI farms (see table 25). But among types of farms, the proportion of the commercial farmland by economic class varies considerably. Among cash-grain farms, other field-crop farms, dairy farms, general livestock, and general crop and livestock farms, a relatively small proportion of the farmland is contained in Class I farms. On the other hand, about half of the acreage in vegetable and fruit-and-nut farms falls in Class I and more than a third of the land in livestock farms.

Of all land in Class I farms more than two-thirds is in livestock farms. Cash-grain farms contain about 13 percent and cotton farms 6 percent of the acreage in all Class I farms. No other type accounts for as much as 3 percent of the acreage in Class I farms.

Nationally, two-thirds of the commercial farms and three-fifths of the land in commercial farms are in Economic Classes II, III, and IV. A much higher proportion of the acreage, around three-fourths, is found in these classes on cash-grain, dairy, general livestock and general crop and livestock farms. In contrast, less than half the acreage is found in these classes on cotton, other field-crop, vegetable, and fruit-and-nut farms.

The land contained in Economic Classes V and VI ranged from a high of one-third of the land in cotton farms to a low of 9 percent for cash-grain farms.

TABLE 25.—PERCENT DISTRIBUTION OF TOTAL LAND IN FARMS FOR EACH TYPE OF COMMERCIAL FARM, BY ECONOMIC CLASS, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
All commercial farms	100.0	25.2	23.4	21.4	15.8	9.9	4.4
Cash-grain.....	100.0	16.1	30.2	28.5	16.4	6.8	5.0
Cotton.....	100.0	24.1	14.8	14.2	17.7	18.3	11.1
Other field-crop.....	100.0	11.1	10.8	17.5	26.8	22.8	10.9
Vegetable.....	100.0	59.0	13.1	10.5	10.4	9.1	7.9
Fruit-and-nut.....	100.0	46.4	18.9	12.1	9.3	7.0	3.3
Dairy.....	100.0	3.1	23.1	30.5	24.1	15.4	4.8
Poultry.....	100.0	17.8	22.6	18.9	15.7	13.4	11.7
Livestock other than dairy and poultry.....	100.0	35.6	23.8	17.3	11.8	7.9	3.6
General:							
Primarily crop.....	100.0	20.2	20.9	20.3	17.9	14.4	6.3
Primarily livestock.....	100.0	4.0	15.5	28.5	28.7	17.3	6.0
Crop and livestock.....	100.0	7.3	20.8	30.6	25.6	12.4	3.4
Miscellaneous.....	100.0	26.0	21.8	14.9	15.8	14.0	7.6

Table 26 shows the average acreage per farm for types of farms by economic class. These averages disclose the wide range in acreage found within each economic class of farm and the variation by type of farm. Within each type there is a correlation between size measured in acres and size measured by value of farm products sold. A decrease in average acreage is associated with a decrease in value of products sold for each type of farm. This relation of acreage to value, by type of farm, indicates that the classification by value of products sold provides a fairly good measure of size when dealing with different types of farms under widely different production conditions.

TABLE 26.—AVERAGE SIZE OF FARM FOR EACH TYPE OF COMMERCIAL FARM, BY ECONOMIC CLASS, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
All commercial farms	310.3	1,939.1	537.8	311.9	301.0	154.3	97.1
Cash-grain.....	389.1	1,494.7	663.5	240.1	1,407.9	121.8	84.8
Cotton.....	124.4	1,031.6	376.9	196.7	99.3	63.8	54.1
Other field-crop.....	51.6	667.5	236.5	123.9	73.0	65.7	54.5
Vegetable.....	146.6	636.1	139.3	98.1	78.0	66.9	52.4
Fruit-and-nut.....	119.3	458.4	120.6	72.6	53.3	43.0	46.8
Dairy.....	177.2	503.4	269.8	189.4	152.5	126.3	97.8
Poultry.....	78.1	162.9	94.9	79.7	68.7	55.9	51.3
Livestock other than dairy and poultry.....	730.7	4,630.0	996.5	676.0	417.7	291.3	183.6
General:							
Primarily crop.....	269.0	1,147.3	462.3	303.6	190.5	147.0	128.6
Primarily livestock.....	183.0	773.1	249.9	200.7	177.9	145.1	106.3
Crop and livestock.....	204.7	1,190.7	301.9	292.0	234.1	161.1	121.6
Miscellaneous.....	278.0	297.1	385.1	270.5	228.6	172.1	136.8

The average acreage per farm, however, tends to conceal the extreme variations in acreage that exist within each economic class. Table 27 shows the frequency distribution of the number of farms grouped by acreage size for each type of farm by economic class. Although the average acreage of land for Class I farms was more than 1,000 acres for cash-grain, cotton, livestock, general crop, and general crop and livestock farms, most of the farms are considerably smaller. More than half of the Class I farms in each of these types have from 220 to 999 acres. A majority of Class I vegetable and fruit-and-nut farms have less than 220 acres, and more than half of the Class I poultry farms have less than 100 acres. Half of the Class I farms of under 100 acres were poultry farms in 1954. Nearly half of the Class I farms of 1,000 or more acres were livestock farms and almost a third were cash-grain farms.

Among farms in the median range in value of products sold (Classes II, III, and IV), certain acreage-size groups tend to predominate. Most of the cash-grain, livestock, and general farms in Classes II, III, and IV, are in the groups between 100 and 500

acres. Cotton and other field-crop farms are heavily concentrated in the acreage-size groups between 100 and 220 acres. Over half of the dairy farms fall in the size group between 100 and 220 acres, while a majority of poultry and fruit-and-nut farms have less than 50 acres.

A higher proportion of Economic Classes V and VI are in the smaller acreage groups for each type of farm. However, the relationship between acreage and value of sales is not so direct as might be expected. For each type of farm, except cash-grain farms, the modal acreage-size group (the one containing the largest number of farms) is the same for Class V and VI farms as for Classes II, III, and IV. This indicates the wide variation in the quality of land and the proportion that is suitable for growing crops and grasses even among farms of basically the same type of farming. It is also related to differences in the extent to which these groups of farmers have taken advantage of new techniques that are aimed to increase yields per crop acre and per animal unit.

TABLE 27.—NUMBER OF FARMS IN SPECIFIED ACREAGE-SIZE GROUPS FOR EACH TYPE OF COMMERCIAL FARM BY ECONOMIC CLASS, FOR THE UNITED STATES: 1954

Economic class and acreage size	All commercial farms	Number of farms by type											
		Cash-grain	Cotton	Other field-crop	Vegetable	Fruit-and-nut	Dairy	Poultry	Livestock other than dairy or poultry	General—			Miscellaneous and uncultivated
									Primarily crop	Primarily livestock	Crop and livestock		
All classes.	3,327,889	537,974	525,463	367,733	32,581	82,696	548,767	154,251	694,888	80,039	63,197	203,843	37,057
Under 10 acres.	145,400	1,015	29,194	31,721	2,880	10,660	5,674	40,633	11,252	265	560	450	11,286
10 to 49 acres.	623,921	28,731	250,445	143,547	12,311	38,436	44,210	66,861	45,654	11,267	4,861	10,761	6,837
50 to 99 acres.	560,660	66,159	018,395	50,276	6,835	14,368	115,105	29,829	85,003	17,911	13,290	32,305	4,184
100 to 219 acres.	1,026,664	170,861	97,360	74,553	5,752	10,535	255,503	26,697	237,889	27,136	30,006	83,727	6,705
220 to 499 acres.	642,333	174,119	14,144	22,100	2,412	4,023	109,857	8,562	186,376	15,638	12,211	67,638	4,561
500 to 999 acres.	182,550	63,653	13,120	4,091	925	1,510	15,416	1,577	60,101	5,021	1,781	13,650	1,828
1,000 acres and over.	127,361	35,216	6,885	1,445	669	964	3,222	582	69,133	2,805	488	6,306	1,736
Class I	134,064	21,995	15,239	5,585	3,721	10,675	11,698	13,137	39,835	3,784	592	3,292	4,481
Under 10 acres.	4,340	6	15	180	10	35	379	210	283	.....	.....	10	1,570
10 to 49 acres.	7,603	21	80	340	585	2,306	564	2,010	672	60	20	30	377
50 to 99 acres.	1,214	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
100 to 219 acres.	19,127	454	1,392	1,297	1,039	3,254	2,659	3,118	5,224	466	191	335	413
220 to 499 acres.	40,199	5,385	5,589	1,813	1,830	1,830	4,209	1,865	15,297	1,244	291	1,313	363
500 to 999 acres.	24,807	6,630	4,593	1,198	463	833	2,662	548	6,817	1,036	115	789	163
1,000 acres and over.	30,774	9,500	3,670	757	448	651	1,178	253	12,108	994	65	818	375
Classes II, III, and IV	1,967,807	399,970	188,761	177,342	16,638	48,773	386,270	84,741	416,772	44,627	42,222	144,063	18,480
Under 10 acres.	11,451	35	435	546	710	4,090	1,104	20,330	2,510	5	69	40	6,646
10 to 49 acres.	228,573	3,810	59,629	66,975	6,891	26,675	15,474	24,991	10,962	3,565	1,143	2,745	3,265
50 to 99 acres.	275,316	31,296	30,971	43,376	3,785	9,131	67,661	17,240	34,840	8,665	7,151	15,710	1,836
100 to 219 acres.	705,813	133,096	50,310	43,690	3,112	5,541	197,782	16,259	153,475	16,446	22,455	61,701	2,697
220 to 499 acres.	465,828	153,254	38,885	15,357	1,077	2,307	91,880	5,217	120,418	11,052	9,747	48,380	2,263
500 to 999 acres.	133,767	53,794	7,479	2,448	284	544	11,161	844	39,875	3,380	1,336	11,929	1,666
1,000 acres and over.	85,862	24,661	2,144	611	59	285	1,867	260	48,692	1,534	388	4,188	1,181
Classes V and VI	1,226,018	116,033	321,463	184,866	12,872	22,848	150,780	56,373	238,281	31,628	20,373	66,488	14,063
Under 10 acres.	99,669	980	28,669	26,235	2,160	6,515	4,400	18,301	8,489	260	500	420	2,980
10 to 49 acres.	389,656	22,916	170,501	70,392	6,125	11,095	28,120	18,578	33,668	7,762	3,710	8,006	2,282
50 to 99 acres.	294,020	34,842	65,544	46,860	2,465	5,571	47,493	10,670	49,491	9,196	6,125	16,805	2,271
100 to 219 acres.	301,724	37,251	45,658	30,167	1,620	1,740	55,802	7,230	79,190	10,230	2,750	21,691	3,665
220 to 499 acres.	160,309	15,480	9,662	4,930	465	486	13,068	1,780	3,298	2,173	7,941	1,945	1,965
500 to 999 acres.	23,976	3,569	1,048	445	75	113	1,353	185	14,409	665	350	1,352	572
1,000 acres and over.	10,725	1,026	181	77	22	28	177	69	8,273	277	85	265	218

Cropland Harvested

About 322 million acres were in harvested crops in 1954. This was slightly less than a third of the total land in farms. The proportion of the land that was in harvested crops varied among types of farms and between economic classes within each type (see table 28). Approximately half or more of the total land was in harvested crops on cash-grain, cotton, vegetable, and general farms. Between a third and two-fifths of the land in other field-crop, fruit-and-nut, and dairy farms, was harvested cropland—only a fourth of the land in poultry farms and 15 percent of the land in livestock farms.

TABLE 28.—CROPLAND HARVESTED AS A PERCENT OF TOTAL LAND IN FARMS FOR EACH TYPE OF FARM, BY ECONOMIC CLASS OF FARM, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
All commercial farms.....	31.1	18.8	25.8	40.0	36.2	28.7	21.3
Cash-grain.....	54.5	47.5	57.8	88.2	54.1	47.2	36.7
Cotton.....	50.6	54.3	57.1	51.7	52.4	45.8	33.9
Other field-crop.....	36.3	49.4	48.1	40.6	36.4	28.5	20.8
Vegetable.....	46.9	34.4	54.5	47.5	39.5	35.5	27.8
Fruit-and-nut.....	37.0	36.2	41.9	41.5	35.4	30.6	25.2
Dairy.....	38.1	32.0	42.7	42.2	37.9	30.2	22.0
Poultry.....	26.0	30.6	28.7	26.8	25.6	22.7	17.1
Livestock other than dairy and poultry.....	14.4	7.5	19.4	23.3	20.5	15.4	12.7
General:							
Primarily crop.....	41.6	46.7	47.6	42.2	40.6	33.8	24.3
Primarily livestock.....	46.8	31.9	28.4	54.6	46.3	35.7	24.4
Crop and livestock.....	47.0	35.6	33.4	52.8	45.9	36.7	26.7
Miscellaneous.....	8.2	10.2	7.1	7.4	7.8	7.7	7.7

For most types of farms the larger farms and the smaller farms have less of the land in harvested crops. This results in a slightly higher proportion of the cropland than of the total land being found among the medium-sized Classes II, III, and IV farms. Four-fifths or more of the cropland is accounted for by these classes for cash-grain, dairy, general livestock, and general crop and livestock farms (see table 29). Half or more of the cropland is found on Classes II, III, and IV farms for each of the other types, with the exception of vegetable and fruit-and-nut farms. For these two types, half or more of the cropland is in Class I farms. About 70 percent is accounted for by Classes I and II together. Economic Classes V and VI account for a smaller proportion of the cropland than of the total land in farms for each type of farm.

Cash-grain farms and livestock farms accounted for a third and a fourth, respectively, of the harvested cropland (see table 30). Cotton farmers and dairy farmers each used about a tenth of the cropland. With the exception of general crop and livestock farms which accounted for 8 percent of the cropland, no other type accounted for as much as 4 percent. Cash-grain farms and livestock farms taken together accounted for more than half of the cropland harvested in each Economic Class I through IV and two-fifths of the cropland in Class V and Class VI farms. On Class VI farms, however, a higher proportion of the cropland was accounted for by cotton farms.

