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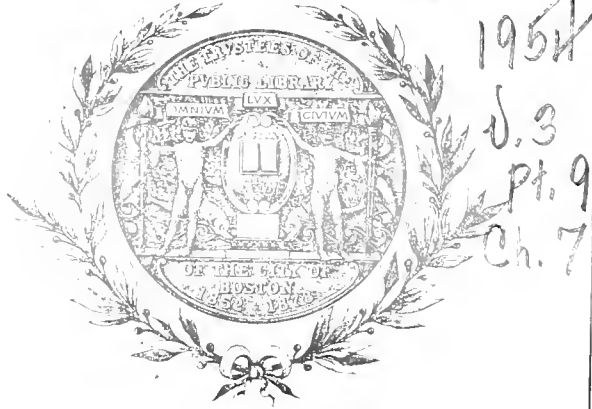


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# FARMERS AND FARM PRODUCTION IN THE UNITED STATES (A COOPERATIVE REPORT)

Cash-Grain and Livestock  
Producers in the Corn Belt



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



✓ Part 20 of 1

# United States Census of Agriculture: 1954

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*

## Volume III SPECIAL REPORTS

Part 9

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

Chapter VII

Cash-Grain and Livestock  
Producers in the Corn Belt

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



BUREAU OF THE CENSUS  
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Classified  
 Superintendent's Report  
 1954

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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. Sanderson, 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*

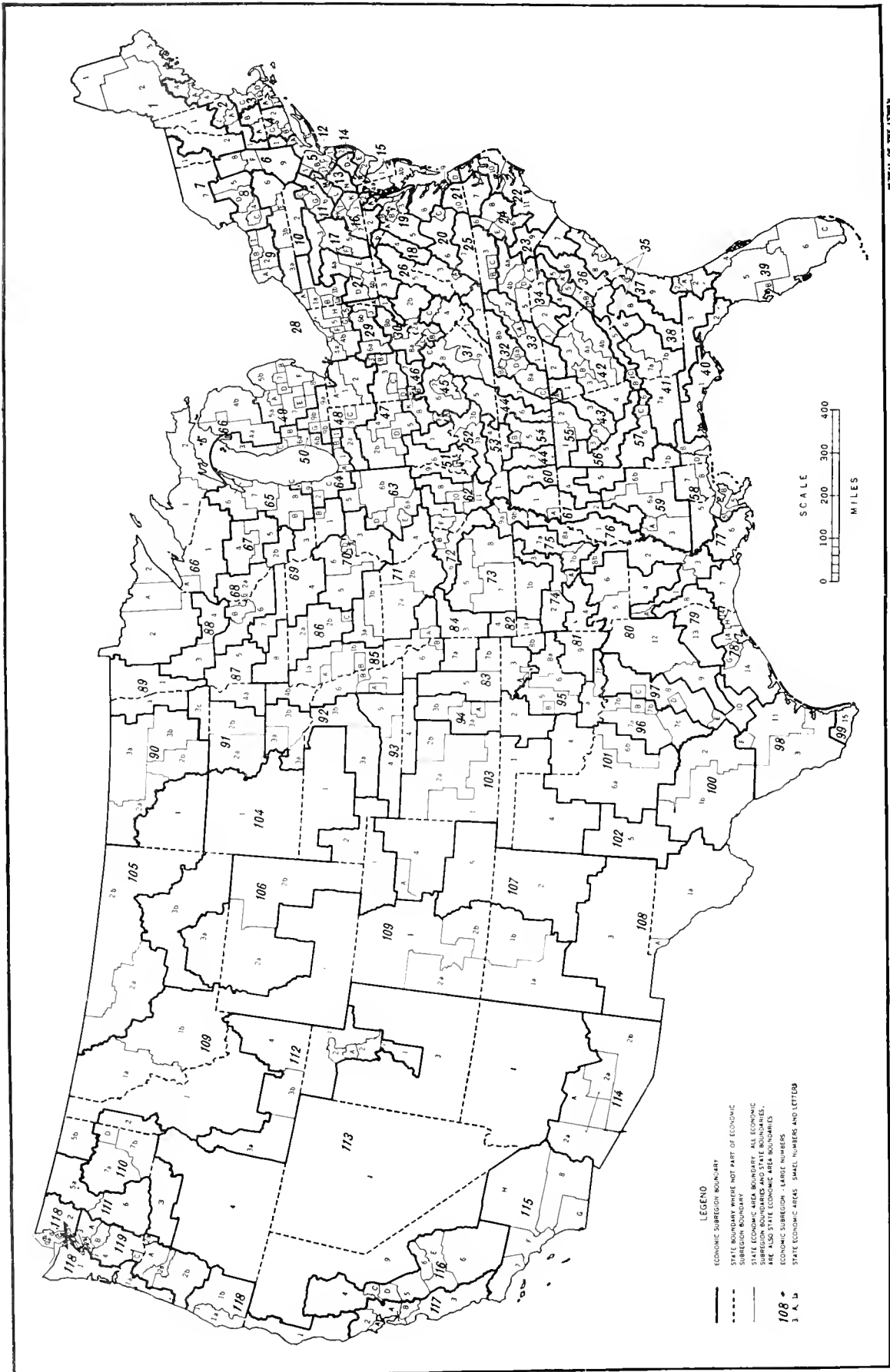
**Part 10.—Use of Fertilizer and Lime.** The purpose of this report is to present in one publication most of the detailed data compiled for the 1954 Census of Agriculture regarding the use of fertilizer and lime. The report presents data for counties, State economic areas, and generalized type-of-farming 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



DEPARTMENT OF COMMERCE

DEPARTMENT OF COMMERCE

## 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 non-farm 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— <ul style="list-style-type: none"> <li>(a) Milk and other dairy products accounted for 30 percent or more of the total value of products sold, and</li> <li>(b) Milk cows represented 50 percent or more of all cows, and</li> <li>(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.</li> </ul>
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.

*Product or group of products amounting to 50 percent or more of the value of all farm products sold*

*Type of farm*

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 and 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 balers (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 soy-bean, 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 enumera-

tion (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.<sup>1</sup> 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.

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



## CHAPTER VII

# CASH-GRAIN AND LIVESTOCK PRODUCERS IN THE CORN BELT

(1)

# CONTENTS

	<i>Page</i>		<i>Page</i>
Introduction.....	5	Crop production.....	36
The Corn Belt.....	5	Crops grown.....	36
Significance of the Corn Belt in American agriculture.....	6	Yields per acre.....	42
Regions within the Corn Belt.....	7	Crop sales.....	43
Types of farming.....	8	Use of commercial fertilizer and lime.....	45
Farm organization in the Corn Belt.....	9	Commercial fertilizer.....	45
Type of farm.....	9	Lime.....	48
Economic class of farm.....	11	Livestock production.....	50
Size of farm.....	12	Kind and number of livestock.....	50
Residence and tenure of farm operators.....	15	Sales of livestock and livestock products.....	53
Type of land.....	18	Gross sales and income.....	57
Land use.....	20	Specified expenses.....	59
Capital investment on farms.....	24	Investment cost.....	62
Total investment.....	24	Indicators of farm efficiency.....	63
Land and buildings.....	25	Production per unit of land.....	63
Livestock.....	27	Capital inputs and product output per acre.....	64
Machinery and equipment.....	27	Production per unit of labor.....	66
Horses and mules.....	31	Production per unit of capital.....	67
Automobiles and home facilities.....	31	Literature cited.....	68
Farm labor.....	32		
Characteristics of operators.....	32		
Size and composition of labor force.....	34		

## MAPS

	<i>Page</i>		<i>Page</i>
Corn for all purposes, acreage, 1954.....	5	Grain combines, number of farms reporting, 1954.....	27
The Corn Belt.....	5	Power feed grinders, number of farms reporting, 1954.....	28
Value of all farm products sold, dollars, 1954.....	6	Corn harvested for grain, acreage, 1954.....	38
Value of all crops sold, dollars, 1954.....	6	Soybeans harvested for beans, acreage, 1954.....	39
Value of livestock and livestock products other than dairy and poultry sold, dollars, 1954.....	6	Oats threshed, acreage, 1954.....	39
Percent of total land area in farms, 1954.....	8	All wheat threshed, acreage, 1954.....	39
Commercial farms, number, 1954.....	9	Alfalfa cut for hay, acreage, 1954.....	40
Cash-grain farms, number, 1954.....	9	Clover or timothy cut for hay, acreage, 1954.....	40
Livestock farms, number, 1954.....	9	Average yield of corn per acre, bushels, 1954.....	42
General farms, number, 1954.....	9	Farms reporting expenditures for commercial fertilizers as a percent of all farms, 1954.....	45
Average size of farms, 1954.....	13	Farms reporting expenditures for lime and liming materials as a percent of all farms, 1954.....	48
Farms operated by full owners, number, 1954.....	17	Cattle sold, number of cattle and calves sold alive, 1954.....	53
Farms operated by part owners, number, 1954.....	17	Hogs sold, number of hogs and pigs sold alive, 1954.....	54
Farms operated by all tenants, number, 1954.....	17	Chicken eggs sold, dozens, 1954.....	54
Most frequent method of renting farms, 1954.....	18	Turkeys raised, number, 1954.....	54
Total cropland as a percent of all land in farms, 1954.....	19	Expenditures for livestock and poultry purchased, dollars, 1949.....	61
Cropland harvested, acreage, 1954.....	23	Average value of farm products sold per acre of all land in farms, 1954.....	65
Average value of land and buildings per acre, 1954.....	26		
Tractors on farms, number, 1954.....	27		
Corn pickers, number of farms reporting, 1954.....	27		

## TABLES

	<i>Page</i>
Table—	
1.—Total quantities of specified items for commercial farms in the United States and in the Corn Belt, showing percentage of United States total in the Corn Belt: 1954.....	6
2.—Comparison of totals for five Corn Belt States and the Corn Belt as used in the present study, with respect to specified items for commercial farms: 1954.....	7
3.—Percent of commercial farms reporting specified uses of cropland and specified crops harvested, in the Corn Belt and component regions: 1954.....	8
4.—Number of farms in the United States and in the Corn Belt, by broad economic class and type of farm: 1954.....	10
5.—Percent of farms in each broad economic class and type, for the United States and Corn Belt: 1954.....	10
6.—Number of all commercial farms, and number and percentage distribution of specified types of farms, in the United States and specified States: 1954.....	10
7.—Number of farms in each region of the Corn Belt, and percentage distribution among regions, by broad economic class and type of farm: 1954.....	10
8.—Percentage distribution of commercial farms, by type of farm, in the Corn Belt and component regions: 1954.....	11
9.—Number and percentage distribution of cash-grain farms, by economic class, in the United States and Corn Belt: 1954.....	11
10.—Number and percentage distribution of livestock other than dairy and poultry farms, by economic class, in the United States and Corn Belt: 1954.....	12

Table—	<i>Page</i>
11.—Specified items for commercial farms: Percentage distribution among principal types of farms, in the Corn Belt: 1954.....	12
12.—Number and percentage of commercial farms in specified acreage size groups, for the United States and Corn Belt regions: 1954..	12
13.—Percentage distribution of commercial farms among acreage size groups, in the Corn Belt and component regions: 1954.....	13
14.—Number of commercial farms in each acreage size group, in the Corn Belt: 1954.....	14
15.—Percentage of commercial farms in each acreage size group, in the Corn Belt: 1954.....	14
16.—Percentage distribution of types and economic classes of farms in each acreage size group, in the Corn Belt: 1954.....	15
17.—Number and percentage of commercial farm operators, by residence and tenure status, by type of farm, in the Corn Belt and component regions: 1954.....	16
18.—Number and percentage of commercial farm operators, by residence and tenure status, by type and economic class of farm, in the Corn Belt: 1954.....	16
19.—Acreage of all land in commercial farms and distribution of land among broad types or uses, in the Corn Belt and component regions: 1954.....	18
20.—Percent of commercial farms reporting broad types or uses of land, in the Corn Belt and component regions: 1954.....	18
21.—Land in commercial farms, by type and economic class, in the Corn Belt: 1954.....	19
22.—Cropland, woodland, and all other land as percentages of all land in commercial farms in the Corn Belt: 1954.....	19
23.—Total land in commercial farms, and distribution of acreage according to use, by type of farm, in the Corn Belt and component regions: 1954.....	20
24.—Percent of commercial farms reporting land in specified uses in the Corn Belt and component regions: 1954.....	20
25.—Average acreage per farms reporting: All land in farms and farmland in specified uses, on commercial farms in the Corn Belt and component regions: 1954.....	21
26.—Percentage distribution of farmland acreage according to use on commercial farms in the Corn Belt and component regions: 1954.....	21
27.—Percentage distribution of farmland acreage according to use on commercial farms in the Corn Belt: 1954.....	22
28.—Percentage distribution of farms and land in farms among economic classes of cash-grain and livestock farms in the Corn Belt: 1954.....	23
29.—Total capital investment, and composition of investment, on commercial farms in the Corn Belt and component regions: 1954..	24
30.—Value of capital investment per farm, and percentage composition, on principal types of farms in the Corn Belt and component regions: 1954.....	25
31.—Average value of capital investment per commercial farm in the Corn Belt and component regions: 1954.....	25
32.—Average value and composition of capital investment per commercial farm in the Corn Belt: 1954.....	25
33.—Average value of land and buildings per farm, for commercial farms, by type and economic class, in the Corn Belt and component regions: 1954.....	26
34.—Average value of land and buildings per acre, by type and economic class of farm, in the Corn Belt and component regions: 1954..	27
35.—Percent of commercial farms in each type reporting specified farm machines in the Corn Belt and component regions: 1954..	28
36.—Percent of commercial farms in each type, by economic class, reporting specified farm machines, in the Corn Belt: 1954.....	29
37.—Percent of commercial farms reporting, by type of work power and number of tractors, by type of farm, in the Corn Belt and component regions: 1954.....	29
38.—Percent of commercial farms reporting, by type of work power and number of tractors, by type and economic class of farm, in the Corn Belt: 1954.....	30
39.—Estimated average value of total investment in machinery and equipment, per commercial farm, in the Corn Belt and component regions: 1954.....	30
40.—Estimated value of total investment in machinery and equipment on commercial farms in the Corn Belt and component regions: 1954.....	30
41.—Percent of commercial farms in each type reporting specified facilities and equipment, in the Corn Belt and component regions: 1954.....	31
42.—Percent of commercial farms in each type, by economic class, reporting specified facilities and equipment, in the Corn Belt: 1954.....	31
43.—Number and percentage of commercial farm operators, by age, by type of farm, in the Corn Belt and component regions: 1954..	32
44.—Number and percentage of commercial farm operators, by age, by type and economic class of farm, in the Corn Belt: 1954..	32
45.—Number and percentage of commercial farm operators reporting as to other income and off-farm work, by type of farm, in the Corn Belt and component regions: 1954.....	33
46.—Number and percentage of commercial farm operators reporting as to other income and off-farm work, by type and economic class of farm, in the Corn Belt: 1954.....	33
47.—Number and percentage of commercial farms, by kind of farm workers, by type of farm, in the Corn Belt and component regions, in specified week: 1954.....	34
48.—Number and percentage of commercial farms, by kind of farm workers, by type and economic class of farm, in the Corn Belt, in specified week: 1954.....	34
49.—Labor force of farm workers, expressed in terms of average number of man-equivalents per farm, by type of farm, in the Corn Belt and component regions: 1954.....	35
50.—Labor force of farm workers, expressed in terms of average number of man-equivalents per farm, by type and economic class of farm, in the Corn Belt: 1954.....	35
51.—Percent of farms reporting specified crops, by type of farm, in the Corn Belt and component regions: 1954.....	36
52.—Percent of farms reporting specified crops, by economic class of farm, in the Corn Belt: 1954.....	37
53.—Percent of total cropland in specified crops, by type of farm, in the Corn Belt and component regions: 1954.....	38
54.—Average acreage of principal crops per farm reporting, by type of farm, in the Corn Belt and component regions: 1954.....	40
55.—Average acreage of principal crops per farm reporting, by type and economic class of farm, in the Corn Belt: 1954.....	41

	<i>Page</i>
56.—Quantity produced per farm reporting crop harvested, for principal crops, by type of farm in the Corn Belt and component regions: 1954.....	41
57.—Quantity produced per farm reporting for principal crops, by economic class of farm in the Corn Belt: 1954.....	42
58.—Average yield per acre harvested of principal crops, by type of farm in the Corn Belt and component regions: 1954.....	43
59.—Average yield per acre harvested of principal crops, by type and economic class of farm, in the Corn Belt: 1954.....	43
60.—Quantity sold as a percentage of total production, for specified crops in the Corn Belt, by type of farm: 1954.....	43
61.—Percentage distribution of value among crops sold, by type of farm, in the Corn Belt and component regions: 1954.....	44
62.—Percent of all commercial farms reporting expenditures for commercial fertilizer and use of commercial fertilizer on specified crops, by type of farm, in the Corn Belt and component regions: 1954.....	46
63.—Percent of all commercial farms reporting expenditures for commercial fertilizer and use of commercial fertilizer on specified crops, by type and economic class of farm, in the Corn Belt: 1954.....	47
64.—Use of commercial fertilizer and fertilizing material on commercial farms, by type of farm, in the Corn Belt and component regions: 1954.....	47
65.—Use of commercial fertilizer and fertilizing material on commercial farms, by type and economic class of farm, in the Corn Belt: 1954.....	48
66.—Use of lime and liming material on commercial farms, by type of farm, in the Corn Belt and component regions: 1954.....	49
67.—Use of lime and liming material on commercial farms, by type and economic class of farm, in the Corn Belt: 1954.....	49
68.—Number of specified livestock on commercial farms, by type of farm, in the Corn Belt and component regions: 1954.....	50
69.—Percent of commercial farms, by type, reporting specified kinds of livestock, in the Corn Belt and component regions: 1954.....	51
70.—Percent of farms in each type, reporting specified kinds of livestock, by economic class of farm, in the Corn Belt: 1954.....	51
71.—Average number of specified livestock per farm reporting, for commercial farms by type, in the Corn Belt and component regions: 1954.....	51
72.—Average number of specified livestock per farm reporting, by type of farm by economic class, in the Corn Belt: 1954.....	51
73.—Percent of farms reporting sales of specified livestock and livestock products, by principal types of farms, in the Corn Belt and component regions: 1954.....	53
74.—Percent of commercial farms reporting specified livestock and livestock products sold, by type and economic class of farm, in the Corn Belt: 1954.....	53
75.—Average value of specified livestock and livestock products sold per commercial farm reporting, in the Corn Belt: 1954.....	53
76.—Percentage composition of value of sales of specified livestock and livestock products on principal types of farms, in the Corn Belt and component regions: 1954.....	55
77.—Percentage composition of total value of sales of specified livestock and livestock products on commercial farms, by economic class, in the Corn Belt: 1954.....	55
78.—Value of sales of specified livestock and livestock products on commercial farms in the Corn Belt: 1954.....	56
79.—Value of whole milk and cream sold on principal types of commercial farms in the Corn Belt and component regions: 1954.....	56
80.—Average value of farm products sold, and percentage composition, for principal types of farms in the Corn Belt and component regions: 1954.....	57
81.—Average value of farm products sold, by economic class of farm, in the Corn Belt: 1954.....	58
82.—Percentage composition of value of farm products sold on commercial farms in the Corn Belt: 1954.....	58
83.—Percent of commercial farms reporting specified expenditures, by type of farm, in the Corn Belt and component regions: 1954.....	59
84.—Percent of commercial farms reporting specified expenditures, in the Corn Belt: 1954.....	60
85.—Average expenditure per commercial farm reporting each specified expense in the Corn Belt: 1954.....	60
86.—Total specified expenditures on commercial farms in the Corn Belt: 1954.....	60
87.—Percentage composition of total specified expenditures on commercial farms, by economic class, in the Corn Belt: 1954.....	61
88.—Average of total specified expenditures per commercial farm in the Corn Belt and component regions: 1954.....	61
89.—Estimated interest charge for capital investment per commercial farm, by major categories of investment, by type of farm, in the Corn Belt and component regions: 1954.....	62
90.—Estimated interest charge for capital investment per farm, by major categories of investment, by type and economic class of farm, in the Corn Belt: 1954.....	62
91.—Production of corn, soybeans, cattle, and hogs in relation to acreage of farmland, by type of farm, in the Corn Belt and component regions: 1954.....	63
92.—Production of corn, soybeans, cattle, and hogs in relation to acreage of farmland, by type and economic class of farm, in the Corn Belt: 1954.....	64
93.—Specified resource inputs and value of farm products sold in relation to land acreage, by type of farm, in the Corn Belt and component regions: 1954.....	64
94.—Specified resource inputs and value of farm products sold in relation to land acreage, by type and economic class of farm, in the Corn Belt: 1954.....	65
95.—Specified resources used and value of farm products sold, per man-equivalent of labor, by type of farm, in the Corn Belt and component regions: 1954.....	66
96.—Specified resources used and value of farm products sold, per man-equivalent of labor, by type and economic class of farm, in the Corn Belt: 1954.....	66
97.—Value of farm products sold per thousand dollars capital investment and per dollar of specified expenses, by type of farm, in the Corn Belt and component regions: 1954.....	67
98.—Value of farm products sold per thousand dollars of capital investment and per dollar of specified expenses, by type and economic class of farm, in the Corn Belt: 1954.....	67

# CASH-GRAIN AND LIVESTOCK PRODUCERS IN THE CORN BELT

EDWIN G. STRAND

## INTRODUCTION

Corn is the leading farm crop in the United States. It is the most widely grown American crop—being produced to some extent in every State. Its total acreage in the United States in 1954 was 78.1 million acres (fig. 1). This was 23.4 percent of the total cropland harvested. Generally, about 85 to 90 percent of the acreage is harvested for grain; the remainder is used for silage or fodder. The average annual production in 1950-56 was 2.8 billion bushels harvested for grain. This is a larger number of bushels than the total production of wheat or any other grain crop. Most of the corn (about 90 percent of the annual crop) is used for livestock feed. In recent years corn has accounted for about 60 percent of the total pounds of concentrates fed to livestock in this country. Other uses of corn are for starch, sirup, sugar, corn meal, grits, alcohol and distilled spirits, breakfast foods, other processed products, and direct consumption in farm households.