The average acreage of cropland harvested per farm is largest on cash-grain farms and lowest on poultry farms (see table 31). Except for cash-grain farms, livestock farms and general crop and livestock farms had a larger average acreage in crops harvested than any of the types that had a major source of income from sales of crops.

TABLE 29.—PERCENT DISTRIBUTION OF TOTAL ACREAGE OF CROPLAND HARVESTED FOR EACH TYPE OF COMMERCIAL FARM BY ECONOMIC CLASS, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
All commercial farms.....	100.0	15.2	26.9	27.4	18.4	9.1	3.0
Cash-grain.....	100.0	14.0	32.1	36.4	16.3	5.9	1.3
Cotton.....	100.0	25.8	16.7	15.3	18.3	16.5	7.4
Other field-crop.....	100.0	15.0	14.3	19.6	26.8	17.9	6.3
Vegetable.....	100.0	54.8	15.2	16.6	8.8	6.5	4.2
Fruit-and-nut.....	100.0	48.3	21.4	15.6	8.9	5.7	2.1
Dairy.....	100.0	5.1	23.7	33.8	24.0	10.5	2.8
Poultry.....	100.0	20.9	21.8	19.5	15.5	11.7	7.7
Livestock other than dairy and poultry.....	100.0	17.4	29.9	26.1	15.6	7.9	3.0
General:							
Primarily crop.....	100.0	22.6	23.9	20.6	17.5	11.7	3.7
Primarily livestock.....	100.0	2.7	19.3	33.2	28.4	13.2	3.2
Crop and livestock.....	100.0	5.5	23.6	34.3	25.0	9.7	1.9
Miscellaneous.....	100.0	32.2	18.0	13.4	15.0	13.2	7.2

TABLE 30.—PERCENT DISTRIBUTION OF TOTAL ACREAGE OF CROPLAND HARVESTED FOR EACH ECONOMIC CLASS, BY TYPE OF FARM, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
All commercial farms.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Cash-grain.....	34.7	31.9	41.4	38.5	30.7	22.3	15.6
Cotton.....	10.3	17.4	6.4	5.7	10.2	18.6	23.8
Other field-crop.....	3.8	2.8	2.0	2.7	3.5	7.5	8.0
Vegetable.....	0.7	2.5	0.4	0.3	0.3	0.5	1.0
Fruit-and-nut.....	1.1	3.6	0.9	0.6	0.5	0.7	0.8
Dairy.....	11.5	3.9	10.1	14.2	15.9	13.4	10.8
Poultry.....	1.0	1.3	0.9	0.7	0.8	1.2	2.5
Livestock other than dairy and poultry.....	24.3	27.8	27.1	23.2	20.7	21.0	24.5
General:							
Primarily crop.....	2.8	4.1	2.5	2.1	2.6	3.6	3.5
Primarily livestock.....	1.7	0.3	1.2	2.0	2.6	2.4	1.8
Crop and livestock.....	7.9	2.9	6.9	6.9	10.7	8.4	5.1
Miscellaneous.....	0.3	0.6	0.2	0.1	0.2	0.4	0.6

TABLE 31.—AVERAGE ACREAGE OF CROPLAND HARVESTED PER FARM FOR EACH TYPE OF COMMERCIAL FARM, BY ECONOMIC CLASS, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
All commercial farms.....	162	398	261	129	76	41	23
Cash-grain.....	207	710	323	211	141	73	45
Cotton.....	63	550	215	108	52	29	18
Other field-crop.....	33	325	114	50	29	19	11
Vegetable.....	69	327	76	46	31	22	15
Fruit-and-nut.....	44	164	51	30	19	13	11
Dairy.....	67	163	115	80	58	38	22
Poultry.....	20	50	27	21	18	13	9
Livestock other than dairy and poultry.....	113	341	193	134	86	45	23
General:							
Primarily crop.....	112	536	215	128	77	50	31
Primarily livestock.....	86	246	146	110	82	52	26
Crop and livestock.....	124	426	209	154	107	59	32
Miscellaneous.....	23	61	27	30	18	13	11

Value of Land and Buildings

Differences in the land—its quality, productiveness, and location, the proportion suitable for crops, and the improvements made to the land—are reflected in the average values per acre. Table 32 shows the average value of land and buildings per acre for each type of farm by economic class. The highest value per acre for any type of farm is for fruit-and-nut farms. This is true when comparison is made within each economic class. Relatively high values per acre are also shown for vegetable farms and poultry farms.

TABLE 32.—AVERAGE VALUE PER ACRE OF LAND AND BUILDINGS FOR EACH TYPE OF COMMERCIAL FARM, BY ECONOMIC CLASS, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
All commercial farms	83.16	73.30	97.03	80.87	79.23	73.80	62.48
Cash-grain.....	102.53	108.96	118.02	99.07	84.12	84.46	74.26
Cotton.....	111.11	175.10	138.43	108.52	89.56	73.54	54.76
Other field-crop.....	117.98	180.60	153.53	134.99	114.15	88.76	70.36
Vegetable.....	264.18	286.65	333.48	274.67	213.60	176.61	136.64
Fruit-and-nut	432.28	392.21	511.31	495.18	446.16	442.74	260.56
Dairy.....	105.34	194.23	134.52	107.26	85.41	70.93	61.69
Poultry.....	174.72	210.45	194.97	167.77	158.78	164.79	118.95
Livestock other than dairy and poultry.....	50.15	33.87	59.72	60.38	57.33	56.17	51.23
General:							
Primarily crop.....	113.25	173.49	127.99	96.71	88.46	85.70	65.14
Primarily livestock.....	107.58	122.12	153.38	124.16	90.11	76.83	67.66
Crop and livestock.....	96.58	117.54	130.16	96.92	77.24	74.77	60.79
Miscellaneous.....	112.68	171.24	119.54	102.25	80.28	84.19	61.39

On fruit-and-nut farms the land value reflects the substantial investment in orchards, vineyards, and planted nut trees. Both fruit-and-nut and vegetable farms are highly specialized types which require fairly exacting soil and climatic conditions. Many are in areas that have access to irrigation and irrigation facilities. Water rights tend to be reflected in land values. Many vegetable farms are in low-lying tracts that have been reclaimed and drained at considerable expense per acre. Poultry farms reflect the large investment in buildings, to house and care for laying hens and broilers, associated with a relatively small acreage.

The lowest values per acre are found on livestock farms. These values are influenced by the large number of cattle ranches in semiarid western regions which have large acreages with a low carrying capacity per animal unit.

Values per acre tend to decrease with decreasing size as measured by gross sales. The exception is noticeable among Class I farms. For about half of the types, the values per acre on Class II farms exceed those on Class I farms.

The distribution of the value of land and buildings among types of farms is more nearly equal than the distribution by economic class, for there is a tendency for types of farms with smaller acreage requirements to have land of higher value (see table 33). But within each type of farm a greater concentration of value than of acreage is shown for the larger economic classes.

The average value of land and buildings per commercial farm was greatest on cash-grain and fruit-and-nut farms and lowest on cotton, other field-crop, and poultry farms (see table 34). On each type of farm the average value of land and buildings per farm increases directly with increasing size of farm as measured by gross sales. The range of value is from less than \$10,000 per farm on Class VI farms to more than \$100,000 per farm on Class I farms. But among farms in each economic class there are considerable differences in value.

TABLE 33.—PERCENT DISTRIBUTION OF VALUE OF LAND AND BUILDINGS BY TYPE AND ECONOMIC CLASS OF COMMERCIAL FARMS, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
Percent distribution in each type of farm by economic class:							
All commercial farms.....	100.0	22.2	27.4	23.2	15.1	8.8	3.3
Cash-grain.....	100.0	17.1	34.8	27.6	13.4	5.6	1.4
Cotton.....	100.0	37.1	18.0	13.5	13.9	11.9	5.5
Other field-crop.....	100.0	18.8	14.0	19.0	26.7	9.1	6.6
Vegetable.....	100.0	54.6	16.4	10.9	8.4	6.1	3.6
Fruit-and-nut	100.0	45.0	22.4	19.9	9.6	7.1	2.0
Dairy.....	100.0	11.2	26.8	30.8	19.4	8.9	2.8
Poultry.....	100.0	21.5	25.2	18.2	14.3	12.7	8.0
Livestock other than dairy and poultry.....	100.0	29.2	38.5	21.0	13.5	8.9	3.8
General:							
Primarily crop.....	100.0	30.7	28.5	17.3	13.9	10.8	3.7
Primarily livestock.....	100.0	4.5	22.1	33.1	24.1	12.4	3.8
Crop and livestock.....	100.0	8.9	27.0	31.6	20.4	9.1	2.1
Miscellaneous.....	100.0	38.6	22.7	13.2	11.1	10.3	4.1
Percent distribution in each economic class of farm by type:							
All commercial farms.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Cash-grain.....	23.3	18.0	29.4	27.6	20.9	15.0	10.3
Cotton.....	8.9	13.3	5.2	4.6	7.6	11.6	5.7
Other field-crop.....	4.5	3.4	2.4	3.8	7.4	8.6	8.9
Vegetable.....	1.3	3.4	0.8	0.6	0.8	0.9	1.6
Fruit-and-nut	4.2	9.0	3.5	2.5	2.6	3.3	2.6
Dairy.....	13.2	6.5	12.9	17.4	16.9	13.3	10.9
Poultry.....	2.5	2.5	2.3	1.9	2.2	2.4	5.7
Livestock other than dairy and poultry.....	31.1	35.1	32.5	28.1	7.3	30.6	35.2
General:							
Primarily crop.....	2.7	3.7	2.3	2.0	2.6	3.3	3.0
Primarily livestock.....	1.6	0.3	1.3	2.2	2.6	2.1	1.7
Crop and livestock.....	6.3	2.5	6.3	8.6	8.5	6.6	4.1
Miscellaneous.....	1.2	2.2	1.0	0.7	0.9	1.4	1.6

TABLE 34.—AVERAGE VALUE OF INVESTMENT IN LAND AND BUILDINGS, LIVESTOCK INVENTORY, MACHINERY, AND TOTAL INVESTMENT FOR EACH TYPE OF COMMERCIAL FARM, BY ECONOMIC CLASS, FOR THE UNITED STATES, 1934

Item and type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
		Average value (dollars)					
Land and buildings per farm:							
All commercial farms.....	25,429	134,169	51,510	27,592	15,880	9,829	6,096
Cash-grain.....	40,064	163,664	67,673	37,193	22,307	14,402	9,289
Cotton.....	12,979	171,142	49,386	20,710	8,593	4,270	2,949
Other field-crop.....	10,446	109,423	34,684	16,071	8,788	5,227	3,429
Vegetable.....	38,327	192,184	44,822	25,699	16,490	11,534	7,329
Fruit-and-nut.....	46,252	162,467	55,059	33,462	23,021	18,071	11,555
Dairy.....	18,161	95,312	33,751	20,122	12,960	8,977	6,248
Poultry.....	15,890	33,754	18,061	15,021	10,850	9,347	6,854
Livestock other than dairy and poultry.....	36,363	142,499	38,179	34,774	23,866	16,541	9,760
General.....	29,286	189,291	55,169	28,682	15,998	12,280	8,190
Primarily crop.....	19,466	84,375	30,913	24,669	15,944	11,380	7,768
Crop and livestock.....	25,440	128,388	50,628	27,221	13,169	7,474	5,829
Miscellaneous.....	28,033	85,411	40,345	25,416	17,038	13,624	8,394
Livestock inventory per farm:							
All commercial farms.....	3,154	15,021	5,986	3,697	2,178	1,327	867
Cash-grain.....	2,279	6,121	3,496	2,479	1,558	851	565
Cotton.....	1,844	4,074	2,461	1,284	795	353	235
Other field-crop.....	761	3,918	2,289	1,206	685	527	378
Vegetable.....	871	3,054	850	737	589	491	378
Fruit-and-nut.....	697	2,560	740	450	321	248	258
Dairy.....	3,438	15,029	6,034	3,872	2,634	1,801	1,111
Poultry.....	1,537	4,068	2,291	1,551	1,197	877	596
Livestock other than dairy and poultry.....	7,520	35,327	11,544	7,197	4,860	3,162	1,890
General.....	1,741	7,290	3,312	2,094	1,367	790	522
Primarily crop.....	7,453	33,562	15,320	9,774	5,669	3,668	2,325
Crop and livestock.....	3,495	15,726	6,124	4,101	2,772	1,706	1,152
Miscellaneous.....	1,207	5,370	1,537	1,290	1,125	808	670
Machinery and equipment per farm:							
All commercial farms.....	4,291	15,649	8,444	5,364	3,272	1,999	1,664
Cash-grain.....	4,363	18,323	9,738	6,390	3,128	1,887	1,887
Cotton.....	2,061	18,768	7,231	3,488	1,679	1,025	574
Other field-crop.....	1,991	19,357	7,401	3,639	1,635	1,144	666
Vegetable.....	6,046	26,460	8,606	4,711	3,289	2,509	1,414
Fruit-and-nut.....	4,641	14,423	5,871	3,544	2,429	1,885	1,144
Dairy.....	4,528	12,302	8,633	5,150	3,481	1,200	1,200
Poultry.....	2,496	6,394	3,502	2,519	1,992	1,625	984
Livestock other than dairy and poultry.....	5,338	14,058	8,907	6,062	4,180	2,829	1,528
General.....	4,835	22,992	9,442	5,410	3,269	2,280	1,419
Primarily crop.....	4,306	15,203	8,385	5,666	3,641	2,533	1,370
Crop and livestock.....	5,136	19,745	9,608	6,066	4,168	2,671	1,641
Miscellaneous.....	3,940	11,381	5,491	3,615	2,808	1,915	1,220
Total investment per farm:							
All commercial farms.....	32,874	164,839	65,940	36,983	21,290	13,155	8,027
Cash-grain.....	48,736	186,408	81,017	46,652	28,544	18,381	11,691
Cotton.....	15,914	194,884	58,648	25,452	11,067	6,146	3,966
Other field-crop.....	13,192	125,670	41,664	20,216	11,128	7,268	4,865
Vegetable.....	45,214	219,498	63,708	31,147	20,368	14,134	9,118
Fruit-and-nut.....	51,590	179,490	61,670	37,456	25,771	20,274	12,957
Dairy.....	26,463	125,653	50,429	29,144	19,075	13,109	8,689
Poultry.....	17,923	38,804	20,864	17,318	13,679	10,439	8,439
Livestock other than dairy and poultry.....	49,211	191,834	78,660	48,693	30,925	22,322	13,217
General.....	35,872	219,573	67,923	36,186	20,514	15,350	10,131
Primarily crop.....	27,683	111,080	54,618	34,709	22,617	15,982	10,472
Crop and livestock.....	34,131	163,852	65,848	39,578	25,049	15,277	10,167
Miscellaneous.....	33,180	99,168	47,373	30,311	20,971	16,347	10,184
Percent distribution							
Total investment per farm:							
All commercial farms.....	100.0	21.0	27.1	23.7	15.7	9.2	3.4
Cash-grain.....	100.0	16.2	34.2	28.1	14.1	5.9	1.6
Cotton.....	100.0	34.7	17.6	13.7	14.8	13.2	6.1
Other field-crop.....	100.0	16.6	15.8	16.9	25.6	17.7	6.0
Vegetable.....	100.0	33.2	16.6	11.1	8.8	6.4	3.8
Fruit-and-nut.....	100.0	44.6	22.5	14.0	9.7	7.2	2.1
Dairy.....	100.0	10.3	26.4	31.3	20.1	9.2	2.8
Poultry.....	100.0	21.6	25.6	18.3	14.3	12.5	7.7
Livestock other than dairy and poultry.....	100.0	23.7	28.3	21.4	13.8	9.0	4.8
General.....	100.0	29.2	23.6	17.9	14.5	11.1	3.7
Primarily crop.....	100.0	4.2	21.9	33.2	24.5	12.5	3.7
Crop and livestock.....	100.0	27.1	27.1	31.8	21.2	9.6	2.2
Miscellaneous.....	100.0	37.8	22.5	13.3	11.6	10.6	4.4

Value of Livestock

The value of livestock on farms was ascertained by multiplying the numbers of each kind of livestock and poultry by the average values per head. Except for regional differentials in values per head, the computed values assume equal value per head among livestock and poultry for each type and class of farm.

The value of livestock per farm is much greater on those types with a major source of income from sales of livestock and livestock products. Livestock were valued at more than \$7,000 on other livestock farms and at more than \$3,000 on dairy, general livestock, and general crop and livestock farms. A relatively small investment in livestock is shown for types of farms that have a major source of sales from crops.

Estimated Value of Machinery

To give a more complete picture of the total investment on farms, the value of machinery was estimated for each type and economic class. The total value of machinery and equipment on farms for the United States (as estimated by the Agricultural Marketing Service and the Agricultural Research Service, U. S. Department of Agriculture) was used as an overall guide. The U. S. Department of Agriculture estimated the value of machinery and equipment on farms at \$15.9 billion in 1954, of which \$3.7 billion was in automobiles, \$1.9 billion in motortrucks, \$3.2 billion in tractors, and \$7.2 billion in other machinery and equipment. This value was distributed among types and economic classes of farms on the basis of numbers of automobiles, trucks, tractors, and other specified items of machinery reported by the 1954 Census of Agriculture.

Each item of farm equipment reported by the Census was assigned a weighting factor equivalent to its average new retail price. These factors were adjusted to reflect differences in age of machines on the basis of age differentials reported for automobiles, trucks, and tractors, by economic class in the Census of 1950. The adjustment made for age of machine is shown below. The age differential for tractors was applied to the weighting factor for each item of tractor equipment.

Economic class	Automobiles	Trucks	Tractors
	(Index, commercial farms=100)		
All commercial farms.....	160	190	109
Class I.....	136	136	122
Class II.....	140	119	111
Class III.....	117	99	101
Class IV.....	93	94	95
Class V.....	77	92	95
Class VI.....	61	84	94
Other farms.....	82	98	94

The factors were then adjusted to further reflect a size of machine differential for each type and economic class as related to the average acreage in farms. An index of value differentials by acreage size of farm was computed from a report by the U. S.

Department of Agriculture that relates size of tractor in belt horsepower to acreage size of farm.³ The weighting factor for each item except automobiles was adjusted by the index that is shown below.

All farms.....	Acreage size	Index of values (all farms=100)
Under 100 acres.....	85
100 to 199 acres.....	92
200 to 399 acres.....	100
400 to 599 acres.....	104
600 to 999 acres.....	108
1,000 acres and over.....	112

The appropriate weighting factors, as adjusted for age and size of machine, were multiplied by the number of each specified machine. The product was then adjusted to agree with the estimate by the U. S. Department of Agriculture of value for the United States of automobiles, separately, and of all other machinery and equipment. Of the total value of machinery and equipment on farms in 1954, it was estimated that \$14,280 million (90 percent) was on commercial farms.

The average investment per commercial farm in machinery and equipment ranges from less than \$2,000 on cotton and other field-crop farms to more than \$6,000 on cash-grain and vegetable farms. By economic class, the range is from \$1,000 on Class VI farms to more than \$15,000 on Class I farms.

There are even greater differences between economic classes of farms for certain types of farms. Class VI cotton and other field-crop farms were estimated to have an investment in machinery of about \$600 compared with nearly \$20,000 on Class I farms for these types. On the smaller economic classes of cotton and other field-crop farms, however, the value of investment in machinery and equipment is somewhat incomplete because of the inclusion of cropper farms. Croppers are particularly numerous among these types. It is customary for most of the machinery used on cropper farms to be owned by the landlord and kept on his "home farm." For landlords who farm on a commercial scale, their home farms are likely to fall in larger economic classes than do the individual cropper units.

The range in machinery value between economic classes of poultry farms is much less than among the other types of farms. It ranges upward from \$1,000 on Class VI farms to \$6,000 on Class I farms. The items of equipment used for estimating value of machinery are basically field-crop equipment. As such, they are probably less representative of equipment used on poultry farms than of most other types. Values of machinery estimated for the larger economic classes of poultry farms are lower than for similar classes among other types. This may be affected somewhat by the procedure for estimating value. But values shown do not appear unreasonable in view of the somewhat different nature of capital investment on poultry farms. Much of the machinery is used as installations in poultry housing and becomes incorporated into the value of land and buildings. The same is probably true of dairy farms also.

³ Brodell, Albert, and Kendall, Albert R., *Fuel and Motor Oil Consumption and Annual Use of Farm Tractors*, FM-72, BAE, USDA, 1950.

Total Value of Investment

Total values of farm investment are always of interest. When the investment in land and buildings, livestock, and machinery are combined, the total investment per commercial farm was nearly \$33,000 in 1954. Highest investment per commercial farm is shown for cash-grain, fruit-and-nut, and livestock farms,

TABLE 35.—PERCENTAGE OF TOTAL INVESTMENT BY SOURCE FOR EACH TYPE OF COMMERCIAL FARM, BY ECONOMIC CLASS, FOR THE UNITED STATES: 1954

Source of investment	Total	Economic class of farm					
		I	II	III	IV	V	VI
All commercial farms	100	100	100	100	100	100	100
Value of land and buildings	78	82	78	76	75	75	76
Value of livestock	9	9	9	10	10	10	11
Value of machinery	13	9	13	14	15	15	13
Cash-grain	100	100	100	100	100	100	100
Value of land and buildings	82	86	83	80	78	78	79
Value of livestock	5	5	5	5	6	5	4
Value of machinery	13	10	12	14	16	17	16
Cotton	100	100	100	100	100	100	100
Value of land and buildings	83	88	85	82	78	75	75
Value of livestock	5	2	3	5	7	9	11
Value of machinery	12	9	12	13	15	16	14
Other field-crop	100	100	100	100	100	100	100
Value of land and buildings	80	84	79	80	79	78	80
Value of livestock	6	3	5	6	6	7	8
Value of machinery	15	14	16	15	15	15	12
Vegetable	100	100	100	100	100	100	100
Value of land and buildings	85	87	84	83	81	81	81
Value of livestock	2	1	2	2	3	3	4
Value of machinery	13	12	15	15	16	16	16
Fruit-and-nut	100	100	100	100	100	100	100
Value of land and buildings	91	91	90	90	90	90	90
Value of livestock	1	1	1	1	1	1	2
Value of machinery	8	7	9	9	9	9	8
Dairy	100	100	100	100	100	100	100
Value of land and buildings	70	76	71	69	68	68	72
Value of livestock	13	12	12	13	14	14	15
Value of machinery	17	12	17	18	18	18	15
Poultry	100	100	100	100	100	100	100
Value of land and buildings	77	77	76	77	77	79	80
Value of livestock	9	9	9	9	8	7	8
Value of machinery	14	14	14	14	14	14	13
Livestock other than dairy and poultry	100	100	100	100	100	100	100
Value of land and buildings	74	76	75	72	73	74	74
Value of livestock	15	17	14	15	15	14	15
Value of machinery	11	7	11	13	13	13	12
General, primarily crop	100	100	100	100	100	100	100
Value of land and buildings	82	87	82	80	79	80	81
Value of livestock	5	3	5	6	6	5	5
Value of machinery	13	10	13	15	15	15	14
General, primarily livestock	100	100	100	100	100	100	100
Value of land and buildings	72	77	72	71	71	71	73
Value of livestock	12	11	12	13	13	13	12
Value of machinery	16	12	16	16	16	16	14
General, crop and livestock	100	100	100	100	100	100	100
Value of land and buildings	75	80	77	74	72	72	74
Value of livestock	10	9	9	10	11	11	11
Value of machinery	15	11	14	15	17	17	15
Miscellaneous	100	100	100	100	100	100	100
Value of land and buildings	86	88	87	85	82	84	82
Value of livestock	3	2	3	4	5	5	5
Value of machinery	11	10	10	11	13	11	12

with about \$50,000 each. Lowest investment is shown for cotton and other field-crop and poultry farms.

The lower average investment for cotton and other field-crop farms results from the relatively large proportion of these types that is made up of the smaller economic classes of farms. Much greater similarity exists between types of farms in the same economic class. For example, Class I cotton farms with a total investment of nearly \$200,000 per farm are among the highest in capital requirements. Among each type of farm, except poultry, the total investment on Class I farms was \$100,000 or more.

Capital investment is fairly similar among types of farms if comparisons are made by economic class. The notable departures from this are the lower capital requirements shown for poultry farms and, among the smaller economic classes, the extremely low capital investment on cotton and other field-crop farms. It is to be remembered that data for these two types are influenced by the inclusion of croppers. In general, however, the lower capital investment is related to the small acreage in these farms and the relatively low land values per acre.

The total capital investment in commercial farming, as estimated here, was \$110 billion, in 1954. The bulk of this (78 percent) was represented in the value of land and buildings. Livestock and machinery comprised 9 percent and 13 percent, respectively, of the total. (See table 35.)

Land and buildings represented a slightly higher proportion of the total investment on farms having a major source of income from crops than on farms of the livestock types.

For each type of farm, land and buildings represented a greater proportion of the total investment on the larger economic classes. Although total investment was much less on the smaller economic classes, more of it was in livestock and machinery.

The distribution of total investment by economic class and by type of farm is shown in table 36. Slightly more than a fifth of the total investment is on Class I farms. Although these farms produced about one-third of all farm products sold in 1954, in terms of numbers, they accounted for only 4 percent of the commercial farms. On Class I farms, the proportion of the total investment for land and buildings was larger than for either livestock or machinery.

The intermediate economic classes (II, III, and IV) taken together accounted for about two-thirds of the total investment. They had approximately an equal value of land and buildings and livestock and more than 70 percent of the value of machinery.

Economic Classes V and VI, which comprised a third of the farm numbers, accounted for only 13 percent of the total investment. A slightly higher proportion of the livestock value and machinery value, than of land and buildings, was on these farms.

Two types of farms, cash-grain and livestock, accounted for more than half of the total investment. If the investment on dairy farms is added, two-thirds of the total investment was on these three types. They accounted for approximately two-fifths of the value of land and buildings and machinery and four-thirds of the value of livestock. Other livestock farms alone made up half of the total livestock investment.

TABLE 36.—PERCENT DISTRIBUTION OF TOTAL INVESTMENT BY ECONOMIC CLASS AND BY TYPE OF FARM, FOR THE UNITED STATES: 1954

Economic class and type of farm	Value of investment			
	Total	Land and buildings	Livestock inventory	Machinery and equipment
All commercial farms (million dollars)	110,545	85,768	10,497	14,280
Percent distribution by economic class:				
All classes	100.0	100.0	100.0	100.0
Class I	21.0	22.2	19.2	14.7
Class II	27.1	27.3	25.6	20.5
Class III	23.7	23.1	24.9	26.3
Class IV	15.7	15.1	16.9	18.4
Class V	9.2	8.8	9.7	10.7
Class VI	3.4	3.3	3.8	3.4
Percent distribution by type of farm:				
All types	100.0	100.0	100.0	100.0
Cash-grain	23.3	24.6	11.7	24.1
Cotton	8.0	8.5	4.2	7.7
Other field-crop	4.5	4.7	2.7	5.1
Vegetable	1.3	1.5	0.3	1.4
Fruit-and-nut	4.2	5.0	0.5	2.7
Dairy	13.2	11.9	17.9	17.4
Poultry	2.5	2.5	2.3	2.7
Livestock other than dairy and poultry	31.1	29.6	49.8	26.0
General:				
Primarily crop	2.7	2.9	1.3	2.7
Primarily livestock	1.6	1.4	2.1	1.9
Crop and livestock	6.3	6.1	6.8	7.3
Miscellaneous	1.2	1.4	0.4	1.0

Value of Farm Products Sold

The total value of farm products sold from commercial farms amounted to \$24.3 billion in 1954. The distribution of gross sales of farm products among types of farms is more equitable than that of land resources or the value of investment. For example, cash-grain farms, which contained more than a third of the harvested cropland, produced only a fifth of the farm products sold. Livestock farms, with half the land in farms, produced only a fourth of the farm products sold. On the other hand, dairy, cotton, and other field-crop farms, and the less numerous highly specialized farm types such as vegetable, fruit-and-nut, and poultry, accounted for substantially more of the gross sales than the amount or value of farm resources.