The major region of corn production is in the North Central States, centering on Iowa, Illinois, and Indiana. The five States—Ohio, Indiana, Illinois, Iowa, and Missouri—are generally known as the Corn Belt States. But the boundaries of the principal corn-producing region extend beyond the boundaries of the five-State area, particularly to the north and west. Actually, in recent years Minnesota has outranked Ohio and Missouri in bushels as well as in acreage of corn harvested for grain, and Nebraska has outranked Missouri in five of the last seven years. There has been an expansion of corn production to the north and west during the last two decades.

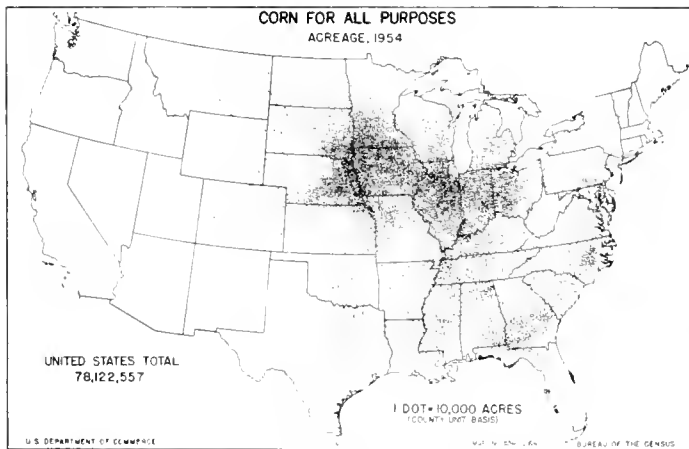


FIGURE 1.

<sup>1</sup> Economic subregions are groups of State economic areas that are generally similar as to economic features reflected in crop and livestock production and types of farming. State economic areas are groups of counties that are relatively homogeneous as to agricultural characteristics. Many of the data obtained in the 1950 Census of Agriculture and in the 1954 Census of Agriculture were grouped and tabulated by State economic areas and by economic subregions.

<sup>2</sup> Italic numbers in parentheses refer to literature cited on p. 68.

## THE CORN BELT

The area of the Corn Belt as the term is used in the present report was determined by grouping together the economic subregions in which corn production was most concentrated and in which there was a preponderance of cash-grain and livestock types of farms, which are the characteristic types of farms in the Corn Belt.<sup>1</sup> The location and boundaries of the Corn Belt are shown in figure 2.

The Corn Belt, as here outlined, is a somewhat larger region than the five Corn Belt States and coincides rather closely with the Corn Belt as outlined on the map of generalized types of farming in the United States (10).<sup>2</sup> The Corn Belt is bordered on the north by the Lake States dairy region and on the south by the principal region of general farming. It is bordered on the east by dairy and general-farming regions. On the southwest it merges into the winter-wheat region and on the northwest it tapers off into the spring-wheat region.

The Corn Belt includes farming areas in 12 States, but only Iowa is entirely within the area, and only small parts of Wisconsin, Michigan, and Kentucky are included. It stretches across a distance of about 1,000 miles from east to west and approximately 600 miles from south to north.

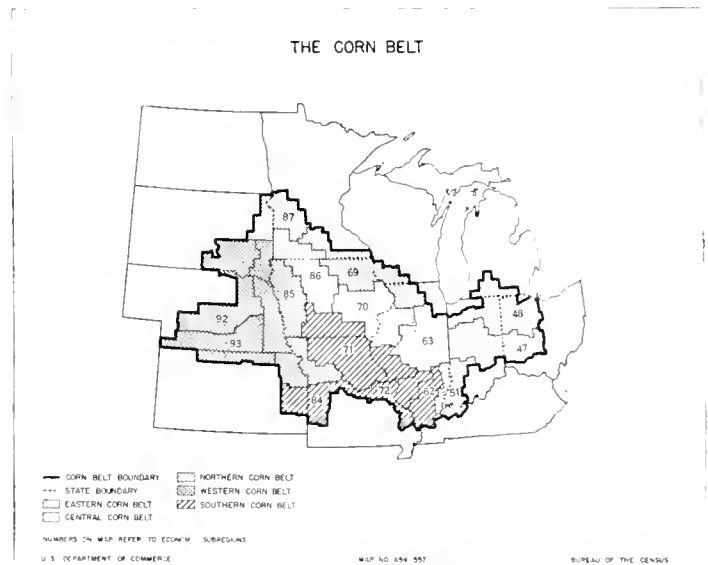


FIGURE 2.

The Corn Belt has fertile soils and a climate that is well suited to corn production. The topography and soils are far from uniform throughout the region. The annual precipitation varies considerably from east to west and to a lesser extent from south to north. There is also a difference from north to south of about 60 days in the length of the frost-free growing season. But the soils in general, and the prevailing moisture, the growing season, and other climatic characteristics are such that the tolerance limits for growth and development of the corn plant are not frequently or seriously exceeded. The natural environment is such that relatively large yields of corn are generally produced and this is generally the crop that brings the highest return to the farmer. Consequently, within the limits imposed by considerations of soil management, disease and insect control, and labor distribution—which are reflected in cropping sequences and crop rotations—corn generally is given the highest priority in choice of cropland by farmers of this region. Among the other principal crops grown in the Corn Belt, soybeans, oats, and forage crops are of major importance.

### SIGNIFICANCE OF THE CORN BELT IN AMERICAN AGRICULTURE

A large proportion of the total agricultural production in the United States comes from Corn Belt farms (table 1). In 1954, 28.2 percent of the total value of all farm products sold by commercial farms in the United States was accounted for by the Corn Belt. The value of farm products sold is not as great on a per square mile basis in the Corn Belt as it is in some other areas, but the Corn Belt is the largest area of relatively high value of products sold per unit of land (fig. 3).

TABLE 1.—TOTAL QUANTITIES OF SPECIFIED ITEMS FOR COMMERCIAL FARMS IN THE UNITED STATES AND IN THE CORN BELT, SHOWING PERCENTAGE OF UNITED STATES TOTAL IN THE CORN BELT: 1954

Item	United States	Corn Belt <sup>1</sup>	
		Quantity	Percent of United States
Farms.....number..	3,327,889	797,259	24.0
Land in farms.....acres..	1,032,493,352	170,307,389	16.5
Total cropland.....acres..	431,584,954	121,754,844	28.2
Cropland harvested.....acres..	321,586,517	104,377,594	32.5
Value of land and buildings millions of dollars..	85,728	26,741	31.1
Cash-grain farms.....number..	537,974	264,546	49.2
Livestock farms <sup>2</sup> .....number..	694,888	326,662	47.0
Corn harvested for grain.....acres..	63,394,112	39,358,892	62.1
bushels.....	2,547,823,454	1,833,157,374	71.9
Oats threshed or combined.....acres..	37,312,820	19,343,798	51.8
bushels.....	1,301,894,795	701,564,728	53.9
Wheat threshed or combined.....acres..	50,582,348	8,283,849	16.4
bushels.....	900,761,498	209,310,547	23.2
Soybeans harvested for beans.....acres..	16,189,376	11,773,052	72.7
bushels.....	322,324,503	260,452,666	80.8
All cattle and calves.....number..	88,843,964	22,907,509	25.8
All hogs and pigs.....number..	54,963,546	36,653,945	66.7
Chickens 4 months old and over.....number..	340,361,825	110,368,868	32.4
Chicken eggs sold.....dozens..	2,663,617,214	836,540,713	31.4
All sheep.....number..	30,176,438	5,423,998	18.0
Tractors.....number..	4,127,764	1,329,422	32.2
Motortrucks.....number..	2,223,443	448,745	20.2
Automobiles.....number..	3,199,713	912,208	28.5
Grain combines.....number..	950,341	410,200	43.2
Cornpickers.....number..	674,182	477,416	70.8
Pick-up hay balers.....number..	431,944	149,025	34.5
Field forage harvesters.....number..	197,628	61,289	31.0
Expenditures for hired labor.....dollars..	2,214,180,127	237,678,756	10.7
Expenditures for gasoline and other petroleum fuel and oil.....dollars..	1,312,642,381	385,651,642	29.4
Expenditures for commercial fertilizer.....dollars..	1,023,734,322	259,212,808	25.3
Value of all farm products sold.....dollars..	24,298,622,950	6,857,668,641	28.2
Value of all crops sold.....dollars..	11,955,045,301	2,479,582,915	20.7
Value of livestock and livestock products sold.....dollars..	12,223,361,628	4,374,939,331	35.8

<sup>1</sup> The Corn Belt is comprised of the following 15 economic subregions: 47, 48, 51, 62, 63, 69, 70, 71, 72, 84, 85, 86, 87, 92, and 93.

<sup>2</sup> Livestock other than dairy and poultry farms.

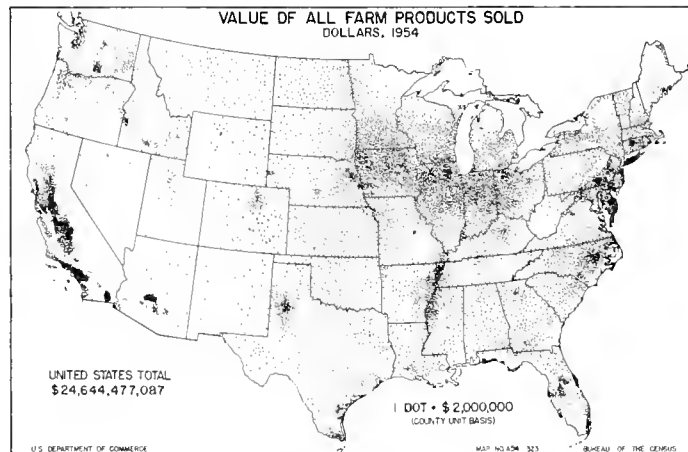


FIGURE 3.

The concentration of value of crops sold in the Corn Belt is not as great as the concentration of value of livestock and livestock products sold (figs. 4 and 5) because most of the cropland is used for growing feed crops and most of the feed produced is fed to livestock in the region. Commercial farms in the Corn Belt had 66.7 percent of all the hogs and pigs and 25.8 percent of all the cattle and calves on commercial farms in the United States in 1954 (table 1).

Approximately two-thirds of the acreage of corn harvested for grain on commercial farms in the United States in 1954 was in the Corn Belt and the production on this acreage was 71.9 percent of all the corn produced on commercial farms in the Nation. Corn Belt farms also had 72.7 percent of the total acreage of soybeans

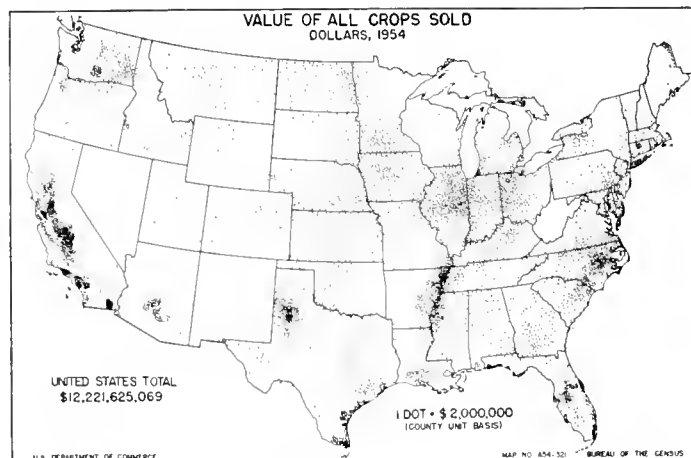


FIGURE 4.

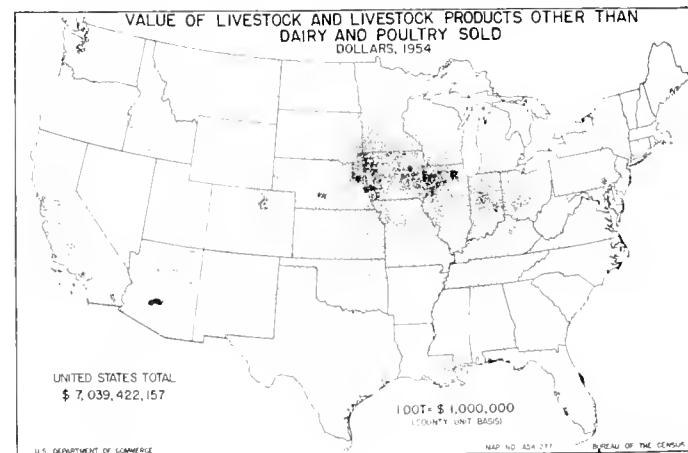


FIGURE 5.



harvested for beans on all commercial farms in the country and produced 80.8 percent of the soybean crop.

Approximately half of the cash-grain farms and livestock farms (other than dairy and poultry farms) in the United States in 1954 were in the Corn Belt. The total number of commercial farms in the Corn Belt was 797,259, or 24 percent of the United States total. Most of the labor on these farms was that of the operator and members of his family. Commercial farms in the Corn Belt accounted for only 10.7 percent of the total expenditure for hired labor on all commercial farms in the United States.

The Corn Belt as defined for this study and report contains a larger area of farmland and more commercial farms than are included in the five States usually referred to as the Corn Belt States (table 2). The Corn Belt as here defined also includes a larger proportion of the United States total production of principal Corn Belt crops and livestock. This results from the fact that the 15 economic subregions comprising the Corn Belt as presently outlined contain a total area somewhat larger than the area of the five Corn Belt States. Furthermore, the portions of Missouri, Indiana, and Ohio included in the economic subregions used here contain a larger proportion of commercial farms and of commercial farm acreage than do the excluded portions of those States. The economic subregions selected for inclusion in the Corn Belt were those in which types of farms and kinds of crops and livestock characteristic of the Corn Belt were relatively most concentrated.

TABLE 2.—COMPARISON OF TOTALS FOR FIVE CORN BELT STATES AND THE CORN BELT AS USED IN THE PRESENT STUDY, WITH RESPECT TO SPECIFIED ITEMS FOR COMMERCIAL FARMS: 1954

Item	Percentage of United States total accounted for by—	
	5 Corn Belt States <sup>1</sup>	The Corn Belt <sup>2</sup>
Number of farms.....	21.2	24.0
Acres of all land in farms.....	12.4	16.5
Number of cash-grain farms.....	38.1	49.2
Number of livestock farms <sup>3</sup> .....	39.4	47.0
Bushels of corn harvested for grain.....	57.4	71.9
Bushels of oats threshed or combined.....	38.0	53.9
Bushels of wheat threshed or combined.....	18.0	23.2
Bushels of soybeans harvested for beans.....	72.6	80.8
Number of cattle and calves sold alive.....	21.9	28.2
Number of hogs and pigs sold alive.....	58.7	69.7

<sup>1</sup> Ohio, Indiana, Illinois, Iowa, and Missouri.

<sup>2</sup> Total of 15 economic subregions. See footnote to table 1.

<sup>3</sup> Livestock other than dairy and poultry farms.

## REGIONS WITHIN THE CORN BELT

Because of the vast size of the Corn Belt and because of some rather important differences in the natural features and conditions of production from one part to another, the Corn Belt has been divided into five parts, or regions, for the purpose of this analysis and report (fig. 2).

**Eastern Corn Belt.**—The soils of most of the Eastern Corn Belt were developed under forest conditions. They usually are acid, with a rather thin organic top layer, and they are inherently less productive than the prairie soils to the west. The southwestern part of this region includes some hilly and relatively less productive land in addition to the alluvial soils of the Wabash and Ohio River Valleys. The average annual precipitation ranges from 45 inches in the southwestern to 35 inches in the northern part of the region. Commercial fertilizer and lime are used more extensively than in any other part of the Corn Belt.

More than half the commercial farms in this region have less than 140 acres of land. This region has been settled and farmed longer than most of the rest of the Corn Belt. Corn is the leading crop but occupies a smaller percentage of the cropland than in areas to the west. Wheat is grown on a larger percentage of the farms than in any other region of the Corn Belt. Soybeans for beans are grown to the largest extent in the northeastern and northwestern parts of this region.

**Central Corn Belt.**—The topography of most of the Central Corn Belt is level to slightly rolling. The most level portions are in east-central Illinois and in central Iowa. These are the areas where cash-grain farming is most concentrated. The central portion of this long diagonal region contains the largest proportion of rolling land, and in this area livestock farms predominate.

The soils over most of this region were developed from prairie vegetation and are deep, fertile, and rich in organic matter. Average annual precipitation ranges from 40 inches in the eastern end to 25 inches in the extreme western part, and it is usually well distributed through the growing season. The principal crops are corn, soybeans, and oats. Yields of crops are relatively high.

**Northern Corn Belt.**—In the Northern Corn Belt the topography and rainfall vary considerably from east to west. In the eastern part the rainfall is greater and the topography is rougher than in the western part. Soil erosion is a relatively serious problem in the eastern part, and some soils in this area have difficult drainage problems. Forage production, and hence beef and dairy production, are much more important in the eastern than in the western part of the region. Cash-grain farms are relatively most numerous in the western part where the land is more level and rainfall is more limiting for forage production. The principal crops, in addition to forage, are corn, oats, and soybeans.

The primary limiting factor determining the northern boundary of the Corn Belt is the length of the growing season. Development of hybrid corn adapted to a shorter growing season has pushed the northern boundary of the Corn Belt northward during the last 20 years.

**Western Corn Belt.**—The western boundary of the Corn Belt is determined principally by the supply of moisture, and particularly by the amount of rainfall during the growing season. Westward from the zone of 25 inches of average annual precipitation, corn rapidly loses its dominant position in the cropping system, and is replaced by grain sorghum and wheat. The Corn Belt merges into the regions of wheat production and range livestock. Wheat is able to make better use of fall, winter, and spring moisture, and coming to maturity in the hot and relatively dry part of the summer, it has a relative advantage over corn at the western border of the Corn Belt. In the western part of the Western Corn Belt, because of the uncertainty of rainfall, farmers tend to understock with livestock to avoid the hazard of insufficient feed in dry years. Therefore, more corn is sold from this part of the region than in the eastern half of the Western Corn Belt.

In the loessial or wind-blown soil areas bordering the Missouri River most of the land is characteristically rolling, and a large percentage can be used only for permanent pasture. To protect the cropland from soil erosion and to maintain organic matter in the soil, relatively large acreages of grasses and legumes are grown. Cattle feeding and hog production are important in this part of the region.

**Southern Corn Belt.**—Land in the Southern Corn Belt is generally more rolling and most of the soils are less productive than in the areas bordering it on the north, east, and west. This region has large areas of silt loam soils that have heavy subsoils or clay-pans, making for difficult soil drainage and interfering with root development and growth of crops. The scarcity of good cropland is reflected in the relatively large acreage of pasture and the

relatively small supply of concentrates. Beef cattle grazing is therefore more important here than in the Central Corn Belt and there is less emphasis on cattle fattening and on hog production.

The average annual precipitation is about equal to that in the Eastern Corn Belt. The growing season in the southern part of the region is longer than in most of the rest of the Corn Belt.

TABLE 3.—PERCENT OF COMMERCIAL FARMS REPORTING SPECIFIED USES OF CROPLAND AND SPECIFIED CROPS HARVESTED, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Item	Corn Belt, total	Eastern Corn Belt	Central Corn Belt	Northern Corn Belt	Western Corn Belt	Southern Corn Belt
	Percent	Percent	Percent	Percent	Percent	Percent
Cropland harvested.....	95.8	93.9	96.9	97.9	96.5	94.8
Cropland used only for pasture.....	51.0	61.9	57.7	53.7	38.6	44.6
Cropland not harvested and not pastured.....	18.0	16.9	9.7	12.8	26.3	22.0
Corn for all purposes.....	91.0	89.6	94.8	95.1	91.3	85.2
Corn harvested for grain.....	87.6	89.0	94.3	94.2	89.2	72.6
Wheat threshed or combined.....	35.6	63.2	13.9	7.5	37.2	45.4
Oats threshed or combined.....	72.4	61.3	85.7	90.8	72.6	57.6
Barley threshed or combined.....	5.6	5.2	1.4	7.6	4.8	10.0
Rye threshed or combined.....	4.3	8.2	1.9	1.4	3.6	5.6
Soybeans for all purposes.....	42.3	51.4	56.2	40.2	16.1	49.9
Soybeans harvested for beans.....	41.2	50.1	55.8	39.8	15.7	46.8
Soybeans cut for hay.....	2.0	2.9	0.9	0.5	0.3	5.4
Red clover seed harvested.....	4.1	7.5	3.6	2.7	1.6	4.7

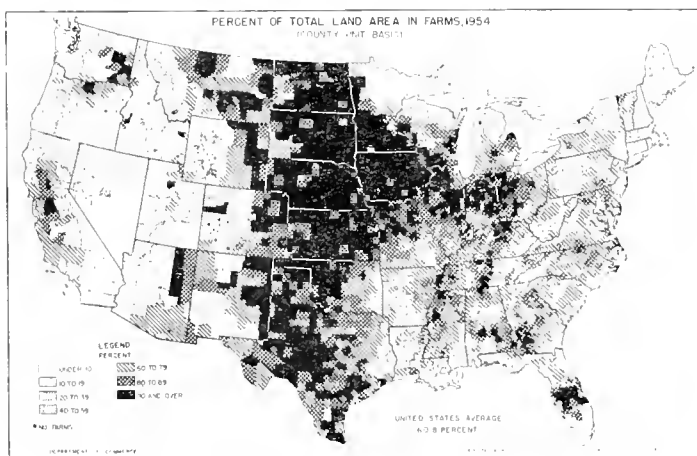


FIGURE 6.