By economic class of farm, however, a much greater proportion of gross sales than of farm resources is shown for the larger economic classes. Class I farms accounted for nearly three-fourths of the gross sales from vegetable farms and two-fifths that from fruit-and-nut farms. (See table 37.) About two-fifths of the gross sales from cotton, poultry, livestock, and general crop farms was from Class I farms. In contrast, more than three-fourths of the gross sales from dairy, general livestock, and general crop and livestock farms, was sold from the medium-size classes II, III, and IV.

The average value of farm products sold per commercial farm is shown in table 38. The average commercial farm grossed slightly more than \$7,000 in 1954. This average ranged from about \$4,000 on other field-crop farms to \$16,000 on vegetable farms.

TABLE 37.—PERCENT DISTRIBUTION OF GROSS SALES FOR EACH TYPE OF FARM BY ECONOMIC CLASS, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
All commercial farms	100.0	32.0	27.5	20.9	12.4	5.8	1.4
Cash-grain.....	100.0	22.3	36.4	26.1	11.1	3.5	0.6
Cotton.....	100.0	40.8	15.1	12.2	15.2	12.7	4.0
Other field-crop.....	100.0	20.8	14.4	20.7	26.6	14.1	3.4
Vegetable.....	100.0	72.6	13.2	6.9	4.3	2.2	0.8
Fruit-and-nut	100.0	59.3	20.8	10.8	5.9	2.7	0.5
Dairy.....	100.0	16.4	30.1	31.0	16.1	5.4	1.9
Poultry.....	100.0	43.7	30.2	14.2	7.0	3.7	1.2
Livestock other than dairy and poultry.....	100.0	37.8	30.2	18.1	8.7	4.1	1.1
General:							
Primarily crop.....	100.0	42.0	22.8	16.1	11.7	4.1	1.3
Primarily livestock.....	100.0	6.8	25.7	34.1	20.2	7.6	1.6
Crop and livestock.....	100.0	12.3	31.7	31.8	17.1	6.1	1.0
Miscellaneous.....	100.0	65.1	18.0	7.7	5.2	3.1	0.9

TABLE 38.—AVERAGE VALUE OF FARM PRODUCTS SOLD PER FARM BY TYPE AND ECONOMIC CLASS, FOR THE UNITED STATES: 1954

Item and type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
Value of farm products sold per farm:							
All commercial farms.....	7,302	37,997	14,853	7,178	3,703	1,831	756
Cash-grain.....	8,746	45,382	14,776	7,315	3,846	1,911	779
Cotton.....	4,962	69,744	15,429	6,787	3,418	1,765	769
Other field-crop.....	4,344	59,586	14,939	6,917	3,716	1,928	806
Vegetable.....	16,033	101,301	15,408	7,937	3,492	1,757	687
Fruit-and-nut	14,469	65,699	16,083	7,806	4,108	2,041	798
Dairy.....	6,529	50,130	14,178	7,069	3,744	1,886	785
Poultry.....	9,634	49,400	15,727	7,359	3,808	1,878	698
Livestock other than dairy and poultry.....	8,828	58,114	15,246	7,266	3,745	1,834	686
General:							
Primarily crop.....	7,305	65,432	13,478	6,579	3,411	1,708	735
Primarily livestock.....	5,436	39,659	14,268	7,145	3,714	1,886	812
Crop and livestock.....	6,244	47,302	14,129	7,163	3,689	1,877	825
Miscellaneous.....	13,189	70,963	15,117	6,845	3,536	1,830	749

The averages by economic class show the extreme range in size of business that characterizes farming in the United States. Class I farms are 50 to 100 times as large in business volume as Class VI farms. The two extremes would compare Class I vegetable farms with gross sales of more than \$100,000 and Class VI vegetable farms with gross sales of less than \$700.

Since the economic classification (based on the value of farm sales) groups farms within fairly narrow intervals of value, a close similarity is found in the average sales for each type by economic class. The exception is for Class I farms which contain all farms with gross sales of \$25,000 or more. The effect of the open-end value grouping is apparent in the averages for Class I which range from less than \$40,000 to more than \$100,000.

Gross Sales Per Acre

The value of farm products sold per acre of total land in farms is shown for types and economic classes of farms in table 39. For commercial farms as a group, the sales per acre averaged \$24 in 1954. The average for all commercial farms is weighted heavily by cash-grain and other livestock farms. Many of these farms are located in semiarid western regions where production per acre is relatively low. The average sale per acre was \$12 for livestock farms and \$22 for cash-grain farms in 1954.

Gross sales per acre were highest on vegetable, fruit-and-out, and poultry farms, averaging more than \$100 per acre. All other types ranged between \$25 and \$50 per acre.

Gross sales per acre decreased with decreasing size of farm. For commercial farms as a group, Class I farms had sales per acre about 4 times greater than Class VI farms. For some types of farms, however, the differential between the larger and smaller economic classes was much greater.

TABLE 39.—VALUE OF ALL FARM PRODUCTS SOLD PER ACRE OF TOTAL LAND IN FARMS, BY TYPE OF COMMERCIAL FARM BY ECONOMIC CLASS OF FARM, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of arm						
		I	II	III	IV	V	VI	
	Dol-lars	Dol-lars	Dol-lars	Dol-lars	Dol-lars	Dol-lars	Dol-lars	
All commercial farms.....	24	30	28	23	18	14	8	
Cash-grain.....	22	31	26	20	15	11	6	
Cotton.....	40	68	41	35	34	28	14	
Other field-crop.....	47	89	63	56	47	29	15	
Vegetable.....	110	159	111	72	45	26	15	
Fruit-and-out.....	121	145	133	108	76	47	17	
Dairy.....	37	99	53	37	25	15	8	
Poultry.....	123	363	166	92	55	34	13	
Livestock other than dairy and poultry.....	12	13	15	13	9	6	4	
General:								
Primarily crop.....	27	57	30	22	18	12	6	
Primarily livestock.....	39	51	57	36	21	13	8	
Crop and livestock.....	28	40	36	25	16	12	7	
Miscellaneous.....	47	119	39	25	15	11	5	

Yield of Corn Per Acre Harvested

Yields of corn per acre by type and economic class of farm substantiate the differentials in gross productivity shown previously. Corn is the most widely grown crop in the United States. Its acreage surpasses that of any other crop. It is a relatively important crop on most types and economic classes of farms. Most farmers do not sell corn, except for incidental sales; they grow it for feed. Thus, for most types of farms, corn has relatively small influence in determining either the type or the economic class. Exceptions, of course, are the cash-grain and general farms on which corn is an important cash crop. The yield of corn in a particular year influences the number of livestock purchased, fed, and sold on livestock farms.

The yield of corn per acre harvested is shown for each type of farm, by economic class, in table 40. The average yield for all commercial farms was 40 bushels per acre in 1954. As would be expected, yields were higher than average on types of farms on which corn for feed or for sale was an important enterprise—cash-grain, dairy, other livestock, general livestock, and general crop and livestock farms. Yields were lowest on cotton, other field-crop, and general crop farms.

On each type of farm, however, yields of corn were highest on Economic Class I farms and decreased for each successively

smaller economic class. Yields on Class VI farms were approximately half those realized on Class I farms.

TABLE 40.—YIELD PER ACRE OF CORN HARVESTED FOR GRAIN, BY TYPE OF COMMERCIAL FARM AND BY ECONOMIC CLASS OF FARM, FOR THE UNITED STATES: 1954

Type of Farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
	Bushels	Bushels	Bushels	Bushels	Bushels	Bushels	Bushels
All commercial farms.....	40	54	50	41	31	24	18
Cash-grain.....	45	58	52	42	36	31	26
Cotton.....	14	23	17	16	14	12	10
Other field-crop.....	23	41	31	25	22	21	20
Vegetable.....	34	47	41	35	30	25	18
Fruit-and-out.....	36	42	38	35	34	26	19
Dairy.....	48	55	50	43	33	29	25
Poultry.....	38	49	40	34	33	31	26
Livestock other than dairy and poultry.....	45	57	51	42	34	28	22
General:							
Primarily crop.....	27	42	35	28	22	20	17
Primarily livestock.....	47	63	58	50	39	33	26
Crop and livestock.....	41	54	52	41	31	25	21
Miscellaneous.....	23	25	30	21	21	20	17

Gross Sales Per \$100 of Capital Investment

For commercial agriculture as a whole, gross sales averaged \$22 in 1954 for each \$100 of capital invested in land, buildings, livestock, and machinery (see table 41). At this rate it takes approximately 4 years of gross farm sales to equal in value the capital invested in agriculture.

TABLE 41.—VALUE OF ALL FARM PRODUCTS SOLD PER \$100 OF CAPITAL INVESTED IN LAND AND BUILDINGS, LIVESTOCK, AND MACHINERY, BY TYPE OF COMMERCIAL FARM BY ECONOMIC CLASS OF FARM, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
All commercial farms.....	22	35	23	19	17	14	9
Cash-grain.....	17	24	18	16	15	10	7
Cotton.....	31	36	26	27	31	29	19
Other field-crop.....	33	45	33	34	33	26	17
Vegetable.....	36	46	29	23	17	12	8
Fruit-and-out.....	28	37	36	21	16	10	6
Dairy.....	25	40	28	24	20	14	8
Poultry.....	54	112	66	43	27	16	8
Livestock other than dairy and poultry.....	18	30	19	15	11	8	5
General:							
Primarily crop.....	21	39	20	18	17	11	7
Primarily livestock.....	20	36	26	21	16	12	8
Crop and livestock.....	18	29	21	18	15	12	8
Miscellaneous.....	40	72	32	23	17	11	7

Sales per unit of investment were highest on poultry farms. In general, sales per unit of investment were higher on farms having a major source of income from crops than from livestock types. Cash-grain farms were the only notable exception to this; they averaged only \$17 per unit of investment.

Sales per unit of investment decreased with decreasing size. The differentials are large for some types. Class I poultry farms, for example, had sales per unit of investment nearly 15 times greater than Class VI farms of this type. In contrast, the differentials between economic classes of cotton farms were relatively small.

Gross Sales per Man-Equivalent

Gross farm sales per man-equivalent amounted to \$5,000 for all commercial farms in 1954 (see table 42). These ranged from a high of more than \$8,000 for poultry farms to a low of about \$3,000 on cotton and other field-crop farms. Cash-grain and livestock farms, which had the lowest sales per acre, were among the highest types in sales per man-equivalent.

TABLE 42.—VALUE OF ALL FARM PRODUCTS SOLD PER MAN-EQUIVALENT OF LABOR USED, BY TYPE OF COMMERCIAL FARM BY ECONOMIC CLASS OF FARM, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
All commercial farms.....	5,001	10,701	8,223	5,020	2,916	1,088	727
Cash-grain.....	6,785	14,948	9,785	5,947	3,846	2,302	838
Cotton.....	2,919	8,988	6,147	3,517	2,035	1,261	636
Other field-crop.....	2,877	6,687	6,173	3,864	2,477	1,590	753
Vegetable.....	4,497	5,085	4,398	3,518	2,442	1,698	686
Fruit-and-nut.....	5,857	7,292	6,115	4,848	3,668	2,373	814
Dairy.....	4,334	9,353	7,197	4,862	2,995	1,796	793
Livestock other than dairy and poultry.....	8,305	18,229	10,598	6,512	4,051	2,439	822
	6,791	17,772	9,470	5,486	3,344	2,084	743
General:							
Primarily crop.....	4,575	8,251	6,511	4,300	2,729	1,708	766
Primarily livestock.....	4,214	10,464	8,443	5,032	2,998	1,796	892
Crop and livestock.....	4,558	10,970	8,120	5,046	2,928	1,774	793
Miscellaneous.....	4,831	5,774	5,399	4,123	3,048	2,128	785

Sales per man-equivalent were highest on Class I farms for each type. They decreased substantially for each successively smaller economic class. For each type of farm the differential between economic classes is fairly similar. Each successively smaller economic class had gross sales per man-equivalent only half to two-thirds that of the economic class above it. Gross sales per man-equivalent for Class I farms was 10 to 20 times greater than for Class VI farms.

Limitations of Relating Sales to Resources

Comparisons of gross productivity per unit of farm resources do not take account of farm expenses. The proportion of farm sales that is net varies by type of farm as well as between economic classes within each type. The effect of these variations is probably more important between types of farm, however, than between classes of the same type. Farm expenses and the proportion they comprise of gross farm sales are discussed later in this report.

In addition, sales per unit of resources between economic classes of farms are affected by classification on the basis of sales in the particular year. They may have been higher or lower than normal because of chance factors.

In view of the wide differentials between economic classes of farms shown in the preceding tables, it is reasonable to conclude that resources are used to greater efficiency on the larger economic classes. The precise amount of these differentials, however, cannot be determined from the existing data.

Investment per Man-Equivalent

Differences in gross productivity per worker between types and economic classes of farms may be partly attributable to differences in the amount of other resources at the disposal of workers on these farms. The capital investment discussed previously, provides an indication of the total nonlabor resources. The capital investment per farm was divided by the man-equivalents per farm to provide the data shown in table 43.

The investment per man-equivalent worker for commercial agriculture as a whole was about \$22,000 in 1954. For cash-grain and livestock farms the average was nearly \$40,000. The lowest average investment per worker was on cotton and other field-crop farms, an average of less than \$10,000.

By economic class of farm, the highest investment per worker was on Classes I and II. This was true for all types except vegetable farms. For vegetable farms the investment per worker was highest in Class III.

Investment per worker decreased with decreasing size of farm; the lowest investment was found on Class VI farms. The exception is that investment per worker was higher on Class II than on Class I for all types except cash-grain and cotton farms.