Because of the quality of soil in much of the region, however, average yields of crops are relatively low. The principal grain crops are corn, soybeans, oats, and wheat.

A number of differences among the five regions within the Corn Belt are reflected by the data on percent of farmers reporting specified uses of cropland and specified crops harvested (table 3). There are rather significant differences, for example, in the proportion of farmers reporting cropland used only for pasture, cropland not harvested and not pastured, wheat threshed or combined, and soybeans harvested for beans.

In most of the Western and Northern Corn Belt, 90 percent or more of the total land area is in farms (fig. 6). In the Eastern and Southern Corn Belt there are many counties in which up to one-third of the land is in nonfarm uses.

## TYPES OF FARMING

The differences in types of farming that occur from farm to farm as well as between localities in the Corn Belt are explained basically by differences in soils and topographic features. The kind and degree of livestock production is determined in large part by the production of forage on a farm. On farms with rich, black, level soils, relatively little of the cropland is used for growing forage. On such farms, where practically all of the land is plowable, where there is relatively little soil erosion, and where yield response to forages in crop rotations is not great, corn and soybeans make up the largest proportion of the crops grown. Such farms are generally either cash-grain farms, hog farms, or beef-fattening farms. Cattle for fattening on these farms are generally calves or young cattle bought from the western range region. On farms where more of the land is used for pasture or hay, beef breeding herds are kept, but where little or no forage is available on the farm, the cattle-feeding operation is generally based on the purchase of young cattle for fattening.

Farms having rolling land and soils that show benefit from forages in the rotation are likely to have some cattle production, such as pasturing of young feeder cattle for a few months on pasture and then fattening them for market. The beef enterprise is found frequently on farms along with hog production, as the two enterprises are complementary to some extent.

Farms with a considerable acreage of easily erodible land which is kept in pasture or hay meadow, are likely to keep roughage-consuming livestock such as beef breeding herds or dairy cattle. The farms with large and regular production of hay and pasture are generally dairy farms. Some also raise beef cattle or sheep.

FARM ORGANIZATION IN THE CORN BELT

TYPE OF FARM

In the classification of farms by type, farms that have a high degree of uniformity as to kinds and combinations of crops and livestock produced were grouped together. This grouping, or classifying, was done on the basis of value of farm products sold. Type of farm was determined on the basis of the proportion of total sales of farm products accounted for by a particular product or closely related group of products, such as dairy products, livestock other than dairy and poultry products, or grain crops.

In order for a farm to be classified as a particular type, the sales or expected sales of the particular product or group of products had to represent 50 percent or more of the total value of products sold. For example, farms on which the sale of grain (corn, soybeans, small grains, sorghums, field beans, field peas, and cowpeas) accounted for 50 percent or more of the total value of farm products sold were classified as cash-grain farms.

The distribution of commercial farms and of cash-grain farms, livestock farms, and general farms in the United States is shown in figures 7, 8, 9, and 10.

The number of farms in each of the principal types found in the Corn Belt and in the United States as a whole in 1954 are shown in table 4. Of the 3,327,617 commercial farms, a total of 797,259, or 24 percent, were in the Corn Belt. The percentage of commercial farms accounted for by the Corn Belt is higher than the percentage of all farms included in this region because the number of farms other than commercial is relatively greater in parts of the United States outside of the Corn Belt. Of all the cash-grain farms in the United States, 49.2 percent were in the Corn Belt. Outside of this belt the principal regions of cash-grain farms were the

Great Plains and other wheat-producing regions. The Corn Belt had 47 percent of all livestock farms (other than dairy and poultry) in the Nation. The Corn Belt is by far the leading region in frequency of occurrence of livestock farms. Outside of it other regions where livestock farms are a dominant type are the Great Plains and the general region between the Corn Belt and the Cotton Belt. Although dairying is not a principal enterprise except on a relatively few farms in this region, the Corn Belt accounted for 11.8 percent of all the dairy farms in the United States. Dairy farms predominate in the region to the north of the belt. Spreading out from the region of the Lake States, dairying is also of importance in border areas extending into the Eastern Corn Belt and along its northern edge. Farms that could not be classified into a more definite type because no product or group of products accounted for as much as 50 percent of the total value of farm products sold were classified as general farms.

The general farms here are mainly characterized by a combination of cash-grain and livestock production with both of these enterprises of primary importance. A number of general farms may be considered as a transitional type, that is, a group falling between the cash-grain farms and the livestock farms. Many of them might be counted as cash-grain farms in a particular year and as livestock farms in another year, depending on crop conditions or on relative prices of grains and of livestock. Between 1950 and 1954 cash-grain farms increased in number while livestock farms decreased rather generally throughout the region. In 1950, the number of livestock farms exceeded the number of cash-grain farms in Ohio, Indiana, and Minnesota, but in 1954 the cash-grain farms were considerably more numerous than the livestock farms in these States.

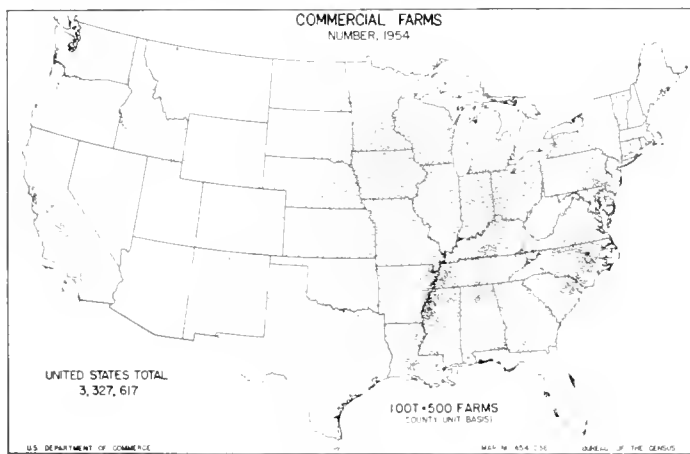


FIGURE 7.

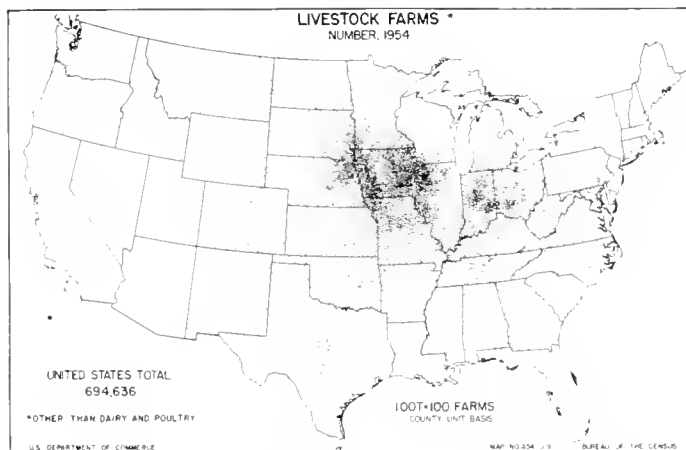


FIGURE 9.

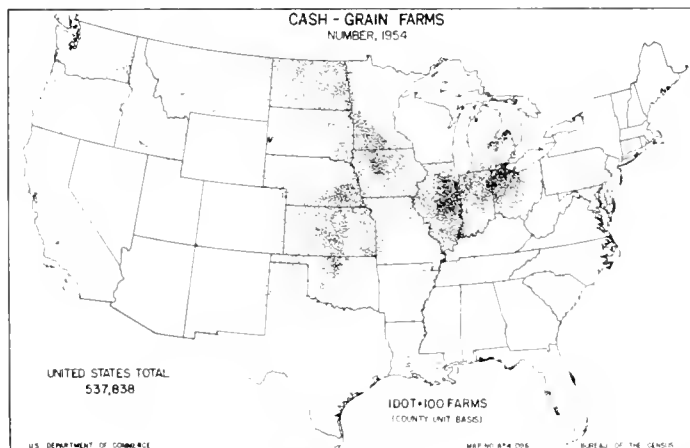


FIGURE 8.

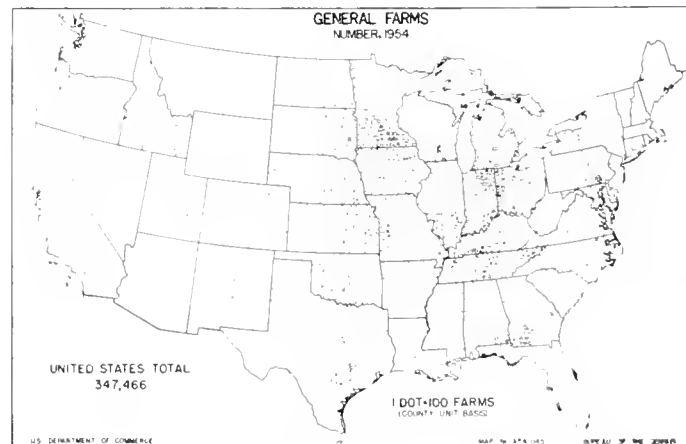


FIGURE 10.

TABLE 4.—NUMBER OF FARMS IN THE UNITED STATES AND IN THE CORN BELT, BY BROAD ECONOMIC CLASS AND TYPE OF FARM: 1954

Broad economic class and type of farm	United States, total	Corn Belt	
		Total	Percent of United States
All farms.....	4,783,021	927,921	19.4
Commercial farms, total <sup>1</sup> .....	3,327,617	797,259	24.0
Cash-grain farms.....	537,838	264,546	49.2
Livestock farms <sup>2</sup> .....	694,636	326,662	47.0
Dairy farms.....	548,763	64,774	11.8
Poultry farms.....	154,257	19,204	12.4
General farms.....	347,466	113,335	32.6
Other field-crop farms.....	367,771	3,212	0.9
Other commercial farms <sup>3</sup> .....	676,886	5,526	0.8
Other farms, total.....	1,455,404	130,662	9.0
Part-time farms.....	574,575	62,017	10.8
Residential farms.....	878,136	68,205	7.8
Abnormal farms.....	2,693	440	16.3

<sup>1</sup> The numbers of commercial farms in the United States, listed in this table, are estimated from a sample of farms on the State economic area basis. Numbers of commercial farms in the United States by economic class within types are estimated from a sample of farms on the economic subregion basis. These different methods of estimation explain the slight differences in numbers of cash-grain farms and of livestock farms shown for the United States in this table and tables 1, 9, and 10.

<sup>2</sup> Livestock other than dairy and poultry farms.

<sup>3</sup> Cotton farms, vegetable farms, fruit-and-nut farms, and miscellaneous farms.

A main explanation for the shift in numbers of these two types of farms in this period is provided by the index numbers of prices received by farmers. While the index number of prices received for all farm products sold in the United States was practically the same in 1954 as in 1949, the index number of prices received for all crops in 1954 was 108 percent of that in 1949. Prices of feed grains and hay in 1954 were 116 percent of the 1949 level. On the other hand, the index number of prices received for meat animals and for livestock and livestock products was 94 (1949=100).

In the Corn Belt, in 1954, 85.9 percent of all farms were classified as commercial farms compared with 69.6 percent in the United States (table 5). Cash-grain farms numbered 28.5 percent and livestock farms 35.2 percent of all Corn Belt farms. Dairy farms and poultry farms comprised 7 percent and 2.1 percent, respectively, of the total. As with cash-grain farms and livestock farms, the Corn Belt had a relatively greater concentration of general farms than the United States as a whole. In the Corn Belt, as

TABLE 5.—PERCENT OF FARMS IN EACH BROAD ECONOMIC CLASS AND TYPE, FOR THE UNITED STATES AND CORN BELT: 1954

Broad economic class and type of farm	United States	Corn Belt
	Percent	Percent
All farms.....	100.0	100.0
Commercial farms, total.....	69.6	85.9
Cash-grain farms.....	11.2	28.5
Livestock farms <sup>1</sup> .....	14.5	35.2
Dairy farms.....	11.5	7.0
Poultry farms.....	3.2	2.1
General farms.....	7.3	12.2
Other field-crop farms.....	7.7	0.3
Other commercial farms <sup>2</sup> .....	14.2	0.6
Other farms, total.....	30.4	14.1
Part-time farms.....	12.0	6.7
Residential farms.....	18.4	7.4
Abnormal farms.....	0.1	(Z)

Z 0.05 percent or less.

<sup>1</sup> Livestock other than dairy and poultry farms.

<sup>2</sup> Cotton farms, vegetable farms, fruit-and-nut farms, and miscellaneous farms.

outlined for the present study, the proportions of cash-grain and livestock farms are higher than in most of the individual five Corn Belt States. The percentage distribution of cash-grain, livestock, and other types of farms in States of the North Central Region of the country is shown in table 6.

Cash-grain farms account for 11.2 percent of all the farms in the United States and 49.2 percent of these are in the Corn Belt. The percentage of farms classified as cash-grain farms in the Corn Belt as a whole was higher than the proportions shown for Iowa and

TABLE 6.—NUMBER OF ALL COMMERCIAL FARMS, AND NUMBER AND PERCENTAGE DISTRIBUTION OF SPECIFIED TYPES OF FARMS, IN THE UNITED STATES AND SPECIFIED STATES: 1954

State	Commercial farms by type				Percentage distribution			
	Total commercial	Cash-grain	Livestock <sup>1</sup>	Other types	Total commercial farms	Cash-grain farms	Livestock farms <sup>1</sup>	Other types
United States.....	3,327,617	537,838	694,636	2,095,143	100.0	16.2	20.9	63.0
Ohio.....	123,457	35,626	28,714	59,117	100.0	28.9	23.3	47.9
Indiana.....	115,182	39,395	36,496	39,291	100.0	34.2	31.7	34.1
Illinois.....	147,801	69,296	43,830	34,675	100.0	46.9	29.7	23.5
Iowa.....	178,238	40,097	104,799	33,342	100.0	22.5	58.8	18.7
Missouri.....	140,307	20,465	59,821	60,021	100.0	14.6	42.6	42.8
Minnesota.....	146,527	33,956	28,040	84,531	100.0	23.2	19.1	57.7
Wisconsin.....	135,064	3,904	10,327	120,833	100.0	2.9	7.6	89.5
Michigan.....	98,161	21,441	10,400	66,320	100.0	21.8	10.6	67.6
North Dakota.....	59,546	38,992	7,740	12,814	100.0	65.5	13.0	21.5
South Dakota.....	59,796	18,322	28,081	13,393	100.0	30.6	47.0	22.4
Nebraska.....	94,153	34,613	42,127	17,413	100.0	36.8	44.7	18.5
Kansas.....	102,526	54,174	25,410	22,942	100.0	52.8	24.8	22.4
Kentucky.....	122,784	4,932	10,090	101,762	100.0	4.0	13.1	82.9

<sup>1</sup> Livestock other than dairy and poultry farms.

TABLE 7.—NUMBER OF FARMS IN EACH REGION OF THE CORN BELT, AND PERCENTAGE DISTRIBUTION AMONG REGIONS, BY BROAD ECONOMIC CLASS AND TYPE OF FARM: 1954

Broad economic class and type of farm	Corn Belt, total	Eastern Corn Belt	Central Corn Belt	North-ern Corn Belt	West-ern Corn Belt	South-ern Corn Belt
	<b>Number of farms:</b>					
All farms.....	927,921	221,145	182,559	114,627	205,897	203,693
Commercial farms, total.....	797,259	177,280	167,845	108,569	186,176	157,389
Cash-grain farms.....	264,546	68,300	69,037	27,469	58,574	40,866
Livestock farms <sup>1</sup> .....	326,662	51,480	72,070	40,608	91,367	71,137
Dairy farms.....	64,774	18,145	5,661	17,128	7,744	16,096
Poultry farms.....	19,204	6,698	2,882	2,329	2,538	4,757
General farms.....	113,335	27,934	17,354	20,442	24,599	23,006
Other field-crop farms.....	3,212	2,423	72	205	337	175
Other commercial farms <sup>2</sup> .....	5,526	2,300	769	388	717	1,352
Other farms, total.....	130,662	43,865	14,714	6,058	19,721	46,304
Part-time farms.....	62,017	22,352	6,970	3,170	9,161	20,364
Residential farms.....	68,205	21,366	7,655	2,805	10,470	25,909
Abnormal farms.....	440	147	89	83	90	31
<b>Percentage distribution of farms:</b>						
All farms.....	100.0	23.8	19.7	12.4	22.2	22.0
Commercial farms, total.....	100.0	22.2	21.1	13.6	23.4	19.7
Cash-grain farms.....	100.0	25.8	26.1	10.4	22.3	15.4
Livestock farms <sup>1</sup> .....	100.0	15.8	22.1	12.4	28.0	21.8
Dairy farms.....	100.0	28.0	8.7	26.4	12.0	24.8
Poultry farms.....	100.0	34.9	15.0	12.1	13.2	24.8
General farms.....	100.0	24.6	15.3	18.0	21.7	20.3
Other field-crop farms.....	100.0	75.4	2.2	6.4	10.5	5.4
Other commercial farms <sup>2</sup> .....	100.0	41.6	13.9	7.0	13.0	24.5
Other farms, total.....	100.0	33.6	11.3	4.6	15.1	35.4
Part-time farms.....	100.0	36.0	11.2	5.1	14.8	32.8
Residential farms.....	100.0	31.3	11.2	4.1	15.4	38.0
Abnormal farms.....	100.0	33.4	20.2	18.9	20.5	7.0

<sup>1</sup> Livestock other than dairy and poultry farms.

<sup>2</sup> Cotton farms, vegetable farms, fruit-and-nut farms, and miscellaneous farms.

Missouri but not as high as the proportions in Indiana and Illinois where cash-grain farming is more densely concentrated. Livestock farms constitute the largest single type of commercial farm in this country as a whole. This group made up 14.5 percent of the United States total of all farms. Of this number (694,636), 47 percent were in the Corn Belt (table 4). Livestock farms are the most common type in the belt, accounting for 35.2 percent of all the farms (table 5). This percentage for the total region is larger than that in the individual States of Ohio, Indiana, and Illinois, but is exceeded by the proportions in the States of Iowa and Missouri where livestock farms are relatively more prevalent than cash-grain farms.

The number of farms of each principal type in the different regions of the Corn Belt are shown in table 7. In terms of total number of commercial farms, the Western Corn Belt is the largest of the five regions into which the Corn Belt has been divided for the analysis on which this report is based. The order of rank of the other regions on the basis of numbers of commercial farms is as follows: Eastern, Central, Southern, and Northern Corn Belt. Most of the cash-grain farms are in the central and eastern regions. Livestock farms are the most concentrated in the western, central, and southern regions. Dairy farms are most numerous in the eastern and northern parts of the Corn Belt in the areas which are, in effect, a continuation of the Nation's major dairy regions of the Lake States and the Northeast. Most of the poultry farms in the Corn Belt are found in the eastern and southern parts of the region.

General farms are widely distributed throughout the Corn Belt but are relatively least numerous in the Central Corn Belt where farming tends to be more specialized (table 8). There are rela-

TABLE 8.—PERCENTAGE DISTRIBUTION OF COMMERCIAL FARMS, BY TYPE OF FARM, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Type of farm	Corn Belt, total	Eastern Corn Belt	Central Corn Belt	Northern Corn Belt	Western Corn Belt	Southern Corn Belt
All commercial farms.....	100.0	100.0	100.0	100.0	100.0	100.0
Cash-grain farms.....	33.2	38.5	41.1	25.3	31.6	26.0
Livestock farms <sup>1</sup> .....	41.0	29.0	42.9	37.4	49.0	45.2
Dairy farms.....	8.1	10.2	3.4	15.8	4.2	10.2
Poultry farms.....	2.4	3.8	1.7	2.1	1.4	3.0
General farms.....	14.2	15.8	10.3	18.8	13.2	14.6
Other field-crop farms.....	0.4	1.4	(Z)	0.2	0.2	0.1
Other commercial farms <sup>2</sup> .....	0.7	1.3	0.5	0.4	0.4	0.9

Z 0.05 percent or less.  
<sup>1</sup> Livestock other than dairy and poultry farms.  
<sup>2</sup> Cotton farms, vegetable farms, fruit-and-nut farms, and miscellaneous farms.

tively few farms of other types such as vegetable farms, fruit-and-nut farms, and horticultural-specialty farms. The few cotton farms are found in the southern part of Illinois and in southeastern Missouri. All of these minor types together accounted for less than 1 percent of all farms in the Corn Belt. In general, farming is more diversified in the southern and eastern parts of the belt than in other parts. This results mainly from the greater variation in topography and soil conditions in the eastern and southern portions.

Most of the other farms (noncommercial) are also found in the eastern and southern parts. Residential farms made up 12.7 percent of all farms in the Southern Corn Belt, but only 2.4 percent in the Northern Corn Belt. For the other regions of the Corn Belt the proportion of residential farms was between these two figures. Part-time farms made up 10 percent of all farms in both the Eastern and Southern Corn Belt. Part-time and residential farms are operated principally by families who have other occupations or sources of income or by retired farmers or other retired or semiretired persons.

ECONOMIC CLASS OF FARM

In this report, much of the analysis relates to economic classes of farms. The criteria used in determining economic class of farms are given in various reports of the 1954 Census of Agriculture.

Criteria for the economic classes of farms are as follows:

Class	Criteria	
	Value of farm products sold	Other
<b>COMMERCIAL FARMS</b>		
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.....	None.
Class VI.....	\$250 to \$1,199.....	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.
<b>OTHER FARMS</b>		
Part-time.....	\$250 to \$1,199.....	100 days or more of off-farm work by operator or income of farm operator and members of his family from nonfarm sources greater than value of all farm products sold.
Residential.....	Less than \$250.....	None.
Abnormal.....	Not a criterion.....	Institutional farms, experimental farms, grazing associations, community-project farms, etc.

The distribution of cash-grain and livestock farms by economic class in the different regions of the Corn Belt are shown in tables 9 and 10. The largest economic class in terms of numbers of farms included in the Corn Belt as a whole is Class III. These are farms with a value of sales of agricultural products, in 1954, amounting to \$5,000 and up to \$9,999. This group makes up 34.1 percent of all cash-grain farms in the Corn Belt and is fairly typical of the family-sized farms in this region. Also numerous are farms in Economic Classes II and IV. These farms are similar to the Class III farms, except that the Class II farms are somewhat larger, having total value of agricultural products sold from \$10,000 to \$25,000, and the Class IV farms are smaller, having sales ranging from \$2,500 up to \$4,999. These three groups account for 81 percent of all the cash-grain farms in the Corn Belt.

TABLE 9.—NUMBER AND PERCENTAGE DISTRIBUTION OF CASH-GRAIN FARMS, BY ECONOMIC CLASS, IN THE UNITED STATES AND CORN BELT: 1954

Item and economic class of farm	United States	Corn Belt					
		Total	East-ern	Central	Northern	West-ern	Southern
<b>Number of farms:</b>							
Cash-grain farms, total	537,974	264,546	68,300	69,037	27,469	58,874	40,866
Class I.....	21,995	6,496	1,613	3,221	406	867	389
II.....	110,597	62,004	14,060	26,210	6,704	10,808	4,222
III.....	160,337	90,110	20,448	24,920	11,302	22,252	11,188
IV.....	129,042	62,045	17,363	10,151	6,011	16,496	12,024
V.....	82,789	33,944	11,965	3,520	2,391	6,718	9,350
VI.....	33,214	9,947	2,851	1,015	655	1,733	3,693
<b>Percentage distribution of farms:</b>							
Cash-grain farms, total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Class I.....	4.1	2.5	2.4	4.7	1.5	1.5	1.0
II.....	20.6	23.4	20.6	38.0	24.4	18.4	10.3
III.....	29.8	34.1	29.9	36.1	41.1	37.8	27.4
IV.....	24.0	23.5	25.4	14.7	21.9	28.0	29.4
V.....	15.4	12.8	17.5	5.1	8.7	11.4	22.9
VI.....	6.2	3.8	4.2	1.5	2.4	2.9	9.0

Class III farms are the largest group in the Eastern, Northern, and Western Corn Belt, but in the Central Corn Belt Class II farms are most numerous and in the Southern Corn Belt the largest group is Class IV. This is true for both cash-grain and livestock types of farms. The smallest farms, those in Economic Classes V and VI, comprise 16.6 percent of all cash-grain farms and 18 percent of all livestock farms in the Corn Belt, compared with 21.6 percent of the cash-grain farms and 34.3 percent of the livestock farms in the United States as a whole. Within the Corn Belt these two low-income classes of farms account for the largest percentages of all commercial farms in the eastern and southern parts of the region.

TABLE 10.—NUMBER AND PERCENTAGE DISTRIBUTION OF LIVESTOCK OTHER THAN DAIRY AND POULTRY FARMS, BY ECONOMIC CLASS, IN THE UNITED STATES AND CORN BELT: 1954

Item and economic class of farm	United States	Corn Belt					
		Total	East-ern	Cent-ral	North-ern	West-ern	South-ern
<b>Number of farms:</b>							
Total livestock other than dairy and poultry.....	694,888	326,662	51,480	72,070	40,608	91,367	71,137
Class I.....	39,835	22,708	3,463	8,091	2,604	6,739	1,811
II.....	121,287	83,555	12,916	26,355	11,925	22,920	9,439
III.....	152,413	94,538	13,414	20,693	14,803	28,060	17,568
IV.....	143,072	66,978	10,469	10,331	7,900	19,725	18,553
V.....	137,490	40,000	7,782	4,785	2,496	9,851	15,086
VI.....	100,791	18,883	3,436	1,815	880	4,072	8,680
<b>Percentage distribution of farms:</b>							
Total livestock other than dairy and poultry.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Class I.....	5.7	7.0	6.7	11.2	6.4	7.4	2.5
II.....	17.5	25.6	25.1	36.6	29.4	25.1	13.3
III.....	21.9	28.9	26.1	28.7	36.5	30.7	24.7
IV.....	20.6	20.5	20.3	14.3	19.5	21.6	26.1
V.....	19.8	12.2	15.1	6.6	6.1	10.8	21.2
VI.....	14.5	5.8	6.7	2.5	2.2	4.5	12.2

TABLE 11.—SPECIFIED ITEMS FOR COMMERCIAL FARMS: PERCENTAGE DISTRIBUTION AMONG PRINCIPAL TYPES OF FARMS, IN THE CORN BELT: 1954

Item	All commercial farms	Cash-grain farms	Live-stock farms <sup>1</sup>	Other commercial farms <sup>2</sup>	
					Percent
Farms.....	number	100.0	33.2	41.0	25.8
All land in farms.....	acres	100.0	35.1	44.3	20.6
Total cropland.....	acres	100.0	38.9	41.0	20.1
Total woodland.....	acres	100.0	27.0	46.7	26.3
Pasture other than cropland or woodland.....	acres	100.0	21.3	59.4	19.3
Other land <sup>3</sup> .....	acres	100.0	35.5	41.5	23.0
Total pasture.....	acres	100.0	22.1	56.5	21.4
Cropland harvested.....	acres	100.0	40.5	39.7	19.8
Corn harvested for grain.....	bushels	100.0	41.1	41.7	17.2
Soybeans harvested for beans.....	bushels	100.0	66.9	20.3	12.8
Horses and mules.....	number	100.0	21.0	52.1	26.9
All cattle and calves.....	number	100.0	19.4	59.0	21.6
Cows, including heifers that have calved.....	number	100.0	21.9	50.5	27.6
Milk cows.....	number	100.0	20.4	34.5	45.1
All hogs and pigs.....	number	100.0	13.8	69.2	17.0
Chickens 4 months old and over.....	number	100.0	25.8	41.0	33.2
All sheep.....	number	100.0	19.7	64.5	15.8
Ewes.....	number	100.0	22.5	58.9	18.6
Value of all farm products sold.....	dollars	100.0	30.3	49.5	20.2
Value of all crops sold.....	dollars	100.0	63.6	18.1	18.3
Value of all livestock and livestock products sold.....	dollars	100.0	11.4	67.4	21.2

<sup>1</sup> Livestock other than dairy and poultry farms.

<sup>2</sup> Dairy farms, poultry farms, general farms, other field-crop farms, cotton farms, vegetable farms, fruit-and-nut farms, and miscellaneous farms.

<sup>3</sup> House lots, roads, wasteland, etc.

The percentage distribution of farms, of cropland, and of other land in farms among cash-grain farms, livestock farms, and other commercial farms in the Corn Belt in 1954 is shown in table 11. Also shown in this table are the percentage distributions of production of specified crops, numbers of livestock, and value of products sold among these groups of farms.

## SIZE OF FARM

The great bulk of the farms in the Corn Belt have between 70 and 500 acres of land (table 12). Farms in this range of acreage comprised 84 percent of all commercial farms in the belt. About 11 percent of the farms are smaller than 70 acres and less than 5 percent are larger than 500 acres. In the United States as a whole 9 percent of the farms are units of 500 acres or more, but 29 percent have less than 70 acres of land.

The average size of all farms in the United States in 1954 was 242 acres. In most of the counties in the eastern half of the country the average size was less than 200 acres (fig. 11). In the western half of the country there were large areas where the average size was 2,500 acres or over. In the majority of counties in the Corn Belt the average size of farm was between 100 and 200 acres.

The average size of commercial farms in the United States was 310 acres. The average for the United States, of course, includes the large farms and ranches of the western United States as well as small farms in the eastern part of the country. Two out of every 10 commercial farms in the Corn Belt were approximately quarter-section units, or in the range of 140 to 179 acres (table 13). Four farms out of every 10 had from 180 to 499 acres of land. The average size of all commercial farms in the Corn Belt in 1954 was 214 acres.

Small farms are relatively most numerous in the eastern part of the Corn Belt and large farms in the western part. In the Eastern Corn Belt, more than half of the commercial farms are smaller than 140 acres, but in the Western Corn Belt such farms make up only a fifth of the total. On the other hand, farms of 260 acres or larger comprise only a seventh of the total in the Eastern Corn Belt but account for more than a third of the total in the Western

TABLE 12.—NUMBER AND PERCENTAGE OF COMMERCIAL FARMS IN SPECIFIED ACREAGE SIZE GROUPS, FOR THE UNITED STATES AND CORN BELT REGIONS: 1954

Size group	United States	Corn Belt					
		Total	East-ern	Cent-ral	North-ern	West-ern	South-ern
<b>Number of farms:</b>							
Total all sizes.....	3,327,889	797,259	177,280	167,845	108,569	186,176	157,389
Under 30 acres.....	496,798	35,301	14,082	6,596	3,070	5,973	5,580
30 to 69 acres.....	483,281	55,000	25,440	7,656	4,126	6,757	11,021
70 to 139 acres.....	760,815	179,264	57,934	34,508	23,755	24,813	38,254
140 to 179 acres.....	403,032	157,208	25,628	41,322	25,860	38,661	25,737
180 to 259 acres.....	422,131	170,717	29,086	41,032	26,431	39,877	34,291
260 to 499 acres.....	451,921	161,925	21,463	32,593	22,011	51,586	34,272
500 to 999 acres.....	182,550	31,654	3,281	3,862	3,016	14,275	7,220
1,000 acres and over.....	127,361	6,190	366	276	300	4,234	1,014
<b>Percentage of farms:</b>							
Total all sizes.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Under 30 acres.....	14.9	4.4	7.9	3.9	2.8	3.2	3.5
30 to 69 acres.....	14.5	6.9	14.4	4.6	3.8	3.6	7.0
70 to 139 acres.....	22.9	22.5	32.7	20.6	21.9	13.3	24.3
140 to 179 acres.....	12.1	19.7	14.5	24.6	23.8	20.8	16.4
180 to 259 acres.....	12.7	21.4	16.4	24.4	24.3	21.4	21.8
260 to 499 acres.....	13.6	20.3	12.1	19.4	20.3	27.7	21.8
500 to 999 acres.....	5.5	4.0	1.9	2.3	2.8	7.7	4.6
1,000 acres and over.....	3.8	0.8	0.2	0.2	0.3	2.3	0.6



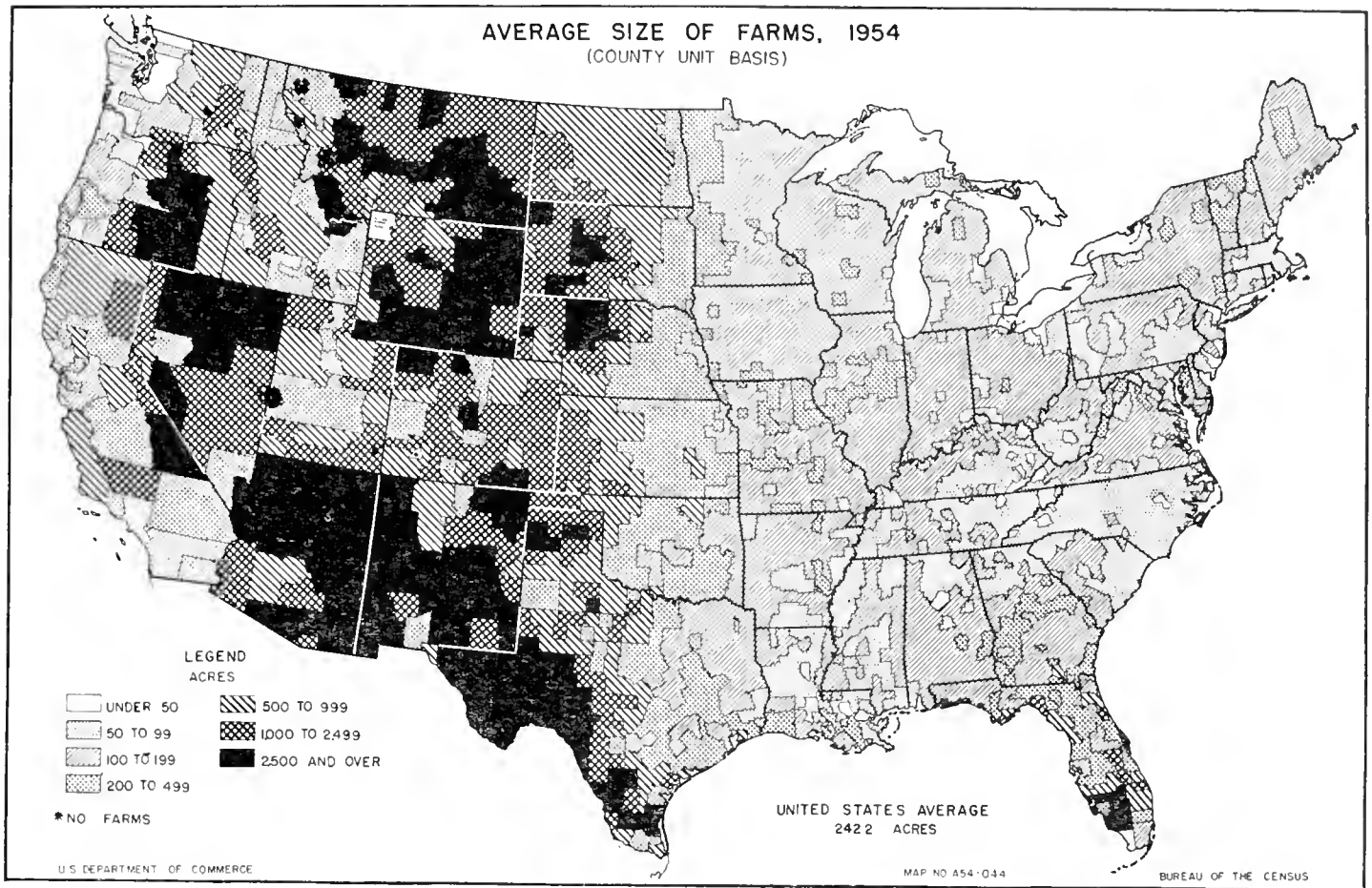


FIGURE 11.

TABLE 13.—PERCENTAGE DISTRIBUTION OF COMMERCIAL FARMS AMONG ACREAGE SIZE GROUPS, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Acreage size group								
	All sizes	Under 30 acres	30 to 69 acres	70 to 139 acres	140 to 179 acres	180 to 259 acres	260 to 499 acres	500 to 999 acres	1,000 acres and over
<b>Total Corn Belt:</b>									
All commercial farms.....	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Cash-grain farms.....	100.0	4.4	6.9	22.5	19.7	21.4	20.3	4.0	0.8
Livestock farms <sup>1</sup> .....	100.0	1.3	6.4	21.2	19.3	22.6	24.0	4.5	0.7
Livestock farms <sup>1</sup> .....	100.0	4.0	5.9	21.0	20.3	21.8	20.9	4.8	1.2
<b>Eastern Corn Belt:</b>									
All commercial farms.....	100.0	7.9	14.4	32.7	14.5	16.4	12.1	1.9	0.2
Cash-grain farms.....	100.0	2.5	14.3	33.2	14.9	18.0	14.5	2.4	0.3
Livestock farms <sup>1</sup> .....	100.0	8.3	13.3	30.6	14.7	17.1	13.5	2.3	0.3
<b>Central Corn Belt:</b>									
All commercial farms.....	100.0	3.9	4.6	20.6	24.6	24.4	19.4	2.3	0.2
Cash-grain farms.....	100.0	1.1	3.6	18.6	23.7	26.5	23.4	2.9	0.2
Livestock farms <sup>1</sup> .....	100.0	3.7	4.7	21.1	25.3	24.4	18.3	2.3	0.2
<b>Northern Corn Belt:</b>									
All commercial farms.....	100.0	2.8	3.8	21.9	23.8	24.3	20.3	2.8	0.3
Cash-grain farms.....	100.0	1.2	3.7	17.6	22.3	24.0	27.0	3.7	0.4
Livestock farms <sup>1</sup> .....	100.0	2.4	3.2	22.0	24.5	24.2	20.2	3.1	0.4
<b>Western Corn Belt:</b>									
All commercial farms.....	100.0	3.2	3.6	13.3	20.8	21.4	27.7	7.7	2.3
Cash-grain farms.....	100.0	0.7	2.2	11.7	19.6	21.9	33.1	8.9	1.8
Livestock farms <sup>1</sup> .....	100.0	3.2	3.8	13.7	20.9	21.3	25.8	8.1	3.1
<b>Southern Corn Belt:</b>									
All commercial farms.....	100.0	3.5	7.0	24.3	16.4	21.8	21.8	4.6	0.6
Cash-grain farms.....	100.0	1.0	5.5	21.8	16.6	23.8	25.8	5.0	0.6
Livestock farms <sup>1</sup> .....	100.0	3.2	6.2	23.0	16.1	21.9	23.0	5.8	0.9

<sup>1</sup> Livestock other than dairy and poultry farms.

Corn Belt. In the Central and Northern Corn Belt approximately a half of the farms are in the range of 140 to 260 acres, with nearly a fourth of the farms larger than 260 acres and the remaining approximate one-fourth of the farms smaller than 140 acres.

For the Corn Belt, in 1954, the average size of cash-grain farms was 226 acres and the average size of livestock farms was 231 acres. For the United States as a whole the average acreages for these types were 380 acres and 731 acres, respectively. The considerably larger average sizes of these types for the United States results from the inclusion of large wheat farms of the Great Plains and the Northwest in the cash-grain group and the inclusion of the large western ranches in the livestock group. The relatively moderate average sizes of these two types of farms in the Corn Belt are rather striking in comparison with the averages for the United States. Of interest also is the close similarity in average size of cash-grain farms and livestock farms in the Corn Belt.

The similarity in size of these two types of farms in terms of acreage is portrayed by the data in table 13. The similarity in distribution of acreage size groups in the two types is strongly consistent in all the regions of the Corn Belt. The only minor difference apparent is that a slightly larger proportion of the livestock farms than of the cash-grain farms is composed of farms under 30 acres in size, but the actual number of farms of either type in this small size group is relatively few (table 14).

The distribution of farms in each economic class among the specified acreage size groups is shown for cash-grain farms and livestock farms in tables 14 and 15. The acreage size groupings are the same as those of the foregoing tables. The 140 to 179 acre group is centered around and includes all the quarter-section (160 acres) farms, which were the typical homestead size. The gradual trend to larger acreages per farm is reflected in the fact that 46.5 percent of the commercial farms are larger than the quarter-section unit, while only 33.8 percent of the farms are smaller than 140 acres. It also reflects the fact that forces inducing farmers to enlarge their farms have been greater or more prevalent than the forces tending toward dividing the farmland among the heirs of successive generations as has been the case in many of the older countries of the world.

The progress of mechanization which has brought about the possibility of one operator handling an increasing acreage of cropland with less labor is the most influential factor making for farm enlargement, but it is significant also that there has been no great increase in the number of farms of 500 acres and over. This group is still a small percentage of the total. The typical farm in the Corn Belt is the family-size farm, although its acreage is now generally larger than it was in homestead years or even only a generation ago.

TABLE 14.—NUMBER OF COMMERCIAL FARMS IN EACH ACREAGE SIZE GROUP, IN THE CORN BELT: 1954

Type and economic class of farm	Number of farms by acreage size group								
	All sizes	Under 30 acres	30 to 69 acres	70 to 139 acres	140 to 179 acres	180 to 259 acres	260 to 499 acres	500 to 999 acres	1,000 acres and over
All commercial farms.....	797, 259	35, 301	55, 000	179, 264	157, 208	170, 717	161, 925	31, 654	6, 190
Cash-grain farms:									
Total.....	264, 546	3, 550	16, 815	56, 164	50, 961	59, 800	63, 550	11, 940	1, 766
Class I.....	6, 496			20	45	125	2, 966	2, 687	653
II.....	62, 004		15	825	6, 445	19, 475	29, 110	5, 385	749
III.....	90, 110	10	305	14, 472	24, 466	25, 620	22, 071	2, 886	280
IV.....	62, 045	115	4, 470	23, 877	13, 970	11, 105	7, 611	837	60
V.....	33, 944	1, 350	9, 015	13, 785	5, 125	2, 995	1, 527	130	17
VI.....	9, 947	2, 075	3, 010	3, 185	910	480	265	15	7
Livestock farms: <sup>1</sup>									
Total.....	326, 662	13, 068	19, 424	68, 762	66, 260	71, 261	68, 320	15, 670	3, 497
Class I.....	22, 708	123	78	503	1, 793	4, 309	10, 563	4, 078	1, 261
II.....	83, 555	295	355	7, 183	17, 951	25, 556	25, 489	5, 373	1, 353
III.....	94, 638	820	1, 756	20, 421	24, 242	23, 594	19, 057	3, 775	873
IV.....	66, 978	2, 590	5, 320	21, 110	14, 491	11, 824	9, 527	1, 828	288
V.....	40, 000	4, 880	7, 370	13, 670	5, 942	4, 557	2, 961	531	89
VI.....	18, 883	4, 360	4, 545	5, 875	1, 841	1, 421	723	85	33

<sup>1</sup> Livestock other than dairy and poultry farms.