Class II farms are mostly family operated. That is, the farm operator and members of his family comprise most of the labor force. These farms as a group typify the large, up-to-date, highly mechanized family farms. Many Class I farms also are operated primarily with family labor, but included in this group are larger farms that hire most of the farm work done.

Apparently Class II farms have reached sufficient size to achieve reasonably efficient use of most modern innovations designed to increase output and decrease labor needs. The income and credit positions of families on Class II farms have probably been sufficient to enable them to make profitable investments in productive land, modern buildings, and other capital items. Workers on these farms have capital resources to work with that are equal to or greater than that of workers on Class I farms.

TABLE 43.—CAPITAL INVESTMENT IN LAND AND BUILDINGS, LIVESTOCK AND MACHINERY PER MAN-EQUIVALENT OF LABOR USED, BY TYPE OF COMMERCIAL FARM BY ECONOMIC CLASS OF FARM, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
All commercial farms.....	22,516	30,413	28,431	23,909	15,794	12,069	7,718
Cash-grain.....	39,623	61,696	53,654	37,441	28,541	22,146	13,371
Cotton.....	9,394	25,127	23,366	13,188	6,283	4,390	3,478
Other field-crop.....	8,736	15,845	18,456	11,350	7,419	6,151	4,489
Vegetable.....	12,665	12,318	14,960	15,574	15,583	13,087	8,443
Fruit-and-nut.....	20,972	19,921	23,449	23,265	25,010	23,574	13,221
Dairy.....	18,377	23,443	26,594	19,962	15,260	12,570	8,676
Poultry.....	15,451	16,316	16,946	15,187	14,978	15,388	10,412
Livestock other than dairy and poultry.....	37,862	38,665	48,857	36,115	29,466	25,665	14,661
General:							
Primarily crop.....	22,281	27,689	32,813	23,651	16,411	15,350	10,553
Primarily livestock.....	21,469	29,309	32,318	24,483	17,850	15,221	11,399
Crop and livestock.....	24,913	37,842	37,944	27,872	19,850	14,838	9,770
Miscellaneous.....	12,154	8,069	16,919	18,260	18,078	15,068	10,720

TOTAL FARM EXPENSES

Data on total farm expenses are available from a farm expenditure survey taken in the spring of 1956 by the Bureau of the Census and the Agricultural Marketing Service which has provided needed information on the production expenses of farmers. In this survey a sample of approximately 6,600 farmers answered detailed questions covering their farm expenses for the calendar year 1955. For an explanation of the sample design and procedure and for an estimate of the sampling error, see volume III, part 11.

One tabulation obtained from the survey was by type of farm and by selected economic classes of farms. The average per farm of the major categories of farm expenses by type of farm are shown in table 44. These farm expenses relate to 1955. Other data on farm and farm-operator characteristics contained in this report are from the 1954 Census of Agriculture and relate to 1954.

For this reason direct comparison of the two sets of data would not be meaningful. Also, the farm expenses obtained in the survey included expenses incurred for family living that ordinarily would not be charged against the farm business. (See footnotes to table 44.) In addition, the production expenses for cropper farms obtained in the survey were included in the economic class in which the landlord's home farm was tabulated.

Data from the survey are useful primarily in showing the relative magnitude of categories of farm expenses for different types and sizes of farms and the proportions these categories comprise of total farm expenses. These relationships may also be useful in examination of the specified expense items obtained by the 1954 Census of Agriculture. An attempt is made later in this report to indicate the extent to which the Census specified expense items are representative of total farm expenses for the different types and economic classes of farms.

TABLE 44.—CASH FARM EXPENDITURES: AVERAGE PER FARM BY TYPE OF FARM BY ECONOMIC CLASS, FOR THE UNITED STATES: 1955

Expenditure by economic class of farm	Type of farm												
	All- com- mercial farms	Cash-grain	Cotton	Other field- crop	Vegeta- ble	Fruit- and- nut	Dairy	Poul- try	Live- stock other than poultry	General—			Miscel- laneous
										Prim- arily crop	Prim- arily crop and live- stock	Crop and live- stock	
ALL CLASSES													
Total expenditures.....	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
Cash wages.....	704	466	5,099	6,797	4,923	15,387	10,948	6,086	10,817	8,765	4,229	5,710	5,271
Machine hire and customwork.....	165	213	146	138	117	127	157	151	64	175	296	160	183
Livestock and poultry purchased.....	793	559	182	149	146	142	322	1,289	1,629	1,629	653	510	110
Feed for livestock and poultry.....	1,222	887	158	211	213	279	1,596	6,292	1,756	2,754	1,351	765	289
Seeds, plants, and trees.....	244	310	177	271	966	213	171	76	228	396	193	237	1,746
Commercial fertilizer and liming materials.....	385	439	379	590	1,915	747	254	131	346	693	295	372	514
Petroleum products, farm business share.....	662	833	491	486	905	627	511	410	626	713	553	585	789
Repair and other operating costs for motor vehicles and farm machinery.....	434	645	356	328	747	492	352	220	463	640	362	417	390
Marketing costs.....	331	187	241	284	2,141	1,620	297	192	239	445	212	230	921
Miscellaneous current operating expense, not included elsewhere.....	488	418	387	382	1,798	1,243	451	432	541	671	389	385	988
Property taxes, farm business share.....	227	276	74	114	460	393	228	149	318	183	219	191	309
Interest, farm business share.....	162	173	121	167	225	171	157	141	215	136	127	133	151
Construction and land improvement.....	373	356	242	301	879	521	338	149	601	417	323	326	755
Purchase of motor vehicles, farm machinery and equipment.....	926	1,382	759	646	834	1,145	884	482	964	1,046	880	768	631
CLASSES I AND II													
Total expenditures.....	18,352	12,871	16,243	26,231	34,326	24,545	16,336	23,287	29,791	22,223	12,912	12,309	24,976
Cash wages.....	2,615	1,173	4,453	7,474	10,351	7,945	1,935	1,307	1,967	4,709	1,678	1,280	10,502
Machine hire and customwork.....	394	335	450	385	342	301	230	107	271	325	218	200	48
Livestock and poultry purchased.....	2,569	1,069	523	789	237	386	918	3,155	6,057	1,159	806	1,618	209
Feed for livestock and poultry.....	3,326	890	295	607	340	481	5,042	15,362	4,291	532	3,233	1,654	180
Seeds, plants, and trees.....	572	597	557	1,630	1,600	310	369	115	428	1,019	375	433	3,749
Commercial fertilizer and liming materials.....	694	1,223	1,115	1,813	803	1,411	665	292	1,083	1,964	893	962	1,222
Petroleum products, farm business share.....	1,143	1,387	1,291	1,701	1,913	1,157	863	655	1,083	1,730	914	930	1,222
Repair and other operating costs for motor vehicles and farm machinery.....	947	1,210	1,680	1,379	1,432	1,624	718	347	969	1,349	727	760	483
Marketing costs.....	955	390	1,434	1,776	7,336	4,268	705	431	209	1,850	458	555	1,957
Miscellaneous current operating expense, not included elsewhere.....	1,327	963	1,592	2,733	2,844	2,895	1,192	950	1,223	2,345	894	847	2,016
Property taxes, farm business share.....	491	450	243	657	752	843	449	278	652	465	381	339	524
Interest, farm business share.....	375	270	304	528	409	339	364	329	483	342	157	317	368
Construction and land improvement.....	1,736	1,629	821	1,666	1,476	1,142	814	901	866	1,279	822	829	1,195
Purchase of motor vehicles, farm machinery and equipment.....	1,925	2,438	2,020	2,069	1,743	1,996	1,982	1,019	1,742	2,747	1,946	1,554	1,192
CLASSES III THROUGH VI													
Total expenditures.....	4,486	4,740	2,725	2,831	6,926	4,276	4,384	5,046	4,835	3,444	4,718	4,000	4,927
Cash wages.....	200	226	496	297	1,499	1,109	197	94	227	402	137	194	819
Machine hire and customwork.....	130	172	82	94	97	93	138	48	144	117	163	160	84
Livestock and poultry purchased.....	315	277	169	87	110	409	115	672	861	212	358	293	53
Feed for livestock and poultry.....	680	390	129	172	157	188	944	2,621	944	269	1,690	563	354
Seeds, plants, and trees.....	160	212	96	138	683	169	138	60	163	201	168	192	561
Commercial fertilizer and liming materials.....	237	267	159	345	896	334	146	163	235	332	191	254	299
Petroleum products, farm business share.....	464	645	321	387	617	386	449	312	477	455	515	567	533
Repair and other operating costs for motor vehicles and farm machinery.....	303	454	202	225	442	251	291	170	318	235	312	346	319
Marketing costs.....	172	119	199	138	984	418	220	97	115	86	178	137	310
Miscellaneous current operating expense, not included elsewhere.....	273	265	129	152	651	495	328	311	319	246	319	279	362
Property taxes, farm business share.....	159	217	38	61	328	198	98	209	299	112	117	158	58
Interest, farm business share.....	107	146	67	165	106	97	123	66	127	85	123	91	68
Construction and land improvement.....	237	227	119	167	612	239	295	226	318	198	250	292	594
Purchase of motor vehicles, farm machinery and equipment.....	669	1,029	540	562	960	738	791	268	629	615	732	591	781

¹ Expenditures minus tax refunds. Includes expenditures attributable to use other than farm business.

² Includes repairs, replacement parts, accessories, registration fees and insurance on vehicles. Includes expenditures attributable to uses other than farm business.

³ Medicine, disinfectants, pesticides, electricity, telephone service, insurance, hand tools, and miscellaneous farm business expenses (management services, recordkeeping, legal fees, veterinary expenses, etc.).

⁴ Includes some property taxes on furniture and other household goods attributable to family living expenses.

⁵ Includes interest on debt contracted for family living expenses.

⁶ Excludes expenditures by landlords, includes expenditures for construction and repair of operator's dwelling except for multi-unit tenant farms.

⁷ Purchase cost minus value of trade-in and sales. Includes expenditures attributable to uses other than farm business.

Cash wages.—The expenditure for hired labor amounted to \$764 for the average commercial farm in 1955 and comprised about a tenth of the total farm expenses. Cash wages were a much more important expense on some types of farms than others. In general, cash-grain farms and types of farms having a major source of income from livestock products had relatively small expense for hired labor, amounting to 7 percent or less of the total expenses. (See table 45.) On farms with a major source of income from crops (except cash-grain farms) cash wages ranged from nearly a fifth to a fourth or more of the total farm expenses.

The farm expenses have been tabulated into two economic class groups—Classes I and II, which combine all farms with sales of farm products valued at \$10,000 or more, and Classes III, IV, V, and VI, a combination of commercial farms that had sales of farm products valued at less than \$10,000.

Cash wages comprised a higher proportion of total expenses on the larger economic classes of farms than on the smaller classes—14 percent and 7 percent, respectively, for all types taken together. A similar relationship existed between the two size groups for each type individually.

TABLE 45.—CASH FARM EXPENDITURES AS A PERCENTAGE OF TOTAL FARM EXPENDITURES, BY TYPE OF FARM, BY ECONOMIC CLASS OF FARM, FOR THE UNITED STATES: 1955