TABLE 15.—PERCENTAGE OF COMMERCIAL FARMS IN EACH ACREAGE SIZE GROUP, IN THE CORN BELT: 1954

Type and economic class of farm	Acreage size group								
	All sizes	Under 30 acres	30 to 69 acres	70 to 139 acres	140 to 179 acres	180 to 259 acres	260 to 499 acres	500 to 999 acres	1,000 acres and over
All commercial farms.....	Percent 100.0	Percent 4.4	Percent 6.9	Percent 22.5	Percent 19.7	Percent 21.4	Percent 20.3	Percent 4.0	Percent 0.8
Cash-grain farms:									
Total.....	100.0	1.3	6.4	21.2	19.3	22.6	24.0	4.5	0.7
Class I.....	100.0			0.3	0.7	1.9	45.7	41.4	10.1
II.....	100.0		(Z)	1.3	10.4	31.4	46.9	8.7	1.2
III.....	100.0	(Z)	0.3	16.1	27.1	28.4	24.5	3.2	0.3
IV.....	100.0	0.2	7.2	38.5	22.5	17.9	12.3	1.3	0.1
V.....	100.0	4.0	26.6	40.6	15.1	8.8	4.5	0.4	0.1
VI.....	100.0	20.9	30.3	32.0	9.1	4.8	2.7	0.2	0.1
Livestock farms: <sup>1</sup>									
Total.....	100.0	4.0	5.9	21.0	20.3	21.8	20.9	4.8	1.2
Class I.....	100.0	0.5	0.3	2.2	7.9	19.0	46.5	18.0	5.6
II.....	100.0	0.4	0.4	8.6	21.5	30.6	30.5	6.4	1.6
III.....	100.0	0.9	1.9	21.6	25.6	25.0	20.2	4.0	0.9
IV.....	100.0	3.9	7.9	31.5	21.6	17.7	14.2	2.7	0.4
V.....	100.0	12.2	18.4	34.2	14.9	11.4	7.4	1.3	0.2
VI.....	100.0	23.1	24.1	31.1	9.7	7.5	3.8	0.5	0.2

Z Less than 0.05 percent.

<sup>1</sup> Livestock other than dairy and poultry farms.



TABLE 16.—PERCENTAGE DISTRIBUTION OF TYPES AND ECONOMIC CLASSES OF FARMS IN EACH ACREAGE SIZE GROUP, IN THE CORN BELT: 1954

Type and economic class of farm	Acreage size group								
	All sizes	Under 30 acres	30 to 69 acres	70 to 139 acres	140 to 179 acres	180 to 259 acres	260 to 499 acres	500 to 999 acres	1,000 acres and over
	Percent 100.0	Percent 100.0	Percent 100.0	Percent 100.0	Percent 100.0	Percent 100.0	Percent 100.0	Percent 100.0	Percent 100.0
All commercial farms.....									
Cash-grain farms:									
Total.....	33.2	10.1	30.6	31.3	32.4	35.0	39.2	37.7	28.5
Class I.....	0.8			(Z)	(Z)	0.1	1.8	8.5	10.5
II.....	7.8		(Z)	0.5	4.1	11.4	18.0	17.0	12.1
III.....	11.3	(Z)	0.6	8.1	15.6	15.0	13.6	9.1	4.5
IV.....	7.8	0.3	8.1	13.3	8.9	6.5	4.7	2.6	1.0
V.....	4.3	3.8	16.4	7.7	3.3	1.8	0.9	0.4	0.3
VI.....	1.2	5.9	5.5	1.8	0.6	0.3	0.2	(Z)	0.1
Livestock farms: <sup>1</sup>									
Total.....	41.0	37.0	35.3	38.4	42.1	41.7	42.2	49.5	63.0
Class I.....	2.8	0.3	0.1	0.3	1.1	2.5	6.5	12.9	20.4
II.....	10.5	0.8	0.6	4.0	11.4	15.0	15.7	17.0	21.9
III.....	11.9	2.3	3.2	11.4	15.4	13.8	11.8	11.9	14.1
IV.....	8.4	7.3	9.7	11.8	9.2	6.9	5.9	5.8	4.7
V.....	5.0	13.8	13.4	7.6	3.8	2.7	1.8	1.7	1.4
VI.....	2.4	12.4	8.3	3.3	1.2	0.8	0.4	0.3	0.5

Z 0.05 percent or less.

<sup>1</sup> Livestock other than dairy and poultry farms.

A larger proportion of the Classes I, II, and III farms of the cash-grain type are in the 260 acres or over acreage groups than is true for Classes I, II, and III livestock farms. Also, a larger proportion of the cash-grain farms in Economic Classes IV, V, and VI are in the acreage sizes under 140 acres than is true for the livestock farms. This indicates that livestock production on the land has the effect of increasing the farm incomes from given acreages. In other words, in spite of the differences that may exist in the quality of land on cash-grain farms as compared with livestock farms, the cash-grain farms generally require larger acreages than livestock farms in this region to produce the same levels of value of products sold.

The distribution of economic classes of farms within acreage size groups is shown for cash-grain and livestock farms in table 16. Economic class is positively correlated with acreage size among both cash-grain and livestock farms. As the acreage of land in the farm is increased, the proportion of higher income economic classes of farms in these acreage sizes is increased. Among farms of less than 140 acres there are significantly fewer Classes I, II, and III cash-grain farms than there are livestock farms. Relatively few of the farms of large acreage are in the low income economic classes (Classes IV, V, and VI). However, there are enough exceptions to the positive correlation of economic class with acreage to indicate that a relatively large acreage is not enough alone to guarantee a large farm income. On the other hand, the occurrence of a significant number of Economic Classes II and III farms among farms of less than 140 acres indicates that a larger than average acreage of land is not always necessary for a moderately high level of farm sales if production can be increased by application of other inputs.

## RESIDENCE AND TENURE OF FARM OPERATORS

**Residence.**—Practically all farmers in the Corn Belt live on the farms they operate. In the 1954 Census about 99 percent of the commercial farm operators gave information as to their residence. Only 4.9 percent of these reported their residence as not on the farm they operated (table 17). About 92 percent of all cash-grain farmers and about 96 percent of all livestock farmers in the Corn Belt had their homes on the farms they operated.

The proportion of operators not residing on their farms was highest among cash-grain farmers, ranging from 6.5 percent in the Eastern Corn Belt to 10.1 percent in the Western Corn Belt. The proportion of livestock farm operators not residing on their farms ranged from 2.9 percent in the Northern Corn Belt to 4.5 percent in the Southern Corn Belt.

Most farmers prefer to live on the farm they operate and find it advantageous from the economic standpoint. This is especially true for farmers who have livestock. As pointed out above, most of the cash-grain farms, as well as the livestock farms, have some livestock. On most of these farms, livestock of one or more kinds are on hand throughout the year. Livestock require attention every day, or practically every day, especially during the winter months and during periods such as at farrowing, calving, and lambing time. During the pasture season, beef cattle and sheep on pasture often need relatively little attention, but usually during this season there is work with other livestock, for example, milk cows, pigs, and chickens, or cattle or hogs being fattened, if such livestock are present, in addition to work on crops.

On farms where all crops are sold and no livestock are kept, there is little or no work on the farm during the winter months. Operators of such farms sometimes find it desirable or advantageous to reside with their families in a nearby village or town. Some operators, usually beginning farmers or single men, live on other farms, generally with relatives, near the farms they operate.

Residence on the farm operated was most common on Economic Class II and Class III farms of both cash-grain and livestock types (table 18). About 94 percent of the Class II cash-grain farm operators and 97 percent of the Class II and Class III livestock farm operators lived on their farms. The proportion of operators not residing on the farm operated was greatest among Class V and Class VI cash-grain farms (11.9 percent and 10.5 percent). Among livestock farms, Class I farms had the largest percentage of operators not residing on the farm operated (6.1 percent).

**Tenure.**—In 1954 approximately two-thirds of the commercial farms in the Corn Belt were operated by owners and part owners, about one-third were operated by tenants, and less than 1 percent were operated by managers. Full owners own all the land they operate. Part owners operate land that they own and also additional land that they rent from others. Managers operate farms for others and are paid a wage or salary for their services. Tenants rent from others or work on shares for others, all the land they operate.

Tenancy is generally greater among cash-grain farm operators than among livestock farm operators. This was true in every region of the Corn Belt in 1954 (table 17). That year, in the Corn Belt as a whole, 40.6 percent of the cash-grain farm operators and 29.4 percent of the livestock farm operators were tenants.

TABLE 17.—NUMBER AND PERCENTAGE OF COMMERCIAL FARM OPERATORS, BY RESIDENCE AND TENURE STATUS, BY TYPE OF FARM, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	All farm operators	Operators reporting as to residence		Percentage distribution of operators reporting residence			Operators by tenure status		
		Total operators reporting	Percent of all farm operators	Total operators reporting	Residing on farm operated	Not residing on farm operated	Owners, part owners, and managers	Tenants	
								Total	Percent of all operators
<b>Total Corn Belt:</b>									
All commercial farms.....	797,259	787,169	98.7	100.0	95.1	4.9	533,860	263,399	33.0
Cash-grain farms.....	264,546	260,679	98.5	100.0	91.9	8.1	157,130	107,416	40.6
Livestock farms <sup>1</sup> .....	326,662	322,993	98.9	100.0	96.2	3.8	230,548	96,114	29.4
<b>Eastern Corn Belt:</b>									
All commercial farms.....	177,280	174,580	98.5	100.0	95.5	4.5	132,892	44,388	25.0
Cash-grain farms.....	68,300	67,112	98.3	100.0	93.5	6.5	49,080	19,220	28.1
Livestock farms <sup>1</sup> .....	51,480	50,835	98.7	100.0	96.2	3.8	38,575	12,905	25.1
<b>Central Corn Belt:</b>									
All commercial farms.....	167,845	165,473	98.6	100.0	95.1	4.9	91,809	76,036	45.3
Cash-grain farms.....	69,037	67,949	98.4	100.0	92.4	7.6	31,528	37,509	54.3
Livestock farms <sup>1</sup> .....	72,070	71,185	98.8	100.0	96.9	3.1	44,292	27,778	38.5
<b>Northern Corn Belt:</b>									
All commercial farms.....	108,569	107,458	99.0	100.0	95.9	4.1	70,563	38,006	35.0
Cash-grain farms.....	27,469	27,131	98.8	100.0	91.5	8.5	17,146	10,323	37.6
Livestock farms <sup>1</sup> .....	40,608	40,264	99.2	100.0	97.1	2.9	27,339	13,269	32.7
<b>Western Corn Belt:</b>									
All commercial farms.....	186,176	183,903	98.8	100.0	94.1	5.9	114,396	71,780	38.6
Cash-grain farms.....	58,874	58,103	98.7	100.0	89.9	10.1	30,980	27,894	47.4
Livestock farms <sup>1</sup> .....	91,367	90,311	98.8	100.0	95.7	4.3	61,143	30,224	33.1
<b>Southern Corn Belt:</b>									
All commercial farms.....	157,389	155,755	99.0	100.0	95.2	4.8	124,200	33,189	21.1
Cash-grain farms.....	40,866	40,384	98.8	100.0	91.9	8.1	28,396	12,470	30.5
Livestock farms <sup>1</sup> .....	71,137	70,398	99.0	100.0	95.5	4.5	59,199	11,938	16.8

<sup>1</sup> Livestock other than dairy and poultry farms.

TABLE 18.—NUMBER AND PERCENTAGE OF COMMERCIAL FARM OPERATORS, BY RESIDENCE AND TENURE STATUS, BY TYPE AND ECONOMIC CLASS OF FARM, IN THE CORN BELT: 1954

Type and economic class of farm	All farm operators	Operators reporting as to residence		Percentage distribution of operators reporting residence			Operators by tenure status		
		Total operators reporting	Percent of all farm operators	Total operators reporting	Residing on farm operated	Not residing on farm operated	Owners, part owners, and managers	Tenants	
								Total	Percent of all operators
All commercial farms.....	797,259	787,169	98.7	100.0	95.1	4.9	533,860	263,399	33.0
<b>Cash-grain farms:</b>									
Total.....	264,546	260,679	98.5	100.0	91.9	8.1	157,130	107,416	40.6
Class I.....	6,496	6,389	98.4	100.0	91.5	8.5	3,828	2,668	41.1
II.....	62,004	61,162	98.6	100.0	94.3	5.7	29,675	32,329	52.1
III.....	90,110	89,003	98.8	100.0	93.2	6.8	49,180	40,930	45.4
IV.....	62,045	61,175	98.6	100.0	90.1	9.9	40,764	21,281	34.3
V.....	33,944	33,223	97.9	100.0	88.1	11.9	25,601	8,343	24.6
VI.....	9,947	9,727	97.8	100.0	89.5	10.5	8,082	1,865	18.7
<b>Livestock farms:<sup>1</sup></b>									
Total.....	326,662	322,993	98.9	100.0	96.2	3.8	230,548	96,114	29.4
Class I.....	22,708	22,489	99.0	100.0	93.9	6.1	13,743	8,965	39.5
II.....	83,555	82,758	99.0	100.0	96.6	3.4	48,346	35,210	42.1
III.....	94,538	93,638	99.0	100.0	96.8	3.2	64,038	30,500	32.3
IV.....	66,978	66,211	98.9	100.0	96.1	3.9	52,876	14,102	21.1
V.....	40,000	39,370	98.4	100.0	95.6	4.4	34,564	5,436	13.6
VI.....	18,883	18,527	98.1	100.0	95.5	4.5	16,982	1,901	10.1

<sup>1</sup> Livestock other than dairy and poultry farms.

The proportion of tenancy was greatest among cash-grain farmers in the Central Corn Belt (54.3 percent), and smallest among livestock farmers in the Southern Corn Belt (16.8 percent).

For both cash-grain and livestock farms, the percentage of tenancy in 1954 was significantly greater among the Economic Classes I, II, and III farms than among the Economic Classes IV, V, and VI farms (table 18). However, among cash-grain farms, a larger percentage of the Class II and Class III farms than of the Class I farms were tenant-operated. On livestock farms, also, the percentage of tenancy on Class II farms was somewhat greater than that on Class I farms. The proportion of operators who were tenants was smallest among the Class VI

livestock farms (10.1 percent), and greatest among the Class II cash-grain farms (52.1 percent).

The distribution of farms operated by full owners, part owners, and tenants in the United States in 1954 is shown in figures 12, 13, and 14. Farms operated by tenants are relatively most numerous in the South, in the Corn Belt, and in the Great Plains. Within the Corn Belt, the proportion of all farms operated by tenants is greatest in the central and western regions. In the Corn Belt as a whole, there were approximately a third as many part owners as full owners operating commercial farms in 1954.

Some tenant farmers manage their farms independently, while other tenants are closely supervised by their landlords. Some

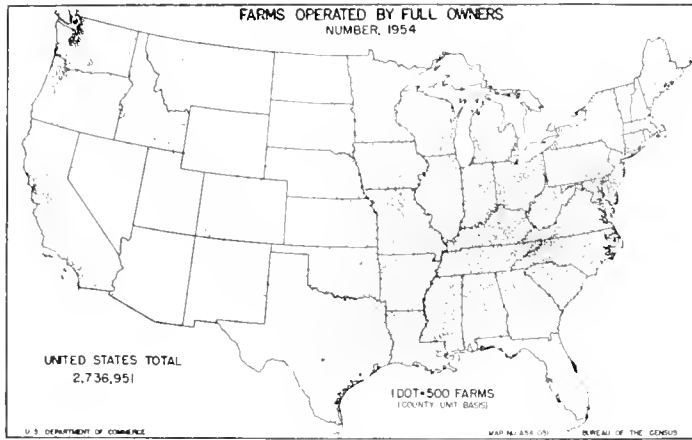


FIGURE 12.

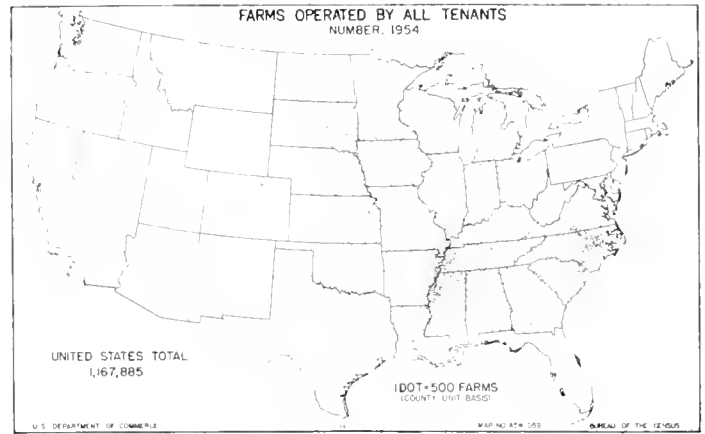


FIGURE 14.

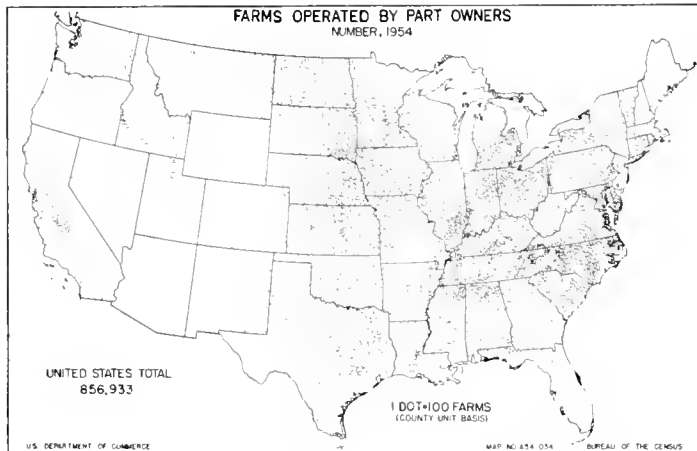


FIGURE 13.

tenants provide all operating inputs or expenses; on other rented farms operating expenses are shared by the tenant and landlord. A large proportion of the tenants in the Corn Belt are related to their landlords. In 1954, from 20 to 50 percent of the tenants throughout most of the Corn Belt were related to their landlords. In most of the counties in the Corn Belt in 1950, tenant operators had been on their farms for an average of 5 to 9 years.

The most common types of leases or methods of renting farmland in the Corn Belt are share-cash, livestock-share, crop-share, and cash. Tenants operating under share-cash rental agreements pay a part of the rent as a share of the crops or livestock products and also pay a part of the rent in cash. Livestock-share tenants pay a specified share of the livestock or livestock products as rent. They may or may not also pay a share of the crops. Livestock-share leases are much used on farms where the tenant wants to raise livestock but is unable to finance a full livestock program. Crop-share tenants pay a specified share of the crops as rent. Under the crop-share rent method, crop risks are shared with the landlord. This method of renting is often attractive to tenants who have relatively little capital. Cash tenants pay a cash rental, such as \$10 an acre or \$1,000 for use of the whole farm. The cash-rent method is best suited to tenants who are well supplied with livestock, equipment, and working capital. The average cash rent per acre paid by cash tenants on commercial farms in Indiana, Illinois, and Iowa in 1954 was \$8.34, \$10.50, and \$9.80, respectively.

The most frequent method of renting farms in the United States in 1954 is shown in figure 15. The share-cash method was most prevalent in the Central and Western Corn Belt, while the share (mainly livestock share) agreement was the principal method in the Eastern Corn Belt. In the Northern and Southern Corn Belt, share-cash and share methods of rental were both quite common. There were relatively few cash tenants on Corn Belt farms, and most of them were in the Central and Northern regions.