Expenditure by economic class of farm	All commercial farms	Type of farm											
		Cash-grain	Cotton	Other field crop	Vegetable	Fruit-and-nut	Dairy	Poultry	Livestock other than dairy and poultry	General—			Miscellaneous
										Primarily crop	Primarily livestock	Crop and livestock	
Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	
ALL CLASSES													
Total expenditures.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Cash wages.....	10.8	6.9	23.4	19.4	27.5	29.5	7.3	4.0	6.4	17.6	4.4	7.1	35.7
Machine hire and customwork.....	2.3	3.1	2.9	2.8	1.1	1.2	2.5	0.6	2.0	3.7	3.0	3.3	0.6
Interest, farm business share.....	10.8	8.2	3.6	3.0	1.0	1.3	5.3	12.8	22.0	4.6	7.1	8.2	0.9
Feed for livestock and poultry.....	17.2	7.2	3.1	4.3	1.4	2.5	25.1	58.2	20.0	3.8	23.7	13.8	2.3
Seeds, plants, and trees.....	3.4	4.6	3.5	5.5	6.3	1.9	2.8	6.7	2.6	5.1	3.4	4.3	14.1
Commercial fertilizer and liming materials.....	5.4	6.8	7.0	11.2	9.8	6.8	4.2	1.2	3.9	9.2	4.6	6.7	4.2
Petroleum products, farm business share.....	8.5	12.3	9.6	9.9	5.9	5.7	8.4	3.8	7.1	9.8	9.9	10.6	6.4
Repair and other operating costs for motor vehicles and farm machinery.....	6.1	9.5	7.0	6.7	4.9	4.5	5.8	2.0	5.3	6.4	6.3	7.5	3.1
Marketing costs.....	4.7	2.8	8.2	5.8	17.8	14.8	4.9	1.8	2.7	6.1	3.7	4.2	7.4
Miscellaneous current operating expense, not included elsewhere.....	6.9	6.6	7.6	7.8	8.6	11.4	7.4	4.0	6.2	9.3	6.8	7.0	8.0
Property taxes, farm business share.....	3.2	4.1	1.5	2.3	3.0	3.6	3.7	1.4	3.6	2.5	3.8	3.5	2.5
Interest, farm business share.....	2.3	3.5	2.4	2.2	1.5	1.6	2.6	1.3	2.5	1.9	2.2	2.4	1.2
Construction and land improvement.....	5.8	5.2	4.7	6.1	5.7	4.8	5.6	3.9	5.3	5.8	5.7	6.4	6.1
Purchase of motor vehicles, farm machinery and equipment.....	13.1	20.4	15.7	13.1	5.6	10.5	14.5	4.5	10.3	14.4	15.4	13.9	7.5
CLASSES I AND II													
Total expenditures.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Cash wages.....	14.2	9.1	27.4	29.3	30.7	32.2	11.8	5.0	7.7	21.2	8.3	10.4	42.0
Machine hire and customwork.....	1.7	2.6	2.8	2.2	1.0	0.8	1.4	0.4	1.3	3.3	1.7	2.4	0.2
Livestock and poultry purchased.....	13.7	8.5	3.2	3.0	0.7	1.6	5.6	12.5	29.1	5.2	6.9	13.1	0.8
Feed for livestock and poultry.....	18.2	6.7	1.8	2.3	1.0	2.0	30.8	61.3	20.4	2.4	25.1	13.5	0.7
Seeds, plants, and trees.....	3.1	4.6	3.4	6.2	4.7	1.3	2.3	6.5	2.1	4.6	2.9	3.5	15.0
Commercial fertilizer and liming materials.....	5.2	7.9	6.9	10.0	11.1	6.6	4.1	6.8	3.3	8.8	6.2	7.3	3.8
Petroleum products, farm business share.....	6.2	10.8	7.9	5.7	4.3	4.7	3.4	2.6	4.3	7.8	7.1	7.6	9.9
Repair and other operating costs for motor vehicles and farm machinery.....	5.2	9.4	6.6	5.3	4.2	4.2	4.4	1.4	4.4	6.1	5.6	6.2	1.9
Marketing costs.....	5.2	3.0	8.8	6.7	21.3	17.4	4.7	1.7	2.5	8.3	3.5	4.5	7.8
Miscellaneous current operating expense, not included elsewhere.....	7.2	7.0	9.8	10.4	8.3	11.8	7.3	3.9	5.9	10.6	6.9	6.9	8.2
Property taxes, farm business share.....	2.7	3.5	1.5	2.5	2.2	3.4	2.7	1.1	3.1	2.1	3.0	2.8	2.1
Interest, farm business share.....	2.0	2.1	2.3	2.0	1.4	1.4	2.2	1.3	2.3	1.5	1.2	2.6	1.2
Construction and land improvement.....	6.5	8.7	5.1	6.4	4.3	4.7	5.3	3.6	4.3	5.8	6.4	6.7	6.4
Purchase of motor vehicles, farm machinery and equipment.....	20.5	18.9	12.4	8.0	5.1	8.1	12.1	4.0	8.4	12.4	15.1	12.6	4.8
CLASSES III THROUGH VI													
Total expenditures.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Cash wages.....	6.8	4.8	19.2	16.5	21.3	23.2	4.5	1.9	4.7	11.1	2.9	4.9	16.6
Machine hire and customwork.....	3.1	3.6	3.0	3.3	1.4	1.9	3.1	1.0	3.0	4.3	3.5	4.0	1.7
Livestock and poultry purchased.....	7.5	8.9	4.0	3.1	1.6	0.6	5.1	15.3	12.0	3.5	7.9	6.6	1.1
Feed for livestock and poultry.....	16.2	7.6	4.7	6.1	2.3	3.0	21.3	31.9	19.5	5.1	23.1	14.1	7.2
Seeds, plants, and trees.....	3.8	4.5	3.5	4.9	9.9	3.6	3.1	1.2	3.4	5.8	3.6	4.8	11.4
Commercial fertilizer and liming materials.....	5.6	5.6	7.3	12.2	7.2	7.4	4.2	2.0	4.9	9.6	4.0	6.4	5.1
Petroleum products, farm business share.....	11.1	13.6	11.8	13.7	9.7	8.1	10.2	6.2	9.9	13.2	10.9	12.7	10.8
Repair and other operating costs for motor vehicles and farm machinery.....	7.2	9.6	7.4	7.9	6.4	5.3	6.6	3.4	6.6	6.8	6.6	8.5	6.5
Marketing costs.....	4.1	2.5	7.3	4.9	10.0	8.8	3.0	1.9	3.0	2.5	3.8	3.9	6.3
Miscellaneous current operating expense, not included elsewhere.....	6.5	6.2	4.8	5.4	9.4	10.4	7.5	4.2	6.6	7.1	6.8	7.0	7.3
Property taxes, farm business share.....	3.8	4.6	1.4	2.2	4.0	3.9	4.4	1.9	4.3	3.3	4.2	4.0	3.7
Interest, farm business share.....	2.6	3.0	2.5	2.3	1.5	2.0	2.8	1.3	2.6	2.5	2.6	2.3	1.2
Construction and land improvement.....	5.6	4.8	4.4	5.9	8.8	5.0	5.8	4.5	6.6	5.7	5.4	6.3	5.2
Purchase of motor vehicles, farm machinery and equipment.....	15.9	21.7	19.8	17.7	6.6	15.9	16.0	5.3	13.9	17.9	15.5	14.8	15.9

1 Expenditures minus tax refunds. Includes expenditures attributable to uses other than farm business.
 2 Includes repairs, replacement parts, accessories, registration fees and insurance on vehicles. Includes expenditures attributable to uses other than farm business.
 3 Medicine, disinfectants, pesticides, electricity, telephone service, insurance, haul tools, and miscellaneous farm business expenses (management services, reeferkeeping, legal fees, advertising expenses, etc.).
 4 Includes some property taxes on furniture and other household goods attributable to family living expenses.
 5 Includes interest on debt contracted for family living expenses.
 6 Excludes expenditures by landlords, excludes expenditures for construction and repair of operator's dwelling except for multi-unit tenant farms.
 7 Purchase cost minus value of trade-in and sales. Includes expenditures attributable to uses other than farm business.

Of the total cash wages paid in commercial agriculture, cotton farms accounted for slightly more than a fifth—a larger proportion than any other type (see table 46). The next highest users of hired labor were livestock farms other than dairy and poultry which accounted for slightly less than a fifth of the cash wages paid.

Machine hire.—The expenditure for machine hire was relatively small for each type and size of farm. It amounted to \$165 for commercial farms as a group and accounted for only 2 percent of the total expenses. By type of farm there was small variation. For each type of farm, however, machine hire was a higher proportion of total expenses on the smaller economic classes of farms. Operators of the smaller farms frequently have insufficient acreage to utilize certain items of farm machinery efficiently. This indicates a tendency on the part of many to hire machine work done on a custom basis.

Purchase of livestock and poultry.—About three-fifths of the total expenditures for livestock and poultry purchases by commercial farmers in 1955 was accounted for by livestock farms other than dairy and poultry—an average of nearly \$2,000 per farm. On farms of this type the purchase of livestock and poultry was the largest single expense item and it amounted to more than a fifth of the total farm expenses. On other types of farms the proportion of this expense to total expenses ranged from 13 percent for poultry farms to only 1 percent for vegetable and fruit-and-nut farms.

Among types of farms having a major source of income from crops, the expense for purchase of livestock and poultry was largest on cash-grain farms. This is an indication of the importance of livestock feeding as a secondary farm enterprise for farmers who raise and sell grains, especially feed grains.

For most types of farms there are no appreciable differences between the larger and smaller farms in the proportion of total farm expenses comprised by the purchase of livestock and poultry. The exception is found among livestock farms other than dairy and poultry. On the larger economic classes for this type 29 percent of the total farm expense was for purchase of livestock and poultry compared with only 12 percent on the smaller economic classes.

Many more of the larger livestock farms purchase cattle and hogs and feed them for resale. In fact, this causes some of them to be classified in the larger economic classes even though the net income is no more than that of some farmers in the smaller economic classes who raise a larger part of their livestock.

Feed for livestock and poultry.—This is the largest single expense item for commercial farmers. Their feed bill amounted to about \$1,200 per commercial farm in 1955 and made up 17 percent of the total expenses. The heaviest users of purchased feed were dairy, poultry, and other livestock farms. The three types taken together accounted for four-fifths of the feed purchased by commercial farmers.

Feed purchased was by far the most important expense for poultry farmers, comprising 58 percent of their total expenses. A fourth of the total expenses of dairy and general livestock farms and a fifth of the total expenses of other livestock farmers went for feed.

For poultry, dairy, and other livestock farms the expenditure for feed comprised a greater proportion of the total expenses on the larger economic classes of farms. For other types (on which feed was not an important expense item) the smaller economic classes had greater proportionate expenses for feed.

Seeds, plants, and trees.—The expenditure for seed, plants, and trees made up only 3 percent of the total farm expenses. This ranged from less than 1 percent on poultry farms to about 6 percent on vegetable farms. There was small variation between the larger and smaller economic classes of farms in this respect.

Commercial fertilizer and liming materials.—The average commercial farmer spent \$385 for fertilizer and lime in 1955. This represents less than 6 percent of the total expenses. The largest expenditure was made by vegetable farmers who averaged \$1,500 each, followed by fruit-and-nut farmers who spent \$750 each. As a proportion of total expenses, however, the largest share (11 percent) was spent on fertilizer and lime by other field-crop farmers.

Of the total commercial fertilizers and liming material purchased, about a fifth each was used on cash-grain farms and livestock farms other than dairy and poultry. Between 10 and 15 percent each was used on cotton, other field-crop, and dairy farms. These 5 types accounted for about four-fifths of the fertilizers and liming material used.

TABLE 46.—PERCENT DISTRIBUTION OF EACH EXPENDITURE BY TYPE OF FARM, FOR THE UNITED STATES: 1955

Expenditure by economic class of farm	All commercial farms	Type of farm											
		Cash-grain	Cotton	Other field-crop	Vegetable	Fruit-and-nut	Dairy	Poultry	Livestock other than dairy and poultry	General—			Miscellaneous
										Primarily crop	Primarily livestock	Crop and livestock	
Total expenditures.....	100.0	16.4	9.5	5.5	2.0	3.7	15.7	7.7	28.7	2.3	1.7	5.1	1.6
Cash wages.....	100.0	10.1	20.5	10.0	5.0	10.2	10.6	2.8	17.1	3.8	0.7	3.1	5.4
Machine hire and customwork.....	100.0	22.0	11.7	6.6	1.0	1.9	16.7	2.0	24.6	3.6	2.2	7.3	0.4
Livestock and poultry purchased.....	100.0	12.5	3.1	1.6	0.2	0.5	7.7	9.1	38.6	1.0	1.2	4.4	0.1
Feed for livestock and poultry.....	100.0	6.8	1.7	1.4	0.2	0.6	22.8	26.0	33.3	0.5	2.4	4.1	0.2
Seeds, plants, and trees.....	100.0	21.7	9.5	8.9	3.6	2.1	12.8	1.6	21.7	3.4	1.7	6.4	6.7
Commercial fertilizer and liming materials.....	100.0	20.3	12.3	11.4	3.6	4.7	12.1	1.7	29.8	3.9	1.5	6.1	1.2
Petroleum products, farm business share.....	100.0	23.6	10.7	6.4	1.4	2.5	15.5	3.4	24.1	2.7	2.0	6.1	1.2
Repair and other operating costs for motor vehicles and farm machinery.....	100.0	25.1	10.8	6.0	1.6	2.7	14.8	2.6	24.7	2.4	1.8	6.3	0.8
Marketing costs.....	100.0	9.6	16.5	6.8	7.5	11.8	16.4	4.9	16.7	3.0	1.4	4.6	2.6
Miscellaneous current operating expense, not included elsewhere.....	100.0	15.7	10.4	6.2	2.5	6.2	16.8	4.5	25.7	3.1	1.7	5.2	1.9
Property taxes, farm business share.....	100.0	20.7	4.5	4.0	1.9	4.2	18.4	3.3	32.5	1.8	2.1	5.6	1.3
Interest, farm business share.....	100.0	18.2	9.8	5.3	1.3	2.6	17.8	4.4	30.8	1.9	1.7	5.1	0.9
Construction and land improvement.....	100.0	16.2	8.5	6.4	2.1	3.4	16.6	5.6	28.5	2.5	1.9	6.3	1.9
Purchase of motor vehicles and farm machinery and equipment.....	100.0	23.3	11.4	5.6	0.8	3.0	17.4	2.6	22.6	2.6	2.1	5.5	0.9

Fuel, repairs, and other operating costs for motor vehicles and farm machinery.—Operating costs for motor vehicles and farm machinery amounted to more than \$1,000 per commercial farm and comprised nearly 15 percent of the total farm expenses in 1955. This proportion ranged from 22 percent on cash-grain farms to only 6 percent on poultry farms. Two types of farms, cash-grain and livestock farms other than dairy and poultry accounted for more than a third each of the total expenditure for operating costs.

For each type of farm the operating costs were a greater proportion of the total expenses on the smaller economic classes of farms than on the larger ones. The data are influenced by the inclusion of fuel and upkeep for the family automobile, an item found on most farms in 1955. Operating costs for automobiles would tend to be greater, relative to other machinery expenses for the smaller farms than for the larger ones. However, the data are probably indicative of the problems encountered by many operators of small farms in utilizing machinery efficiently. In general, they have lagged behind the operators of larger farms in their use of machinery. But even at their present levels of mechanization the smaller farms spent more proportionately for operation of machinery than the larger ones.

Marketing costs.—These amounted to only 5 percent of the total farm expenses for commercial farms as a group. Marketing costs were a more important expense item for vegetable farms and fruit-and-nut farms than other types. These costs comprised 18 percent and 15 percent, respectively, of the total farm expenses. Cotton farmers also had relatively high marketing costs amounting to 8 percent of all expenditures.

Miscellaneous farm operating expenses.—These include a number of expense items not included elsewhere. The major items are expenses for medicine and disinfectants, pesticides, electricity, telephone service, insurance, hand tools, and miscellaneous farm business expenses (management services, recordkeeping, legal fees, advertising expenses, etc.).

These expenses comprised 7 percent of the total cash farm expenses in 1955 for commercial farms as a group. They were a fairly constant proportion of the total expenses for most types ranging from a high of 11 percent on fruit-and-nut farms to a low of 4 percent on vegetable farms.

Property taxes and interest.—About 6 percent of the total cash expenses of commercial farmers were for these expenses. There was small variation between the types and economic classes of farms in this respect.

Capital expenditures.—The total expenditures for 1955 included two items of capital expenditure: (1) Payment for construction and land improvement and (2) purchase of motor vehicles and farm machinery. These items are not generally included in current farm operating expenses. Their costs are more properly spread over a period of years.

The capital expenditure items are included here with the total cash expenses, largely as a matter of convenience. However, the purchase of capital equipment is largely for replacement of existing equipment. It is probable that the total cash outlay for capital equipment by farmers in any one year approximates the cost that might be attributed to depreciation of all capital equipment on farms for the 1-year period. It is an overstatement of depreciation to the extent that these purchases represent an increase in the total investment of farmers.

The cost for construction and land improvements made up about 5 percent of the total cash expenses of commercial farmers. This was a fairly constant proportion of the total expenses for

each type of farm. The proportion of total expenses that were for construction and land improvement was slightly greater on the smaller than on the larger economic classes for most types of farms.

The purchase of motor vehicles and farm machinery was one of the largest cash expenses of commercial farmers in 1955, comprising 13 percent of the total cash expenses. This expense varied considerably by type of farm. It amounted to a fifth of the total expenses of cash-grain farmers and was the largest single expense. Each type of farm reported 10 percent or more of the total cash expenses for purchase of motor vehicles and farm machinery except vegetable farms and poultry farms.

The proportion of total expenses that went for purchase of motor vehicles and farm machinery was much greater on the smaller economic classes of farms than on the larger ones—half again to twice as much for most types of farms.

Total Motor Vehicle and Machinery Expenses

When the costs for purchase of motor vehicles and farm machinery are added to the expenses for fuel, repairs, and other operating costs, it is apparent that these comprised the major cash expenditure of commercial farmers in 1955. The expenses for purchase and operation of motor vehicles and farm machinery are shown as a proportion of the total cash expenses in table 47. These costs made up 28 percent of the total cash expenses of commercial farmers. They comprised from a fourth to two-fifths of the total on all except vegetable, fruit-and-nut, and poultry farms.

TABLE 47.—EXPENSES FOR PURCHASE AND OPERATION OF MOTOR VEHICLES, FARM MACHINERY, AND EQUIPMENT¹ AS A PERCENTAGE OF TOTAL FARM EXPENDITURE, BY TYPE AND ECONOMIC CLASS OF COMMERCIAL FARM, FOR THE UNITED STATES: 1955

Type of farm	Total	Economic class of farm		
		I and II	III through VI	
		Percent	Percent	Percent
All commercial farms	27.7	21.9	34.2	
Cash-grain.....	42.1	36.2	44.9	
Cotton.....	32.3	27.0	39.0	
Other field-crop.....	29.7	19.0	39.3	
Vegetable.....	16.3	13.4	22.7	
Fruit-and-nut.....	20.7	17.0	29.3	
Dairy.....	28.7	21.9	32.8	
Poultry.....	10.2	8.0	14.9	
Livestock other than dairy and poultry.....	22.7	18.0	29.5	
General:				
Primarily crop.....	30.6	26.2	37.9	
Primarily livestock.....	31.6	27.8	35.0	
Crop and livestock.....	32.0	26.4	36.0	
Miscellaneous.....	17.0	11.6	33.2	

¹ Purchase of motor vehicles, farm machinery and equipment, petroleum products, and repairs, and other operating costs.

On the smaller economic classes the proportions were even higher, accounting for a third or more of the total expenses for most types of farms. In Economic Classes III through VI motor vehicle and machinery costs amounted to 45 percent of the total cash farm expenses for cash-grain farmers and 39 percent for cotton and other field-crop farmers.

Census Specified Expenses

The 1954 Census of Agriculture obtained data on the following farm expenditure items: Hired labor, machine hire, feed for livestock and poultry, gasoline and other petroleum fuel and oil, and commercial fertilizers and liming material. The individual expense items obtained by the Census for type by economic class of farm are not shown separately in this chapter but appear in volume III, part 8, of the Census of Agriculture.

The average per farm of the total specified expenses and the proportion they comprise of the total value of farm products sold are shown for each type of farm by economic class in table 48. By type of farm the average expenditure ranged from about \$1,300 for other field-crop farms to over \$7,000 for vegetable and poultry farms. The specified farm expenses amounted to 37 percent of the value of farm products sold for commercial farms as a group, but this varied considerably by type of farm—from a fourth on cash-grain farms to nearly three-fourths on poultry farms. Also, the specified expenses were higher, relative to sales, on the smaller economic classes of farms for most types. This is influenced by the higher proportion of the farm products produced on these farms that are consumed in the home rather than sold.

TABLE 48.—SPECIFIED FARM EXPENSES, AVERAGE PER FARM AND AS A PERCENTAGE OF THE TOTAL VALUE OF FARM PRODUCTS SOLD, BY TYPE OF FARM BY ECONOMIC CLASS, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
Specified expenses per farm:¹							
All commercial farms..... dollars.....	2,674	21,368	5,251	2,558	1,380	752	386
Cash-grain.....do.....	2,076	9,956	3,356	1,865	1,168	756	433
Cotton.....do.....	1,588	23,461	5,466	2,237	943	472	249
Other field-crop.....do.....	1,330	23,912	5,149	1,963	945	502	235
Vegetable.....do.....	7,548	47,144	7,510	3,309	1,636	894	459
Fruit-and-nut.....do.....	4,680	21,494	4,997	2,475	1,338	777	449
Dairy.....do.....	2,965	38,393	6,269	2,944	1,564	893	453
Poultry.....do.....	7,160	35,695	11,588	5,635	3,043	1,462	582
Livestock other than dairy and poultry.....dollars.....	3,116	17,734	4,962	2,733	1,765	1,029	527
General:							
Primarily crop.....do.....	2,719	24,260	4,718	2,344	1,293	721	350
Primarily livestock.....do.....	2,250	19,400	5,365	2,795	1,660	984	504
Crop and livestock.....do.....	2,176	16,365	4,517	2,844	1,635	871	461
Miscellaneous.....do.....	4,566	25,474	4,736	2,120	1,213	643	337
Specified expenses as a percent of the value of farm products sold:							
All commercial farms.....percent.....	36.6	36.8	35.3	35.6	37.3	30.6	50.3
Cash-grain.....do.....	24.9	21.8	22.7	25.5	30.4	29.6	53.6
Cotton.....do.....	32.0	33.6	35.6	33.0	27.6	36.7	32.4
Other field-crop.....do.....	30.4	40.1	41.5	28.4	25.4	29.1	29.2
Vegetable.....do.....	47.1	46.5	48.6	46.5	46.0	51.5	58.5
Fruit-and-nut.....do.....	32.5	32.7	31.1	31.7	33.1	38.1	56.3
Dairy.....do.....	44.5	52.6	44.2	40.9	41.8	47.3	57.5
Poultry.....do.....	73.7	71.0	73.7	76.7	79.9	77.8	87.4
Livestock other than dairy and poultry.....percent.....	35.3	30.5	32.7	37.3	45.5	51.1	75.5
General:							
Primarily crop.....do.....	36.9	37.1	35.0	35.6	37.9	42.2	47.6
Primarily livestock.....do.....	41.4	48.9	37.6	37.9	44.7	52.2	62.1
Crop and livestock.....do.....	34.8	34.5	32.0	32.9	28.9	46.4	55.9
Miscellaneous.....do.....	34.9	36.2	31.4	31.0	34.3	33.1	45.0

¹ Includes the following expenses: Cash wages, machine hire, feed for livestock and poultry, fuel and other petroleum products, and commercial fertilizer and liming materials.

Relation of Census Specified Expenses to Total Farm Expenses

The 1954 Census of Agriculture obtained specified farm expenses for the year 1954. Data from the Farm Expenditure Survey relate to 1955. Because of the different years involved the two series of data may not be compared directly. However, in the light of data from the Farm Expenditure Survey it is possible to make a meaningful evaluation of the Census specified expenses to appraise how representative they are of total expenses. For this purpose, the categories of expenses from the Farm Expenditure Survey which correspond to the Census specified items have been computed as a proportion of total current cash expenses (exclusive of capital expenditures). These percentages for types of farms by specified economic classes are shown in table 49.

On the basis of relationships from the Farm Expenditure Survey, the farm expenses obtained by the 1954 Census of Agriculture comprised slightly more than half of the total cash farm expenses of commercial farmers. The Census specified expenses accounted for a high of approximately three-fourths of the total expenses for poultry farmers and nearly three-fifths for those of cotton, other field-crop, dairy, and general livestock farmers. In contrast, these expenses amounted to less than half of the total expenses of cash-grain and other livestock producers.

There was little difference in this respect between the two size groups for most types of farms. Notable exceptions are dairy farms and other livestock farms. Among dairy farms the Census specified expenses accounted for a greater proportion of total expenses for the larger economic classes. This was due partly to the higher expenditure for feed reported by the larger farms. For other livestock farms the Census specified expenses comprised a greater proportion of total expenses on the smaller economic classes. This was partly because the Census specified expenses did not include the expense for purchase of livestock and poultry. As mentioned previously, this was a much more important expense on the larger than on the smaller economic classes of farms.

TABLE 49.—SPECIFIED GROUP OF FARM EXPENSE ITEMS AS A PERCENTAGE OF THE TOTAL CASH FARM EXPENSES, BY TYPE OF FARM BY ECONOMIC CLASS, FOR THE UNITED STATES: 1955¹

Type of farm	Total	Economic class of farm		
		I and II	III through VI	
		Percent	Percent	Percent
All commercial farms.....				
		54.2	53.8	54.7
Cash-grain.....		48.6	49.3	47.9
Cotton.....		37.8	56.8	59.3
Other field-crop.....		58.9	57.8	60.0
Vegetable.....		61.5	52.8	58.9
Fruit-and-nut.....		53.9	53.0	56.4
Dairy.....		89.3	64.7	55.8
Poultry.....		73.9	75.9	69.8
Livestock other than dairy and poultry.....		46.8	43.4	52.5
General:				
Primarily crop.....		55.2	53.1	58.7
Primarily livestock.....		57.7	61.7	56.2
Crop and livestock.....		52.2	51.0	53.1
Miscellaneous.....		56.8	58.2	45.0

¹ The following expenses, cash wages, machine hire, feed for livestock and poultry, fuel and other petroleum products, and commercial fertilizer and liming materials, were divided by the total cash farm expenses (including those for construction, land improvement, and purchase of motor vehicles, farm machinery and equipment).

Estimated Value Added

It is not possible with existing data to make precise determinations of productivity and returns for types and economic classes of commercial farms. There are several important limitations. Foremost of these is that the specified farm expenses obtained in the Census of 1954 are not equally representative of total expenses for different types and economic classes of farms. An additional limitation is that data on farm sales obtained by the Census are not complete, largely because of omissions by farmers in the reporting of sales of livestock and livestock products. Still another limitation relates to the fact that the classifications of farms by type and by economic class are based on the value of farm products sold in the particular year 1954. Thus, a farm's type or economic class is affected by any abnormalities in yields or sales from inventories as well as the relative price relationships between commodities in 1954.

Notwithstanding these limitations, an attempt has been made here to estimate differences between types and economic classes of farms in the value of farm products sold minus the cost of the material and contract services used in producing the products. This is an approximation of the value added by agriculture and will be referred to hereafter as value added.

The estimate of value added was made in order to provide additional insight into the structural differences in farming. Technological changes in farming have brought about a substantial increase in farm production but this has been accompanied by larger cash costs in farming. Farmers now purchase many materials for use in further production that they formerly produced for themselves. The value of products sold is not a satisfactory measure of the relative productivity of a given type or size of farm because only a part of this value is actually created within the farm. Value added, as used here, attempts to correct for the widely different input-output relationships that exist in respect to types and sizes of farms. It is thought that the estimate of value added may be useful for a broad appraisal of productivity differentials within the various segments of commercial agriculture.

In developing the estimate of value added, the Census specified expenses (excluding cash wages) were expanded to reflect several additional expense items. The expansion was made on the basis of data from the Farm Expenditure Survey, discussed previously. The adjusted expenses for each type and economic class of farm were then subtracted from the total value of farm products sold.

The Census expense items—machine hire, feed for livestock and poultry, gasoline and other petroleum fuel and oil, and commercial fertilizer and liming materials—were expanded to include expenditures for the following items: Livestock and poultry, seeds, plants and trees, and repairs and other operating costs for motor vehicles and farm machinery. The factor used in expanding the Census expense items was the percentage the former 4 items comprised of the larger category of 7 items as determined by data from the Farm Expenditure Survey. These percentages for each type of commercial farm are as follows:

Type of farm	Expansion factor	Type of farm	Expansion factor
	Percent		Percent
All commercial farms.....	62.5	All commercial farms—Con.	52.6
Cash-grain.....	26.8	Livestock other than dairy and poultry.....	71.0
Cotton.....	61.8	General, primarily crop.....	62.3
Other field-crop.....	64.9	General, primarily livestock.....	71.0
Vegetable.....	60.2	General, crop and livestock.....	62.1
Fruit-and-nut.....	67.7	Miscellaneous.....	42.7
Dairy.....	74.3		
Poultry.....	86.4		

The totals of the Census expense items (excluding cash wages) for each type of farm by economic class were divided by the percentages shown in the previous table. The expanded expenditure data were then subtracted from the value of farm products sold.

It will be noted that the farm expenses, as adjusted, do not include several items commonly included in current cash expenses; namely, marketing charges, interest, taxes, and other miscellaneous expenses. Interest and taxes are quite properly excluded from the value added concept. These are charges to capital and do not represent materials used in further production. Marketing cost and other miscellaneous farm expenses would normally be deducted.

Marketing costs were omitted because of the possible duplication of this expense in the value of farm products sold. The total value of farm products, as reported by the Census, has some of the marketing charges deducted. Farmers, in reporting their sales of farm products are likely to report the value received after freight, handling, and commission charges have been deducted. Under the procedure employed by the Census of Agriculture, each farmer was asked to report the value of livestock, livestock products, vegetables, horticultural specialties, and forestry products sold. It is believed that the values reported for these products tend to have a large part of the marketing costs deducted. On the other hand, for field crops and fruits and nuts, each farmer reported the quantity sold and the market value was computed as part of the office procedure by applying average unit prices. Values computed on this basis would more nearly represent market values before any deduction.