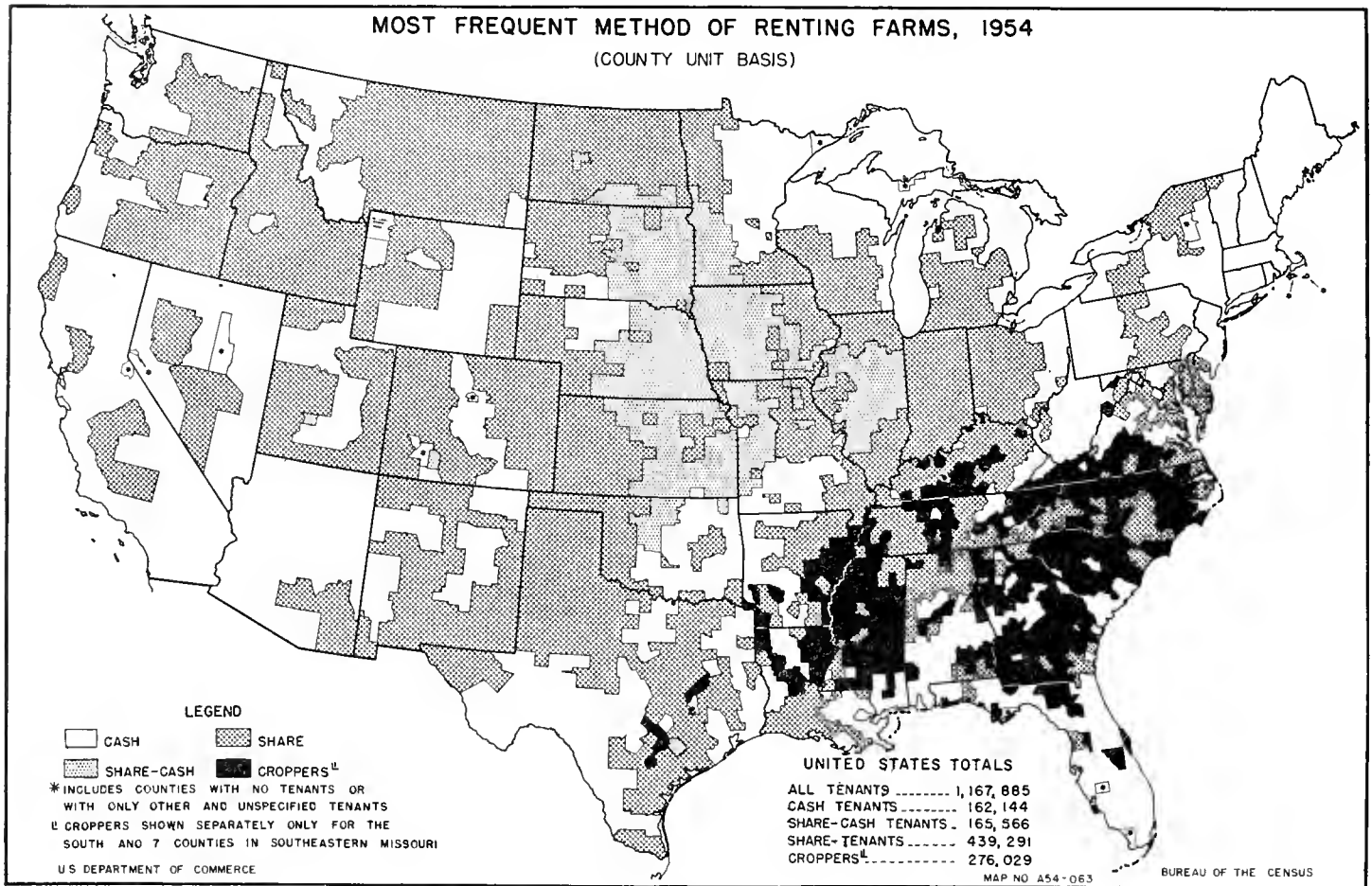


FIGURE 15.

### TYPE OF LAND

There were 170,307,389 acres of land in commercial farms in the Corn Belt in 1954. This was 16.5 percent of all the land in commercial farms in the United States. In the Corn Belt as a whole, 71.5 percent of the land in commercial farms was cropland (table 19). The percentage of farmland that was cropland was greatest in the Central Corn Belt (82.4 percent), and smallest in the Southern Corn Belt (60.4 percent). Only 7.3 percent of the land in commercial farms in the Corn Belt was woodland. The

TABLE 19.—ACREAGE OF ALL LAND IN COMMERCIAL FARMS AND DISTRIBUTION OF LAND AMONG BROAD TYPES OR USES, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region	All land in farms	Cropland <sup>1</sup>	Woodland <sup>2</sup>	Pasture other than cropland or woodland	All other land <sup>3</sup>
<b>Acres:</b>					
Corn Belt, total.....	170,307,389	121,754,844	12,431,256	25,652,363	9,468,926
Eastern Corn Belt.....	27,289,899	21,269,826	2,843,843	1,470,262	1,705,968
Central Corn Belt.....	33,369,798	27,495,157	1,827,655	2,309,351	1,737,635
Northern Corn Belt.....	22,396,741	16,858,271	1,549,604	2,378,999	1,609,867
Western Corn Belt.....	53,216,015	35,561,412	1,315,027	13,760,078	2,579,498
Southern Corn Belt.....	34,034,936	20,570,178	4,895,127	6,733,673	1,835,958
<b>Percent of farmland:</b>					
Corn Belt, total.....	100.0	71.5	7.3	15.6	5.6
Eastern Corn Belt.....	100.0	77.9	10.4	5.4	6.3
Central Corn Belt.....	100.0	82.4	5.5	6.9	5.2
Northern Corn Belt.....	100.0	75.3	6.9	10.6	7.2
Western Corn Belt.....	100.0	66.8	2.5	25.9	4.8
Southern Corn Belt.....	100.0	60.4	14.4	19.8	5.4

<sup>1</sup> Total cropland. Includes cropland harvested, cropland used only for pasture, and cropland neither harvested nor pastured.  
<sup>2</sup> Total woodland. Includes woodland pastured and woodland not pastured.  
<sup>3</sup> House lots, roads, wasteland, etc.

percentage of woodland was greatest in the Southern Corn Belt (14.4 percent); it was smallest in the Western Corn Belt (2.5 percent). Pastureland other than cropland and woodland pasture made up 15.6 percent of the farmland in the total Corn Belt. Approximately a fourth of the farmland in the Western Corn Belt was pasture other than cropland or woodland, but in the Eastern Corn Belt this type accounted for only 5.4 percent of the total. The proportion of farmland in house lots, roads, wasteland, etc., was 5.6 percent for all commercial farms in the Corn Belt and this proportion did not vary greatly between regions.

Practically all commercial farms in the Corn Belt reported cropland in 1954 (table 20). The percentage of farms reporting

TABLE 20.—PERCENT OF COMMERCIAL FARMS REPORTING BROAD TYPES OR USES OF LAND, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region	Land in farms	Cropland <sup>1</sup>	Woodland <sup>2</sup>	Pasture other than cropland or woodland	All other land <sup>3</sup>
	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
Corn Belt, total.....	100.0	97.0	38.4	50.8	97.2
Eastern Corn Belt.....	100.0	95.9	62.2	32.8	97.0
Central Corn Belt.....	100.0	97.7	22.7	40.1	97.0
Northern Corn Belt.....	100.0	98.4	33.6	53.5	98.3
Western Corn Belt.....	100.0	97.2	19.7	66.4	97.2
Southern Corn Belt.....	100.0	96.3	54.0	62.0	97.2

<sup>1</sup> Total cropland. Includes cropland harvested, cropland used only for pasture, and cropland neither harvested nor pastured.  
<sup>2</sup> Total woodland. Includes woodland pastured and woodland not pastured.  
<sup>3</sup> House lots, roads, wasteland, etc.

TABLE 21.—LAND IN COMMERCIAL FARMS, BY TYPE AND ECONOMIC CLASS, IN THE CORN BELT: 1954

Type and economic class of farm	All land in farms	Crop-land <sup>1</sup>	Wood-land <sup>2</sup>	All other land <sup>3</sup>
	-Acres	-Acres	-Acres	-Acres
All commercial farms	170,307,389	121,754,844	12,431,256	36,121,289
Cash-grain farms:				
Total	59,793,487	47,384,086	3,356,218	9,053,183
Class I	4,029,649	3,417,299	178,688	433,662
II	20,000,721	16,708,228	823,857	2,468,636
III	20,759,401	16,447,281	1,084,800	3,227,320
IV	10,346,191	7,663,480	738,060	1,944,651
V	3,834,460	2,638,948	413,248	782,264
VI	823,065	508,850	117,565	196,650
Livestock farms: <sup>4</sup>				
Total	75,415,319	49,863,148	5,803,992	19,748,179
Class I	10,720,958	7,499,063	490,753	2,731,142
II	24,072,221	17,256,884	1,394,081	5,421,256
III	21,553,027	14,349,032	1,625,529	5,578,466
IV	12,127,604	7,283,590	1,214,294	3,629,720
V	5,168,716	2,697,375	709,495	1,761,846
VI	1,772,793	777,204	369,840	625,749

<sup>1</sup> Total cropland. Includes cropland harvested, cropland used only for pasture, and cropland neither harvested nor pastured.  
<sup>2</sup> Total woodland. Includes woodland pastured and woodland not pastured.  
<sup>3</sup> All farmland other than cropland and woodland.  
<sup>4</sup> Livestock other than dairy and poultry farms.

cropland ranged from 95.9 percent in the Eastern Corn Belt to 98.4 percent in the Northern Corn Belt. In the Corn Belt as a whole, somewhat more than a third of the commercial farms reported woodland and approximately a half reported pasture other than cropland and woodland. The percentage of farms reporting land of these 2 types varied considerably between regions in the Corn Belt.

The total acreages of land and of the various types of land in each economic class of cash-grain and livestock farms in the Corn Belt are shown in table 21. Classes II, III, and IV farms had the bulk of the acreage of all types of farmland in the Corn Belt.

TABLE 22.—CROPLAND, WOODLAND, AND ALL OTHER LAND AS PERCENTAGES OF ALL LAND IN COMMERCIAL FARMS IN THE CORN BELT: 1954

Type and economic class of farm	All land in farms	Crop-land <sup>1</sup>	Wood-land <sup>2</sup>	All other land <sup>3</sup>
	Percent	Percent	Percent	Percent
All commercial farms	100.0	71.5	7.3	21.2
Cash-grain farms:				
Total	100.0	79.2	5.6	15.1
Class I	100.0	84.8	4.4	10.8
II	100.0	83.5	4.1	12.3
III	100.0	79.2	5.2	15.5
IV	100.0	74.1	7.1	18.8
V	100.0	68.8	10.8	20.4
VI	100.0	61.8	14.3	23.9
Livestock farms: <sup>4</sup>				
Total	100.0	66.1	7.7	26.2
Class I	100.0	69.9	4.6	25.5
II	100.0	71.7	5.8	22.5
III	100.0	66.6	7.5	25.9
IV	100.0	60.1	10.0	29.9
V	100.0	52.2	13.7	34.1
VI	100.0	43.8	20.9	35.3

<sup>1</sup> Total cropland. Includes cropland harvested, cropland used only for pasture, and cropland neither harvested nor pastured.  
<sup>2</sup> Total woodland. Includes woodland pastured and woodland not pastured.  
<sup>3</sup> All farmland other than cropland and woodland.  
<sup>4</sup> Livestock other than dairy and poultry farms.

The proportion of farmland that was cropland was greater on the higher economic classes of farms than on the lower economic classes (table 22). On Class I cash-grain farms, 84.8 percent of the farmland was cropland. On Class VI cash-grain farms, 61.8 percent of the acreage was cropland, and on Class VI livestock farms, only 43.8 percent. The largest proportion of farmland in woodland was found on the lower economic classes of farms. The proportion in woodland was more than 10 percent on the Class V and Class VI farms of both cash-grain and livestock types. All land other than cropland and woodland was also a higher

TOTAL CROPLAND\*\* AS A PERCENT OF ALL LAND IN FARMS, 1954  
(COUNTY UNIT BASIS)

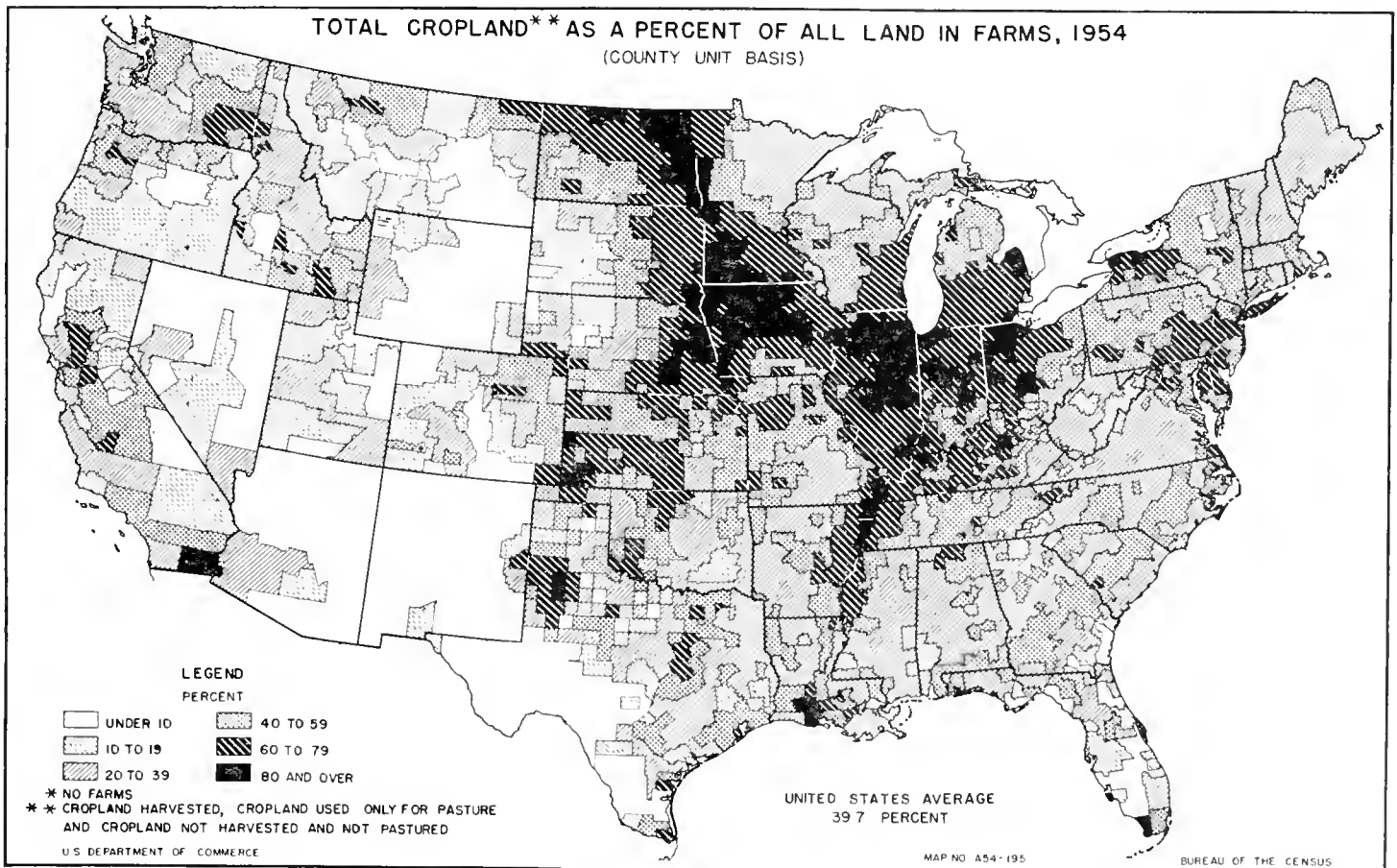


FIGURE 16.

proportion of total farmland on the lower economic classes of farms.

The percent that total cropland was of all land in farms, on a county unit basis in the United States in 1954, is shown in figure 16. As an average for the United States, 39.7 percent of all the land in farms was cropland. The average for the United States is lowered by the inclusion of large areas in the West, where less than 10 percent of the farmland is cropland. The Corn Belt includes the biggest part of the large area in the North Central

States where 60 percent or more of the farmland is cropland. The Central Corn Belt includes a large proportion of the area where 80 percent or more of the area is cropland.

### LAND USE

The total acreage of land in commercial farms and the distribution of land according to use by type of farm in the Corn Belt and component regions in 1954 is shown in table 23. In the Eastern

TABLE 23.—TOTAL LAND IN COMMERCIAL FARMS, AND DISTRIBUTION OF ACREAGE ACCORDING TO USE, BY TYPE OF FARM, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Acreage of farmland according to use (thousand acres)							
	Total land in farms	Cropland			Woodland		Other pasture <sup>1</sup>	All other land <sup>2</sup>
		Harvested	Used only for pasture	Not harvested and not pastured	Pastured	Not pastured		
<b>Total Corn Belt:</b>								
All commercial farms.....	170,307	104,378	12,966	4,411	8,871	3,560	26,652	9,469
Cash-grain farms.....	59,793	42,224	3,005	2,155	2,007	1,349	5,687	3,366
Livestock farms <sup>3</sup> .....	75,415	41,428	7,046	1,389	4,532	1,272	15,820	3,929
<b>Eastern Corn Belt:</b>								
All commercial farms.....	27,290	17,834	2,794	642	1,699	1,145	1,470	1,706
Cash-grain farms.....	11,618	8,299	756	345	555	528	439	695
Livestock farms <sup>3</sup> .....	8,395	5,102	1,167	133	635	289	566	503
<b>Central Corn Belt:</b>								
All commercial farms.....	33,370	24,487	2,656	353	1,501	327	2,309	1,738
Cash-grain farms.....	14,942	11,939	853	186	448	151	645	719
Livestock farms <sup>3</sup> .....	14,233	9,619	1,448	117	826	135	1,328	761
<b>Northern Corn Belt:</b>								
All commercial farms.....	22,397	15,009	1,559	290	1,244	305	2,379	1,610
Cash-grain farms.....	6,329	4,860	266	118	110	51	415	509
Livestock farms <sup>3</sup> .....	8,518	5,404	725	79	569	126	1,055	560
<b>Western Corn Belt:</b>								
All commercial farms.....	53,216	30,624	2,782	2,155	928	387	13,760	2,579
Cash-grain farms.....	17,394	11,309	572	1,167	243	158	3,047	897
Livestock farms <sup>3</sup> .....	27,761	14,492	1,802	696	503	167	8,849	1,252
<b>Southern Corn Belt:</b>								
All commercial farms.....	34,035	16,424	3,176	970	3,499	1,396	6,734	1,836
Cash-grain farms.....	9,512	5,816	559	339	650	461	1,140	545
Livestock farms <sup>3</sup> .....	16,508	6,811	1,904	364	1,998	556	4,022	853

<sup>1</sup> Not cropland and not woodland.  
<sup>2</sup> House lots, roads, wasteland, etc.

<sup>3</sup> Livestock other than dairy and poultry farms.

TABLE 24.—PERCENT OF COMMERCIAL FARMS REPORTING LAND IN SPECIFIED USES IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Cropland			Woodland		Other pasture <sup>1</sup>	All other land <sup>2</sup>	Any pasture <sup>3</sup>
	Harvested	Used only for pasture	Not harvested and not pastured	Pastured	Not pastured			
<b>Total Corn Belt:</b>								
All commercial farms.....	95.8	51.0	18.0	27.6	16.8	50.8	97.2	90.4
Cash-grain farms.....	100.0	44.1	23.0	21.2	18.2	43.5	96.1	82.9
Livestock farms <sup>4</sup> .....	94.4	56.0	14.1	30.0	14.1	55.8	98.0	95.8
<b>Eastern Corn Belt:</b>								
All commercial farms.....	93.9	61.9	16.9	41.2	30.2	32.8	97.0	85.4
Cash-grain farms.....	100.0	51.2	20.8	34.6	33.8	28.7	96.3	77.6
Livestock farms <sup>4</sup> .....	90.3	71.8	12.7	48.6	25.5	37.0	97.5	93.8
<b>Central Corn Belt:</b>								
All commercial farms.....	96.9	57.7	9.7	18.4	6.8	40.1	97.0	89.0
Cash-grain farms.....	100.0	52.4	11.6	13.9	6.6	34.3	95.8	83.1
Livestock farms <sup>4</sup> .....	95.8	64.1	7.9	23.4	7.1	45.2	98.1	94.7
<b>Northern Corn Belt:</b>								
All commercial farms.....	97.9	53.7	12.8	25.5	14.1	53.5	98.3	91.4
Cash-grain farms.....	100.0	40.2	17.9	12.8	10.7	45.8	97.7	80.4
Livestock farms <sup>4</sup> .....	97.6	62.1	10.0	28.7	14.5	54.1	98.5	95.5
<b>Western Corn Belt:</b>								
All commercial farms.....	96.5	38.6	26.3	12.6	9.6	66.4	97.2	92.7
Cash-grain farms.....	100.0	31.7	39.3	10.7	10.8	64.2	95.9	87.6
Livestock farms <sup>4</sup> .....	95.2	44.0	18.4	13.1	8.9	67.3	98.0	96.5
<b>Southern Corn Belt:</b>								
All commercial farms.....	94.8	44.6	22.0	41.2	23.0	62.0	97.2	93.9
Cash-grain farms.....	100.0	38.5	26.0	32.2	27.7	52.5	95.7	86.7
Livestock farms <sup>4</sup> .....	93.3	48.3	18.0	46.5	19.4	66.2	97.7	97.6

<sup>1</sup> Not cropland and not woodland.  
<sup>2</sup> House lots, roads, wasteland, etc.

<sup>3</sup> Cropland pastured, woodland pastured, or any other land pastured.  
<sup>4</sup> Livestock other than dairy and poultry farms.

and Central Corn Belt, larger total acreages of land and of crop-land harvested are in cash-grain farms than in livestock farms. In the Northern, Western, and Southern Corn Belt, livestock farms include a larger total area and have more of the cropland than do cash-grain farms. There is more land used only for pasture in the Southern Corn Belt than in any of the other regions. The Western Corn Belt has the largest acreage of cropland not harvested and not pastured as well as the largest acreage of pasture that is neither cropland nor woodland.

The percentage of farms reporting land in specified uses in 1954 in the Corn Belt and component regions is shown in table 24. All cash-grain farms reported cropland harvested. The percent of livestock farms reporting cropland harvested was greatest in the Northern Corn Belt. Woodland pastured was reported by a larger percentage of the commercial farms in the Eastern Corn Belt than in any other region. From 77.6 to 97.6 percent of the farms in the various groups had pasture of some kind.

TABLE 25.—AVERAGE ACREAGE PER FARM REPORTING: ALL LAND IN FARMS AND FARMLAND IN SPECIFIED USES, ON COMMERCIAL FARMS IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	All land in farms	Cropland			Woodland		Other pasture <sup>1</sup>	All other land <sup>2</sup>
		Harvested	Used only for pasture	Not harvested and not pastured	Pastured	Not pastured		
<b>Total Corn Belt:</b>	<i>Acres</i>	<i>Acres</i>	<i>Acres</i>	<i>Acres</i>	<i>Acres</i>	<i>Acres</i>	<i>Acres</i>	<i>Acres</i>
All commercial farms.....	214	137	32	31	40	27	66	12
Cash-grain farms.....	226	160	26	35	36	28	49	13
Livestock farms <sup>3</sup> .....	231	134	39	30	46	28	87	12
<b>Eastern Corn Belt:</b>								
All commercial farms.....	154	107	25	21	23	21	25	10
Cash-grain farms.....	170	122	22	24	24	23	22	11
Livestock farms <sup>3</sup> .....	163	110	32	20	25	22	30	10
<b>Central Corn Belt:</b>								
All commercial farms.....	199	151	27	22	49	29	34	11
Cash-grain farms.....	216	173	24	23	47	33	27	11
Livestock farms <sup>3</sup> .....	197	139	31	21	42	26	41	11
<b>Northern Corn Belt:</b>								
All commercial farms.....	206	141	27	21	45	20	41	15
Cash-grain farms.....	230	177	24	24	31	17	33	19
Livestock farms <sup>3</sup> .....	210	136	29	19	49	21	48	14
<b>Western Corn Belt:</b>								
All commercial farms.....	286	171	39	44	40	22	111	14
Cash-grain farms.....	295	192	31	50	39	25	81	16
Livestock farms <sup>3</sup> .....	304	167	45	41	42	21	144	14
<b>Southern Corn Belt:</b>								
All commercial farms.....	216	110	45	28	54	39	69	12
Cash-grain farms.....	233	142	36	32	50	41	53	14
Livestock farms <sup>3</sup> .....	232	103	55	28	60	40	85	12

<sup>1</sup> Not cropland and not woodland.  
<sup>2</sup> House lots, roads, wasteland, etc.

<sup>3</sup> Livestock other than dairy and poultry farms.

TABLE 26.—PERCENTAGE DISTRIBUTION OF FARMLAND ACREAGE ACCORDING TO USE ON COMMERCIAL FARMS IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Percentage distribution of land in farms							All other land <sup>2</sup>
	Total land in farms	Cropland			Woodland		Other pasture <sup>1</sup>	
		Harvested	Used only for pasture	Not harvested and not pastured	Pastured	Not pastured		
<b>Total Corn Belt:</b>								
All commercial farms.....	100.0	61.3	7.6	2.6	5.2	2.1	15.6	5.6
Cash-grain farms.....	100.0	70.6	5.0	3.6	3.4	2.3	9.5	5.6
Livestock farms <sup>3</sup> .....	100.0	54.9	9.3	1.8	6.0	1.7	21.0	5.2
<b>Eastern Corn Belt:</b>								
All commercial farms.....	100.0	65.3	10.2	2.4	6.2	4.2	5.4	6.3
Cash-grain farms.....	100.0	71.4	6.5	3.0	4.8	4.5	3.8	6.0
Livestock farms <sup>3</sup> .....	100.0	60.8	13.9	1.6	7.6	3.4	6.7	6.0
<b>Central Corn Belt:</b>								
All commercial farms.....	100.0	73.4	8.0	1.1	4.5	1.0	6.9	5.2
Cash-grain farms.....	100.0	79.9	5.7	1.2	3.0	1.0	4.3	4.8
Livestock farms <sup>3</sup> .....	100.0	67.6	10.2	0.8	5.8	0.9	9.3	5.3
<b>Northern Corn Belt:</b>								
All commercial farms.....	100.0	67.0	7.0	1.3	5.6	1.4	10.6	7.2
Cash-grain farms.....	100.0	76.8	4.2	1.9	1.7	0.8	6.6	8.0
Livestock farms <sup>3</sup> .....	100.0	63.4	8.5	0.9	6.7	1.5	12.4	6.6
<b>Western Corn Belt:</b>								
All commercial farms.....	100.0	57.5	5.2	4.0	1.7	0.7	25.9	4.8
Cash-grain farms.....	100.0	65.0	3.3	6.7	1.4	0.9	17.5	5.2
Livestock farms <sup>3</sup> .....	100.0	52.2	6.5	2.5	1.8	0.6	31.0	4.5
<b>Southern Corn Belt:</b>								
All commercial farms.....	100.0	48.3	9.3	2.9	10.3	4.1	19.8	5.4
Cash-grain farms.....	100.0	61.2	5.9	3.6	6.8	4.8	12.0	5.7
Livestock farms <sup>3</sup> .....	100.0	41.3	11.5	2.2	12.1	3.4	21.4	5.2

<sup>1</sup> Not cropland and not woodland.  
<sup>2</sup> House lots, roads, wasteland, etc.

<sup>3</sup> Livestock other than dairy and poultry farms.



Data on the average acreage of land in various uses per farm reporting are of interest because they provide a better picture of the scale of operations than do averages based on all farms. For example, the acreage of cropland harvested per farm reporting among livestock farms ranged from 103 acres in the Southern Corn Belt up to 167 acres in the Western Corn Belt (table 25). Also, for example, the average acreage of pasture other than cropland and woodland was 144 acres for the 67.3 percent of the livestock farmers in the Western Corn Belt who reported this use of land compared with 30 acres per farm reporting for the 37 percent of the livestock farmers in the Eastern Corn Belt.

Distribution of all the farmland in each type group of farms in the Corn Belt and component regions is shown in terms of percentages in table 26. For the Corn Belt as a whole, 61.3 percent

of all land in commercial farms was cropland harvested, but this percentage ranged from 41.3 percent on livestock farms in the Southern Corn Belt to 79.9 percent on cash-grain farms in the Central Corn Belt. The percent of cropland used only for pasture also varied considerably between cash-grain and livestock farms as well as between regions. The same is true for other pasture.

When the distribution of land in farms is viewed for economic classes of farms, it is seen that the percent of cropland harvested is a substantially larger percentage of all the farmland on the upper than on the lower economic classes of farms (table 27). On the other hand, woodland pasture and other pasture are larger percentages of the farmland on the lower income economic classes of farms.

TABLE 27.—PERCENTAGE DISTRIBUTION OF FARMLAND ACREAGE ACCORDING TO USE ON COMMERCIAL FARMS IN THE CORN BELT: 1954

Type and economic class of farm	Percentage distribution of land in farms							All other land <sup>2</sup>
	Total land in farms	Cropland			Woodland		Other pasture <sup>1</sup>	
		Harvested	Used only for pasture	Not harvested and not pastured	Pastured	Not pastured		
All commercial farms.....	100.0	61.3	7.6	2.6	5.2	2.1	15.6	5.6
Cash-grain farms:								
Total.....	100.0	70.6	5.0	3.6	3.4	2.3	9.5	5.6
Class I.....	100.0	77.3	4.7	2.9	2.7	1.7	6.3	4.4
II.....	100.0	75.5	5.0	3.0	2.5	1.6	7.4	5.0
III.....	100.0	70.8	4.9	3.5	3.2	2.0	9.9	5.6
IV.....	100.0	64.8	5.0	4.2	4.3	2.9	12.3	6.5
V.....	100.0	57.4	5.7	5.7	6.0	4.7	12.9	7.5
VI.....	100.0	47.5	7.1	7.2	7.8	6.5	15.8	8.1
Livestock farms: <sup>3</sup>								
Total.....	100.0	54.9	9.3	1.8	6.0	1.7	21.0	5.2
Class I.....	100.0	59.3	9.3	1.3	3.4	1.2	21.4	4.1
II.....	100.0	61.2	9.1	1.4	4.6	1.2	17.8	4.7
III.....	100.0	55.9	8.9	1.8	5.9	1.6	20.5	5.4
IV.....	100.0	48.0	9.6	2.5	7.8	2.2	24.1	5.9
V.....	100.0	38.2	11.0	3.0	10.6	3.2	27.4	6.7
VI.....	100.0	27.7	12.1	4.1	15.7	5.2	27.7	7.6

<sup>1</sup> Not cropland and not woodland.  
<sup>2</sup> House lots, roads, wasteland, etc.

<sup>3</sup> Livestock other than dairy and poultry farms.



The distribution of farms, of all land in farms, and of land in specified uses among economic classes of cash-grain and livestock farms is shown in table 28. Again, in this comparison the large proportion of land resources that is in Class III farms and in Class II farms and Class IV farms stands out. These economic classes are the most typical among both cash-grain and livestock farms in the Corn Belt. Class I farms use a larger proportion of the land resources among livestock farms than among cash-grain farms. The percentage of land in Class VI farms is relatively small. But the Class VI farms have a larger percentage of the relatively less productive land than they have of cropland harvested.

The distribution of acreage of cropland harvested in the United States in 1954 is shown in figure 17. The largest area of dense concentration of cropland harvested includes the Corn Belt and areas adjacent to it on the north, west, and northwest.

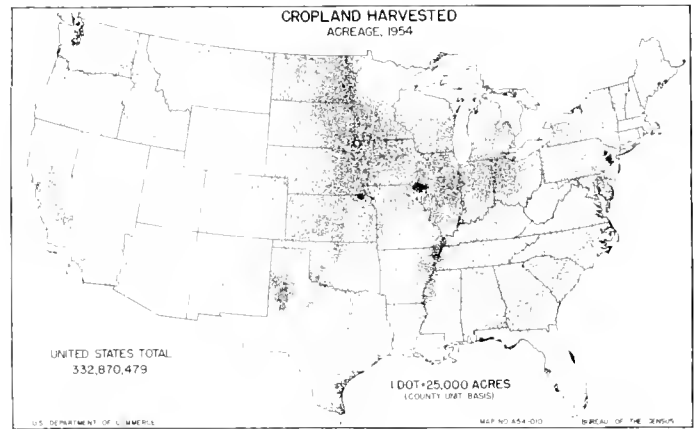


FIGURE 17.

TABLE 28.—PERCENTAGE DISTRIBUTION OF FARMS AND LAND IN FARMS AMONG ECONOMIC CLASSES OF CASH-GRAIN AND LIVESTOCK FARMS IN THE CORN BELT: 1954

Type and economic class of farm	Percentage distribution of land in specified uses								
	Number of farms	All land in farms	Cropland			Woodland		Other pasture <sup>1</sup>	All other land <sup>2</sup>
			Harvested	Used only for pasture	Not harvested and not pastured	Pastured	Not pastured		
<b>Cash-grain farms:</b>									
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Class I	2.5	6.7	7.4	6.2	5.4	5.4	5.2	4.5	5.3
II	23.4	33.4	35.8	33.4	27.8	24.8	21.1	26.0	29.5
III	34.1	34.7	34.8	33.9	33.6	33.1	31.2	34.1	34.8
IV	23.5	17.3	15.9	17.3	20.2	22.0	22.0	22.4	19.9
V	12.8	6.4	5.2	7.3	10.2	11.5	13.5	8.7	8.6
VI	3.8	1.4	0.9	1.9	2.7	3.2	4.0	2.3	2.0
<b>Livestock farms:<sup>3</sup></b>									
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Class I	7.0	14.2	15.4	14.2	9.9	8.1	9.8	14.5	11.1
II	25.6	31.9	35.6	31.0	24.5	24.6	21.8	27.0	29.1
III	28.9	28.6	29.1	27.2	27.4	28.3	27.0	27.9	29.5
IV	20.5	16.1	14.1	16.5	21.6	20.8	21.4	18.4	18.1
V	12.2	6.9	4.8	8.1	11.3	12.1	12.8	8.9	8.8
VI	5.8	2.4	1.2	3.0	5.2	6.1	7.2	3.1	3.4

<sup>1</sup> Not cropland and not woodland.  
<sup>2</sup> House lots, roads, wasteland, etc.

<sup>3</sup> Livestock other than dairy and poultry farms.

## CAPITAL INVESTMENT ON FARMS

## TOTAL INVESTMENT

Farming in the Corn Belt requires a large investment of capital in land, buildings, machinery, equipment, and livestock. In a study of farm organization and production it is, therefore, desirable to make at least a brief analysis of the nature and structure of the farm capital investment.

For the purpose of this study, total capital investment was considered under three broad categories—land and buildings, machinery and equipment, and livestock. The total value of land and buildings was computed for the Corn Belt and regions, as well as per farm, by applying the average value per acre obtained in the Census for each economic subregion to the total acreage in farms for each respective subregion. The value of livestock used in this study is an inventory value computed by applying average values per head of horses and mules, cattle, calves, hogs and pigs, and chickens, to the respective numbers of these livestock reported on farms at the time of the 1954 Census enumeration. The average values per head were based on estimates for counties or groups of counties made by the Agricultural Estimates Division of the Agricultural Marketing Service.

Data on value of machinery were considerably less complete than those for land and livestock. The number of farms reporting was obtained in the 1954 Census for the following items of machinery, equipment, and facilities: Tractors, motortrucks, cornpickers, grain combines, pickup hay balers, field forage harvesters, power feed grinders, milking machines, electric pig brooders, automobiles, electricity, telephones, television sets, piped running water, and home freezers. Data on numbers were also obtained for the following: Tractors, motortrucks, automobiles, cornpickers, grain combines, pickup hay balers, and field forage harvesters.

The first step in estimating the value of machinery and equipment on farms in the Corn Belt was to obtain an average value for each of 9 specified machines—for tractors, motortrucks, automobiles, cornpickers, grain combines, pickup hay balers, field forage harvesters, power feed grinders, and milking machines. These average values per machine were estimated on the basis of information from various sources. On the basis of studies by the U. S. Department of Agriculture and agricultural colleges it was estimated that the total value represented by these 9 machinery items on farms would generally account for about two-thirds of the total value of machinery and equipment on the farm. Hence, to obtain the estimated total value of machinery and equipment on commercial farms, a factor of 150 (150 percent) was applied to the estimated total value of the 9 machines on all commercial farms. But in order to obtain these total-value figures for each economic class of cash-grain and livestock farms, a different factor was applied for each economic class. This was done in order to allow for differences in size and in age of machines on the different economic classes of farms. The adjustment factors used for each economic class were as follows: Class I, 185; Class II, 165; Class III, 150; Class IV, 142; Class V, 135; and Class VI, 130. The value of machinery and equipment was thus obtained for each economic class of farm, for the cash-grain farms and livestock farms, in regions of the Corn Belt.

The total capital investment on all commercial farms in the Corn Belt was estimated to be 35.2 billion dollars (table 29). About three-fourths of this figure, or 26.7 billion dollars, represented the investment in land and buildings. Machinery and equipment accounted for 4.8 billion dollars and livestock for 3.6 billion dollars. The distribution of total investment between cash-grain and livestock farms is affected, of course, by the relative numbers of these types in various regions.

TABLE 29.—TOTAL CAPITAL INVESTMENT, AND COMPOSITION OF INVESTMENT, ON COMMERCIAL FARMS IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Total capital investment	Composition of investment		
		Land and buildings	Machinery and equipment	Livestock
Total Corn Belt:				
All commercial farms.....	1,000 dollars 35,154,008	1,000 dollars 26,740,570	1,000 dollars 4,772,390	1,000 dollars 3,641,048
Cash-grain farms.....	12,898,526	10,568,159	1,693,157	637,210
Livestock farms <sup>1</sup> .....	15,349,876	11,025,004	2,062,172	2,262,700
Eastern Corn Belt:				
All commercial farms.....	7,224,803	5,623,622	1,048,209	552,972
Cash-grain farms.....	2,908,474	2,369,632	422,074	116,768
Livestock farms <sup>1</sup> .....	2,390,279	1,787,058	328,959	274,262
Central Corn Belt:				
All commercial farms.....	10,597,499	8,545,164	1,124,087	928,248
Cash-grain farms.....	4,982,457	4,286,974	496,130	199,353
Livestock farms <sup>1</sup> .....	4,419,840	3,288,324	520,764	604,752
Northern Corn Belt:				
All commercial farms.....	4,424,609	3,132,956	695,590	596,063
Cash-grain farms.....	1,125,425	867,697	182,244	75,484
Livestock farms <sup>1</sup> .....	1,844,460	1,243,406	279,561	321,493
Western Corn Belt:				
All commercial farms.....	8,362,851	6,208,210	1,127,503	1,027,138
Cash-grain farms.....	2,576,945	2,044,287	367,950	164,707
Livestock farms <sup>1</sup> .....	4,519,322	3,212,270	584,702	722,350
Southern Corn Belt:				
All commercial farms.....	4,544,246	3,230,617	777,001	536,627
Cash-grain farms.....	1,305,225	999,568	224,759	80,898
Livestock farms <sup>1</sup> .....	2,175,975	1,493,946	342,186	339,843

<sup>1</sup> Livestock other than dairy and poultry farms.

There is some indication that the value of land and buildings on cash-grain farms generally runs higher than that on livestock farms. For example, in the Central Corn Belt, cash-grain farms are 41 percent of all commercial farms and have a total value of 4.3 billion dollars of land and buildings, whereas livestock farms, being 43 percent of all commercial farms, have a value of 3.3 billion dollars in land and buildings.

The investment in machinery and equipment is greater than the investment in livestock on all the cash-grain farms as a group in every region. The value of machinery and equipment was larger than the investment in livestock on livestock farms in the Eastern and Southern Corn Belt. However, on livestock farms in the Central, Northern, and Western Corn Belt, the investment in livestock exceeds the investment in machinery and equipment.

A clearer picture of the size and composition of capital investment on farms can be obtained by looking at the averages per farm (table 30). The average investment per farm for all commercial farms in the Corn Belt in 1954 was estimated at \$44,094. Of this amount, 76 percent was the estimated value of land and buildings, 13.6 percent was machinery and equipment, and 10.4 percent was livestock. The investment per farm on both cash-grain and livestock farms was greater than the average for all commercial farms. It was pointed out above that the all-commercial farm category includes a number of dairy farms, poultry farms, general farms, and other miscellaneous types, in addition to the cash-grain and livestock farms. Land and buildings consistently accounted for a larger percentage of the total capital investment on cash-grain farms than on livestock farms, reflecting the larger actual investment in land and the smaller actual investment in livestock on cash-grain farms. In general, livestock farms would have a greater actual value of investment in buildings than farms of the cash-grain type. The highest percentage of investment in land and buildings is found on cash-grain farms in the Central Corn Belt where this category accounts for 86 percent of the total average capital investment per farm. The lowest percentage accounted for by land and

TABLE 30.—VALUE OF CAPITAL INVESTMENT PER FARM, AND PERCENTAGE COMPOSITION, ON PRINCIPAL TYPES OF FARMS IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Capital investment per farm (dollars)	Percentage composition of investment		
		Land and buildings	Machinery and equipment	Livestock
<b>Total Corn Belt:</b>				
All commercial farms.....	44,094	76.1	13.6	10.4
Cash-grain farms.....	48,758	81.9	13.1	4.9
Livestock farms <sup>1</sup> .....	46,991	71.8	13.4	14.7
<b>Eastern Corn Belt:</b>				
All commercial farms.....	40,754	77.8	14.5	7.7
Cash-grain farms.....	42,584	81.5	14.5	4.0
Livestock farms <sup>1</sup> .....	46,432	74.8	13.8	11.5
<b>Central Corn Belt:</b>				
All commercial farms.....	63,138	80.6	10.6	8.8
Cash-grain farms.....	72,171	86.0	10.0	4.0
Livestock farms <sup>1</sup> .....	61,327	74.4	11.9	13.7
<b>Northern Corn Belt:</b>				
All commercial farms.....	40,754	70.8	15.7	13.5
Cash-grain farms.....	40,971	77.1	16.2	6.7
Livestock farms <sup>1</sup> .....	45,421	67.4	15.2	17.4
<b>Western Corn Belt:</b>				
All commercial farms.....	44,919	74.2	13.5	12.3
Cash-grain farms.....	43,771	79.3	14.3	6.4
Livestock farms <sup>1</sup> .....	49,463	71.1	12.9	16.0
<b>Southern Corn Belt:</b>				
All commercial farms.....	28,873	71.1	17.1	11.8
Cash-grain farms.....	31,940	76.6	17.2	6.2
Livestock farms <sup>1</sup> .....	30,588	68.7	15.7	15.6

<sup>1</sup> Livestock other than dairy and poultry farms.

buildings is on livestock farms in the Northern and Southern Corn Belt. Livestock farms consistently had a larger percentage of their capital value in livestock than did cash-grain farms. The percentage invested in machinery did not differ greatly between cash-grain and livestock farms.

There are wide differences in the size of the total capital investment among economic classes of farms (table 31). The average investment on Economic Class I farms of the cash-grain type was \$171,558. The comparable figure for Economic Class VI farms was \$11,761. On livestock farms Economic Class I farms had an average investment of \$121,131 and Class VI farms, at the other extreme, had an average value of \$11,523. From these examples it is easy to realize the great differences in capital invested on the different economic classes of farms. The data in table 31 reveal the insufficiency of an average figure for all commercial farms which, in this case, was \$44,094. The investment per farm on cash-grain farms was almost invariably higher than the invest-

TABLE 31.—AVERAGE VALUE OF CAPITAL INVESTMENT PER COMMERCIAL FARM IN THE CORN BELT AND COMPONENT REGIONS: 1954

Type and economic class of farm	Corn Belt, total	Eastern Corn Belt	Central Corn Belt	Northern Corn Belt	Western Corn Belt	Southern Corn Belt
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
All commercial farms.....	44,094	40,754	63,138	40,754	44,919	28,873
<b>Cash-grain farms:</b>						
Total.....	48,758	42,584	72,171	40,971	43,771	31,940
Class I.....	171,558	152,774	196,133	136,318	144,055	144,050
II.....	81,362	74,852	95,015	63,487	72,418	69,565
III.....	46,604	43,566	56,446	39,166	45,475	39,951
IV.....	28,896	27,184	35,234	25,746	30,425	25,495
V.....	18,298	17,582	21,563	17,035	19,816	17,293
VI.....	11,761	11,477	14,333	11,288	12,695	10,918
<b>Livestock farms: <sup>1</sup></b>						
Total.....	46,991	46,432	61,327	45,421	49,463	30,588
Class I.....	121,131	134,284	125,410	106,274	116,645	114,794
II.....	67,581	69,275	73,035	59,634	68,004	59,054
III.....	42,937	42,327	48,347	39,060	45,687	35,903
IV.....	28,632	26,753	33,397	28,084	31,529	24,192
V.....	18,456	18,103	21,657	17,477	21,256	15,958
VI.....	11,523	11,190	13,715	12,650	13,857	9,995

<sup>1</sup> Livestock other than dairy and poultry farms.

ment per farm on livestock farms for farms in Economic Classes I, II, and III. There was not much difference in the average investment per farm on cash-grain farms and livestock farms of Economic Classes IV, V, and VI. In value of capital investment per farm as shown in this table, the Central Corn Belt stands out. In this region the average value of investment per farm is higher than that in any other region for every economic class. The Southern and Northern Corn Belt regions generally have the lowest investment per farm, class by class.