Miscellaneous farm expenses (not included elsewhere) were excluded from the estimate because this category is composed of a large variety of minor items. Some of these include expenses not attributable to the farm business; others are capital and management services whose inclusion would be questionable. It was believed that exclusion of this category would not affect greatly the comparability of the estimates between types and economic classes of farms.

The value added per farm is shown in table 50. Value added, as estimated here, amounted to \$4,088 per commercial farm in 1954. This was 56 percent of the gross value of farm products sold. By type of farm, value added was highest for vegetable and fruit-and-nut farms, averaging about \$12,000 per farm. These types were also highest in the average value of farm products sold. (See table 26 for comparisons.) Poultry farms, also among the highest in the average value of farm products sold, were lowest in the value added, averaging only \$1,300 per farm. Most other types ranged between \$3,000 and \$5,000 in value added.

TABLE 50.—ESTIMATED VALUE ADDED PER FARM BY TYPE OF FARM BY ECONOMIC CLASS, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
All commercial farms.....	4,088	37,155	8,347	2,760	1,877	817	217
Cash-grain.....	5,392	34,801	10,010	4,451	2,015	709	96
Cotton.....	3,536	52,804	10,906	4,736	2,373	1,168	421
Other field-crop.....	3,040	45,018	10,408	4,888	2,651	1,317	301
Vegetable.....	11,553	76,956	16,561	4,536	1,969	739	160
Fruit-and-nut.....	12,146	57,636	13,510	6,273	3,146	1,421	417
Dairy.....	3,303	23,551	7,483	3,679	1,819	765	210
Poultry.....	1,324	9,432	1,966	604	151	114	(?)
Livestock.....	3,936	32,220	7,309	2,813	943	144	(?)
General:							
Primarily crop.....	4,742	47,787	8,716	3,999	1,814	769	250
Primarily livestock.....	2,536	15,728	7,558	3,666	1,506	576	135
Crop and livestock.....	3,297	30,729	8,164	3,812	1,607	666	142
Miscellaneous.....	10,749	62,101	12,651	4,873	2,679	849	164

¹ Expenses exceeded the value of farm products sold.

Among farms in each economic class there is much greater variation between types in the value added than in the total value of farm products sold. Value added, as a proportion of total sales, varies considerably between types of farms for each economic class (see table 51). It is highest on fruit-and-nut farms for each economic class of farm. In general, value added was a higher proportion of the gross sales for farms with a major source of income from sales of field crops and vegetables than for livestock types. It comprised the lowest proportion of gross sales on poultry farms.

Value added was a greater proportion of farm sales on the larger than on the smaller economic classes of farms for each type. This is influenced to a large extent by the measure of value added being based upon farm products sold rather than the total value of products produced. On the smaller economic classes of farms a substantial part of the production is consumed on the farm.

TABLE 51.—ESTIMATED VALUE ADDED AS A PERCENT OF THE TOTAL VALUE OF FARM PRODUCTS SOLD, BY TYPE OF FARM BY ECONOMIC CLASS: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
		Per-	Per-	Per-	Per-	Per-	Per-
		cent	cent	cent	cent	cent	cent
All commercial farms.....	56.0	64.1	56.1	52.4	49.6	44.1	28.7
Cash-grain.....	64.6	75.9	67.7	60.6	57.4	37.1	12.3
Cotton.....	71.3	75.8	70.7	69.6	69.4	66.2	54.7
Other field-crop.....	71.1	75.6	69.7	70.7	71.3	68.4	62.2
Vegetable.....	72.0	76.0	68.3	61.6	56.1	42.5	25.3
Fruit-and-nut.....	84.3	86.8	84.0	80.4	76.6	69.6	52.3
Dairy.....	40.6	50.9	52.8	51.8	48.6	46.6	26.7
Poultry.....	13.7	16.1	12.5	8.2	4.0	6.1	(¹)
Livestock.....	44.6	55.4	47.9	38.6	2.5	7.8	(¹)
General:							
Primarily crop.....	64.4	73.0	64.7	59.1	53.2	45.0	34.0
Primarily livestock.....	47.0	48.2	53.0	50.5	40.5	39.5	16.6
Crop and livestock.....	52.8	54.7	57.8	53.2	43.6	32.3	17.2
Miscellaneous.....	81.9	67.5	78.7	71.2	58.8	46.4	21.9

¹ Expenses exceeded the value of farm products sold.

Value added per man-equivalent.—When converted to a man-equivalent basis, value added becomes a reasonably good measure of labor productivity. At prevailing levels of prices for farm products and costs of materials used in further production, it is a measure of efficiency in the use of labor resources. Value added per man-equivalent amounted to \$2,800 for commercial farms as a group. (See table 52.) It was highest on fruit-and-nut and cash-grain farms, averaging \$1,900 and \$1,400, respectively.

TABLE 52.—ESTIMATED VALUE ADDED PER MAN-EQUIVALENT BY TYPE OF FARM, BY ECONOMIC CLASS, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
		Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
All commercial farms.....	2,800	6,855	4,612	2,629	1,446	750	269
Cash-grain.....	4,384	11,271	6,529	3,602	2,035	854	163
Cotton.....	2,080	6,812	4,345	2,449	1,412	834	348
Other field-crop.....	2,096	5,211	4,301	2,731	1,767	1,068	468
Vegetable.....	3,226	4,318	2,941	2,108	1,371	694	148
Fruit-and-nut.....	1,939	6,230	5,136	3,896	2,859	1,652	425
Dairy.....	2,294	4,763	3,803	2,289	1,459	729	212
Poultry.....	1,141	3,480	1,375	534	161	148	(¹)
Livestock.....	3,028	9,546	4,540	2,115	842	304	(¹)
General:							
Primarily crop.....	2,945	6,626	4,211	2,555	1,451	769	260
Primarily livestock.....	1,981	5,047	4,478	2,539	1,195	549	148
Crop and livestock.....	2,467	7,097	4,692	2,684	1,275	595	126
Miscellaneous.....	3,367	5,653	4,304	2,936	1,792	987	173

¹ Expenses exceeded the value of farm products sold.

Most other types of farms ranged between \$2,000 and \$3,000 value added per man-equivalent. The exception was poultry farms with about \$1,100 per man-equivalent.

Value added per man-equivalent was highest for Class I farms of each type and decreased with each successively smaller economic class. On Classes V and VI farms it was far below the average for commercial farms as a group.

Value added per \$1,000 of capital investment.—This is a measure of efficiency in the use of capital resources. The value added was divided by the total investment in land and buildings, machinery and equipment, and livestock inventory. This is expressed in terms of value added for each \$1,000 of total capital investment in table 53.

In general, farms with a major source of income from fruits and nuts, vegetables, and field crops had a higher product added per unit of capital used than types with a major source of income from livestock and livestock products. The exception was cash-grain farms.

TABLE 53.—ESTIMATED VALUE ADDED PER \$1,000 OF CAPITAL INVESTMENT IN LAND AND BUILDINGS, MACHINERY AND LIVESTOCK INVENTORY, BY TYPE OF FARM BY ECONOMIC CLASS, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
		Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
All commercial farms.....	124	225	127	102	86	62	27
Cash-grain.....	110	183	124	96	71	39	8
Cotton.....	222	271	186	189	214	185	166
Other field-crop.....	298	339	231	244	241	188	100
Vegetable.....	257	351	197	139	98	52	18
Fruit-and-nut.....	235	318	219	170	122	70	32
Dairy.....	127	203	149	126	95	58	24
Poultry.....	74	213	83	35	11	6	(¹)
Livestock.....	80	168	93	59	29	6	(¹)
General:							
Primarily crop.....	132	218	128	108	86	50	25
Primarily livestock.....	92	172	139	104	65	36	13
Crop and livestock.....	97	188	124	96	64	38	14
Miscellaneous.....	326	626	256	161	99	52	16

¹ Expenses exceeded the value of farm products sold.

Cash-grain farms, among the highest in value added per man-equivalent, were among the lowest in value added per unit of total investment. Cotton and other field-crop farms were among the lowest in value added per man-equivalent but were relatively high in value added per capital investment. For fruit-and-nut farms the value added was relatively high on both bases. It was relatively low on both bases for dairy, poultry, and other livestock farms.

By economic class of farm the value added per unit of total investment is highest on Class I farms and decreases with each successively smaller economic class. For most types, however, the differences between economic classes are relatively small compared to the substantial differences between these classes in the value added per man-equivalent.

Due to the limitations involved in making these estimates, no precise conclusion may be drawn regarding the specific amounts of value added per man-equivalent or per dollar of investment. However, it appears reasonable to conclude that (1) value added per man-equivalent and per dollar of investment is extremely low on the smaller economic classes of farms; low in relation to agriculture as a whole and also in relation to that obtained in nonfarm sectors of the economy and (2) for any given type of farm their amounts are directly associated with the size of the farm business.

Home Facilities

The measures of value added, discussed previously, are useful primarily in showing efficiency differentials in agriculture. They are not measures of farm income. However, due to the small volume of sales (and lesser amounts of value added) on the smaller economic classes of farms, it is probable that incomes from farming are fairly low.

An indirect measure of income is found in the levels of living of farm-operator families as indicated by home facilities. The data and discussion which follow relate some of these to types and economic classes of farms.

Electricity.—Most of rural America had electricity in the homes in 1954—nearly 94 percent of all commercial farms. (See table 54.) More than 90 percent of each type of farm except cotton reported electricity. Among farms of each type the proportion reporting electricity decreased with decreasing size of farm (measured by gross sales of farm products). Even on Class VI farms, however, more than four-fifths of each type reported electricity, except cotton farms, of which about three-fourths had electricity in the homes.

TABLE 54.—PERCENT OF FARMS REPORTING ELECTRICITY BY TYPE OF FARM BY ECONOMIC CLASS, FOR THE UNITED STATES: 1954

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
All commercial farms.....	93.8	97.5	97.9	97.4	95.6	91.2	84.2
Cash-grain.....	94.2	97.3	97.6	96.1	94.1	89.5	84.4
Cotton.....	86.8	97.1	97.1	96.2	92.0	86.4	76.3
Other field-crop.....	91.8	97.3	98.1	97.5	95.3	90.4	82.2
Vegetable.....	94.1	92.7	96.9	96.9	95.8	94.1	89.3
Fruit-and-nut.....	93.6	96.5	94.2	94.0	92.3	92.8	91.6
Dairy.....	97.3	99.3	98.6	99.1	98.3	95.7	89.0
Poultry.....	97.6	98.9	99.3	99.3	97.8	97.5	94.3
Livestock other than dairy and poultry.....	95.0	97.3	98.0	97.2	95.6	93.2	88.8
General:							
Primarily crop.....	93.4	98.1	97.8	96.9	95.0	91.5	83.7
Primarily livestock.....	95.3	100.0	99.9	99.2	96.5	95.8	86.5
Crop and livestock.....	97.0	98.4	98.8	98.4	96.2	93.1	89.9
Miscellaneous.....	94.5	98.1	96.7	96.9	95.1	93.5	87.7

Index of home facilities.—The 1954 Census of Agriculture obtained information relating to whether certain facilities and conveniences were in the farm home. The existence of these facilities in farm homes provides a general indication of levels of household living. As a means of comparing the relative extent to which operator families on different types and economic classes of farms have been able to have these home conveniences, they are being summarized into an index of home facilities. (See table 55.)

The index is based on the following items: Telephone, television, piped running water, home freezer, and automobile. Electricity in the home was not included since several of the other items are directly related to the availability of electricity there and it is known that electricity is now available in most of the farm-operator homes. The automobile is not thought of as a household

facility in the same sense as the other items. As a means of transportation, however, it represents a convenience that is important in indicating relative levels of living.

In computing the index, the sum of the farms reporting each item for each type and class of farm was divided by the total number of farms in the group. On this basis the highest possible score (if each farm in the group reported each item) was 5. The score obtained for each type and economic class of farm was then divided by the score for all commercial farms; thus, the index is constructed to show each type and economic class of farm as a percentage of the average for all commercial farms.

TABLE 55.—INDEX OF SPECIFIED HOME FACILITIES, COMMERCIAL FARMS BY ECONOMIC CLASS AND TYPE, FOR THE UNITED STATES: 1954

[Total commercial farms=100]

Type of farm	Total	Economic class of farm					
		I	II	III	IV	V	VI
All commercial farms.....	100	153	145	124	96	75	52
Cash-grain.....	117	153	143	123	106	98	74
Cotton.....	48	147	122	83	51	36	24
Other field-crop.....	69	152	132	89	62	50	32
Vegetable.....	116	145	150	134	119	104	107
Fruit-and-nut.....	125	150	140	130	120	113	87
Dairy.....	121	166	157	140	117	94	65
Poultry.....	120	152	135	125	119	115	92
Livestock other than dairy and poultry.....	116	155	147	129	113	101	71
General:							
Primarily crop.....	97	154	137	111	90	81	63
Primarily livestock.....	115	166	152	133	112	96	73
Crop and livestock.....	111	160	149	127	105	87	63
Miscellaneous.....	114	147	139	128	113	101	71

1 Index based on farms reporting 1 or more of the following items of specified facilities and equipment: Telephone, television set, piped running water, home freezer, and automobile.

With the exception of cotton and other field-crop farms, each type of farm was above or approximately equal to the average for all commercial farms. The indexes of 48 on cotton farms and 60 on other field-crop farms indicate that these farms reported only about half as many of the specified facilities as most other types.

Within each type of farm the level of home conveniences was related to economic class of farm. This is to be expected since the economic classification based upon gross sales may indicate roughly relative levels of income. Home facilities and conveniences depend largely upon the incomes the families on these farms have at their disposal. For most types of farms the operators on Class V and Class VI farms reported only one-fourth to one-third as many of the specified items.

The fact of fewer home facilities on cotton and other field-crop farms is due chiefly to the much larger proportion of these types that fall in the smaller economic classes. Classes I and II cotton and other field-crop farms have an index that is fairly similar to the commercial farm average for these classes. For Classes III through VI, however, the indexes for cotton and other field-crop farms were substantially below the indexes for these classes among other types.