LAND AND BUILDINGS

The average investment in land and buildings, machinery and equipment, and livestock, as well as the total per farm, is shown for each of the economic classes of farms of the cash-grain and livestock types in table 32. On cash-grain farms, the investment in land and buildings and in machinery and equipment per farm is higher than it is for all commercial farms. On livestock farms the investment in each of these 3 categories is larger than the average for all commercial farms.

The percentage distribution of total capital investment shows that the investment in land and buildings is a greater proportion of the total on the larger farms. In other words, the percentage of the investment represented by land and buildings decreases from 87.4 percent for Class I cash-grain farms to 75.1

TABLE 32.—AVERAGE VALUE AND COMPOSITION OF CAPITAL INVESTMENT PER COMMERCIAL FARM IN THE CORN BELT: 1954

Type and economic class of farm	Total capital investment per farm (dollars)	Composition of investment			Percentage of total capital investment		
		Land and buildings (dollars)	Machinery and equipment (dollars)	Livestock (dollars)	Land and buildings	Machinery and equipment	Livestock
All commercial farms.....	44,094	33,541	5,986	4,567	76.1	13.6	10.4
<b>Cash-grain farms:</b>							
Total.....	48,758	39,949	6,400	2,409	81.9	13.1	4.9
Class I.....	171,558	149,908	15,025	6,625	87.4	8.8	3.9
II.....	81,362	68,608	9,019	3,735	84.3	11.1	4.6
III.....	46,604	37,572	6,482	2,550	80.6	13.9	5.5
IV.....	28,896	22,415	4,901	1,580	77.6	17.0	5.5
V.....	18,298	13,768	3,659	871	75.2	20.0	4.8
VI.....	11,761	8,838	2,404	519	75.1	20.4	4.4
<b>Livestock farms: <sup>1</sup></b>							
Total.....	46,991	33,751	6,313	6,929	71.8	13.4	14.7
Class I.....	121,131	88,430	12,774	19,927	73.0	10.5	16.5
II.....	67,581	49,639	8,482	9,460	73.5	12.6	14.0
III.....	42,937	30,447	6,198	6,292	70.9	14.4	14.7
IV.....	28,632	19,695	4,606	4,331	68.8	16.1	15.1
V.....	18,456	12,562	3,256	2,638	68.1	17.6	14.4
VI.....	11,523	7,922	2,050	1,551	68.7	17.8	13.5

<sup>1</sup> Livestock other than dairy and poultry farms.

percent for Class VI cash-grain farms, and from 73 percent on Class I livestock farms to 68.7 percent on Class VI livestock farms. The percentage of the total investment accounted for by machinery and equipment increases as size of farm decreases.

The principal explanation of this is that the machinery and equipment investment per acre tends to be greater on the smaller farms. Farms need a certain minimum quantity of machinery and equipment, below which it is difficult to go, even though the acreage in the farm is relatively small. The percentage of investment represented by livestock tends to be stable from one economic class of farm to another. This comes about chiefly because it is easier to adjust numbers of livestock or livestock production to a proper balance with acreage available than it is to adjust the investment in machinery and equipment.

The average value of investment per farm in land and buildings is shown for the Corn Belt and component regions, by economic class, in table 33. The contrast in value of land and buildings per farm, between economic classes, is evident in all regions. For the total Corn Belt, the range is from approximately \$150,000 per farm on Economic Class I cash-grain farms down to less than \$9,000 per farm on Economic Class VI farms of this type. The contrast is similar, although not as extreme, on livestock farms. The investment in land and buildings is greatest for Class I cash-grain farms in the Central Corn Belt and the least for Class VI livestock farms in the Southern Corn Belt. Between these two extremes in land-and-buildings investment per farm, practically every level is represented by farms in various economic classes in the different regions. The investment in land and buildings is higher on cash-grain farms than on livestock farms in the Central, Northern, and Southern Corn Belt. In the Eastern and Western Corn Belt the value of land and buildings per farm is only slightly higher on livestock farms than on cash-grain farms.

TABLE 33.—AVERAGE VALUE OF LAND AND BUILDINGS PER FARM, FOR COMMERCIAL FARMS, BY TYPE AND ECONOMIC CLASS, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Type and economic class of farm	Corn Belt, total	Eastern Corn Belt	Central Corn Belt	Northern Corn Belt	Western Corn Belt	Southern Corn Belt
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
All commercial farms.....	33,541	31,722	50,911	28,857	33,346	20,526
Cash-grain farms:						
Total.....	39,949	34,694	62,097	31,588	34,723	24,460
Class I.....	149,908	130,676	175,339	114,803	121,809	118,344
II.....	68,608	62,586	82,520	50,074	59,097	56,081
III.....	37,572	35,221	47,651	29,791	35,884	30,641
IV.....	22,415	21,334	28,947	19,075	23,318	18,892
V.....	13,768	13,357	17,089	12,484	14,868	12,582
VI.....	8,838	8,899	11,401	8,016	9,526	7,910
Livestock farms: <sup>1</sup>						
Total.....	33,751	34,714	45,627	30,620	35,158	21,001
Class I.....	88,430	102,294	94,305	73,350	81,736	82,270
II.....	49,639	52,646	54,996	40,915	49,543	41,820
III.....	30,447	31,340	35,398	25,923	32,490	24,483
IV.....	19,695	19,215	23,791	18,226	21,701	16,177
V.....	12,562	12,879	15,388	10,997	14,450	10,529
VI.....	7,922	8,072	9,850	8,476	9,568	6,630

<sup>1</sup> Livestock other than dairy and poultry farms.

The average value of land and buildings per acre in 1954 is shown graphically in figure 18. A large area of land, averaging \$200 per acre or more in value, runs through the Corn Belt. The area of this high-value-per-acre land is especially solid in the Central Corn Belt. Other regions with such high values are found mainly in the irrigated areas of the West, and in areas near large cities, and in densely populated areas of the northeastern United States.

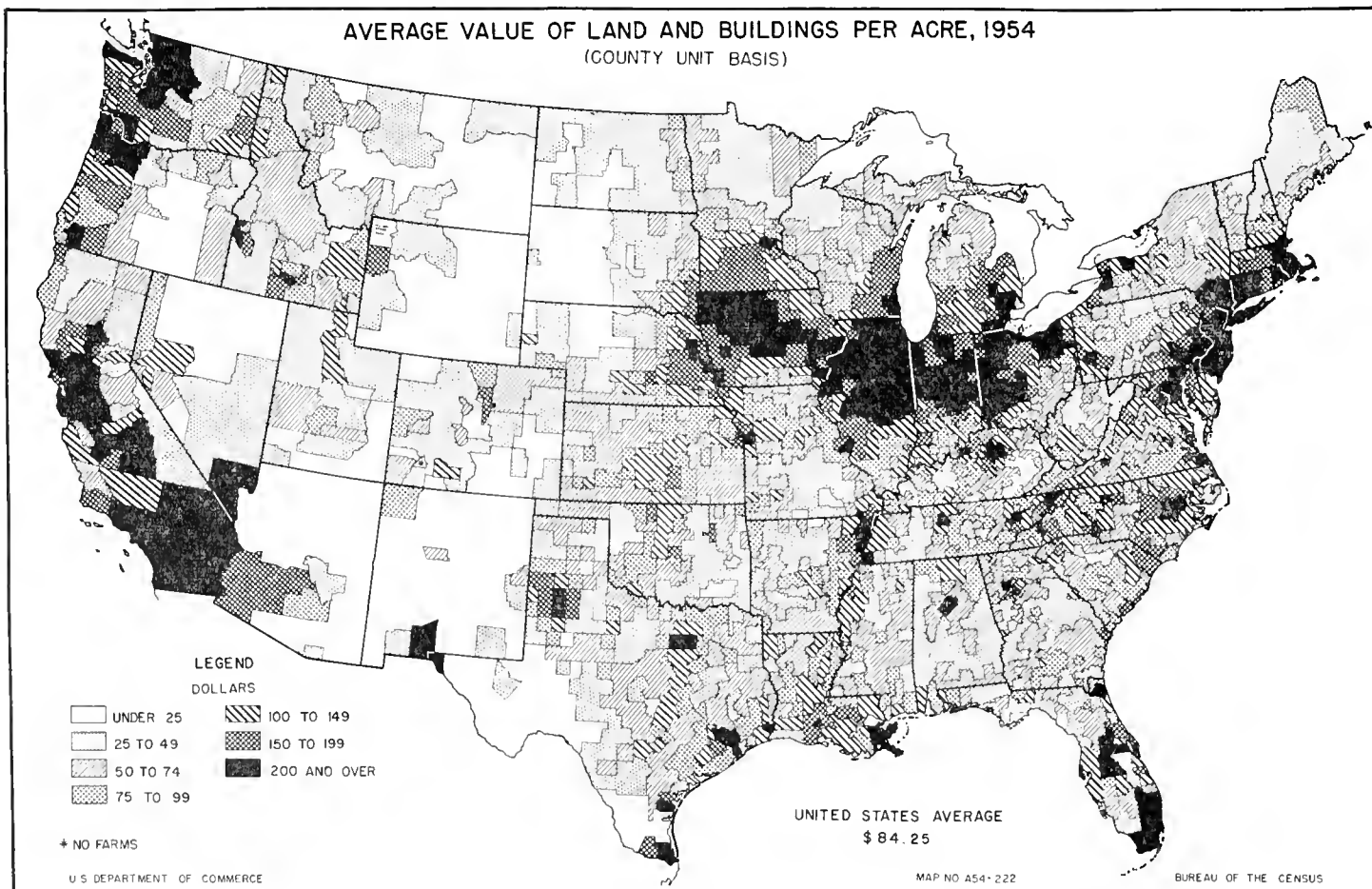


FIGURE 18.

The average value per acre of land on all commercial farms in the Corn Belt in 1951 was \$157. In the Central Corn Belt the average was \$256 per acre and in the Southern Corn Belt it was \$95 (table 34). The average values per acre shown in the table again point out the generally higher values of land on cash-grain farms than on livestock farms in the Central, Western, and Southern Corn Belt. The land values per acre are generally higher on cash-grain farms than the average for all commercial farms. In contrast with the values on Economic Classes I, II, and III farms, are the relatively low values per acre on Class V and Class VI farms, especially in the Southern, Western, and Northern Corn Belt.

TABLE 34.—AVERAGE VALUE OF LAND AND BUILDINGS PER ACRE, BY TYPE AND ECONOMIC CLASS OF FARM, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Type and economic class of farm	Corn Belt, total	Eastern Corn Belt	Central Corn Belt	Northern Corn Belt	Western Corn Belt	Southern Corn Belt
	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>
All commercial farms.....	157	206	256	140	117	95
Cash-grain farms:						
Total.....	177	204	287	137	118	105
Class I.....	242	215	336	191	133	140
II.....	213	219	304	158	130	131
III.....	163	199	263	129	117	107
IV.....	134	191	230	111	105	93
V.....	122	179	203	108	98	87
VI.....	107	164	201	109	92	76
Livestock farms: <sup>1</sup>						
Total.....	146	213	231	146	116	90
Class I.....	187	234	266	208	132	119
II.....	172	228	242	166	132	110
III.....	134	202	206	129	140	92
IV.....	109	186	183	110	93	79
V.....	97	181	191	97	83	71
VI.....	84	152	192	98	87	59

<sup>1</sup> Livestock other than dairy and poultry farms.

## LIVESTOCK

The importance of livestock in Corn Belt farming is reflected by the 3.6 billion dollars inventory value of livestock, shown in table 29 above. Almost a third of this livestock value is in the Western Corn Belt and about a fourth is in the Central Corn Belt. The average value of livestock investment per farm, on commercial farms in the Corn Belt, is about \$4,600, but the average for livestock farms is nearly \$7,000. The range among economic classes of livestock farms is from about \$1,500 on Class VI farms to almost \$20,000 on Class I farms. Livestock production is discussed more fully in a following section.

## MACHINERY AND EQUIPMENT

The percentage of farms reporting each of the items of machinery and equipment is shown by type of farm and by regions in the Corn Belt in table 35. Approximately 90 percent of the farms in all parts of the Corn Belt reported having tractors. On cash-grain farms, the proportion was over 90 percent in all regions, and it was over 90 percent on livestock farms also except in the Southern and Eastern Corn Belt. The distribution of tractors in the United States is shown in figure 19. The Corn Belt is the largest region of heavy concentration of tractors on farms.

The cornpicker was the next most frequently reported item of machinery. Cornpickers were reported by a somewhat greater percentage of the cash-grain farms than of the livestock farms. However, the difference is not large and is to be expected because of the great importance of the corn crop on livestock as well as on cash-grain farms. The location of farms reporting cornpickers in the United States is shown in figure 20. The pattern of heaviest concentration practically coincides with the Corn Belt as the term is used in this study.

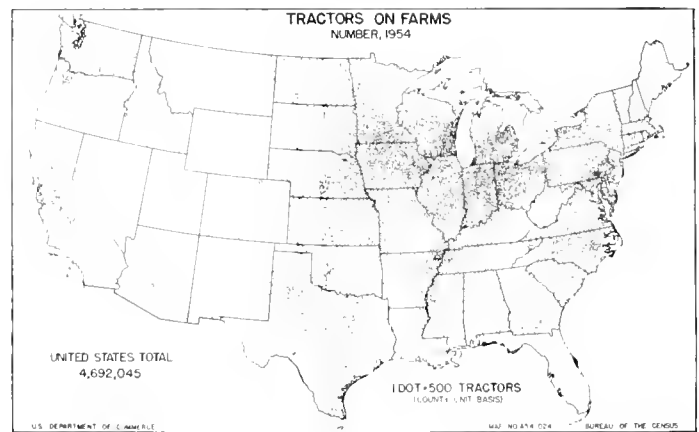


FIGURE 19.

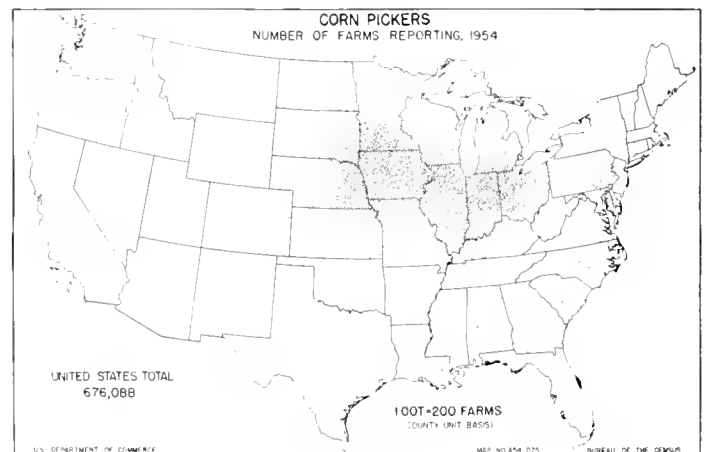


FIGURE 20.

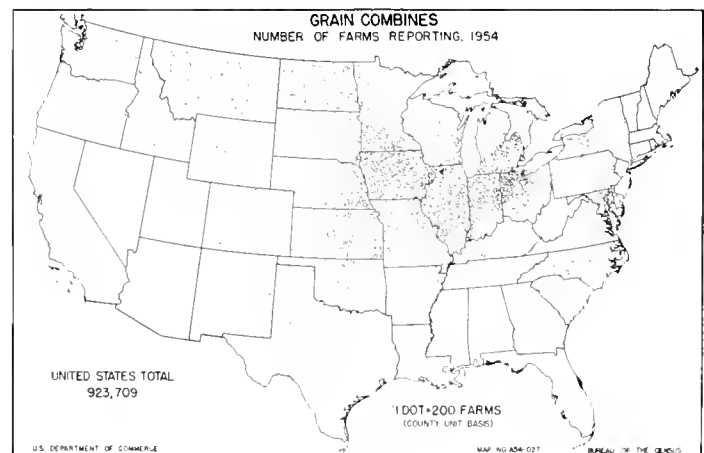


FIGURE 21.

One out of every two commercial farms reported having grain combines. The figure was 60.4 percent for cash-grain farms and 47.2 percent for livestock farms in the Corn Belt as a whole. The greatest concentration of farms reporting grain combines as well as cornpickers was in the Central Corn Belt. Grain combines were found least frequently in the Southern Corn Belt, but even there they were reported on 43.8 percent of the commercial farms. The distribution of grain combines on farms in the United States is shown in figure 21. The Corn Belt and the wheat-producing region of the Great Plains have the heaviest concentration. Farms having combines are especially numerous in a broad belt extending from northwestern Ohio through Indiana, Illinois, and Iowa.

TABLE 35.—PERCENT OF COMMERCIAL FARMS IN EACH TYPE REPORTING SPECIFIED FARM MACHINES IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Tractors	Motor-trucks	Corn-pickers	Grain combines	Pickup hay balers	Field forage harvesters	Power feed grinders	Milking machines	Electric pig brooders
<b>Total Corn Belt:</b>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
All commercial farms.....	89.8	51.1	58.8	50.3	18.6	7.6	38.0	24.4	8.0
Cash-grain farms.....	93.1	52.5	65.1	60.4	14.3	4.3	29.3	16.3	4.7
Livestock farms <sup>1</sup> .....	89.9	52.5	60.3	47.2	22.1	9.8	45.9	19.0	11.2
<b>Eastern Corn Belt:</b>									
All commercial farms.....	88.2	49.2	54.8	48.8	18.2	5.3	22.0	28.9	6.9
Cash-grain farms.....	91.9	49.1	60.5	56.6	14.6	3.2	16.4	19.8	3.7
Livestock farms <sup>1</sup> .....	87.6	55.0	57.8	47.2	21.2	6.5	28.8	20.3	11.5
<b>Central Corn Belt:</b>									
All commercial farms.....	92.7	53.3	71.1	58.0	20.4	7.6	42.8	23.7	10.1
Cash-grain farms.....	94.2	53.7	74.7	65.2	14.6	3.8	32.7	17.6	6.6
Livestock farms <sup>1</sup> .....	93.0	55.0	71.2	55.8	26.8	11.2	52.3	21.9	13.7
<b>Northern Corn Belt:</b>									
All commercial farms.....	91.8	53.0	63.6	50.0	23.4	11.5	41.8	48.2	10.4
Cash-grain farms.....	94.2	51.4	66.6	60.4	15.4	6.9	30.8	27.4	4.8
Livestock farms <sup>1</sup> .....	94.2	53.9	68.6	49.1	28.3	14.2	50.1	44.3	13.1
<b>Western Corn Belt:</b>									
All commercial farms.....	91.7	53.4	64.0	50.4	15.8	8.4	47.3	16.1	7.8
Cash-grain farms.....	93.8	55.8	67.2	59.4	12.6	4.9	38.0	11.3	4.3
Livestock farms <sup>1</sup> .....	91.6	53.6	65.4	47.1	18.3	10.7	53.2	13.7	10.6
<b>Southern Corn Belt:</b>									
All commercial farms.....	85.1	47.1	40.8	43.8	17.0	6.5	37.1	13.4	5.7
Cash-grain farms.....	91.6	51.9	52.5	60.1	15.1	4.6	31.6	7.9	3.6
Livestock farms <sup>1</sup> .....	83.8	45.8	39.7	37.7	19.3	7.1	40.0	7.5	7.9

<sup>1</sup> Livestock other than dairy and poultry farms.

Motortrucks were reported by about half the farmers, and were fairly evenly distributed among types of farms throughout the Corn Belt.

Pickup hay balers were reported on almost a fifth of all the farms. These machines save a great deal of labor in the harvesting and handling of hay.

Field forage harvesters were reported on nearly 8 percent of all commercial farms. This type of machine, which picks up and chops hay or other forage, is relatively new. It fits into the mechanization scheme and has been introduced on many farms, especially on livestock farms in the Northern, Central, and Western Corn Belt.

Power feed grinders were reported on a relatively large percentage of the farms, especially among the livestock farms. This reflects the heavy use of homegrown feeds in the Corn Belt. It is pointed out in a later section of this report that use of purchased mixed feeds on these farms is also great. The distribution of power feed grinders on farms in the United States is shown in figure 22. The Corn Belt has the heaviest concentration of these machines. They are most densely concentrated in northwestern Illinois, eastern and western Iowa, and eastern Nebraska.

Electric pig brooders are of many sizes and types. It is difficult therefore to obtain an average value per unit for this equipment. They were reported on 8 percent of the commercial farms in the Corn Belt. They were reported by almost 14 percent of the livestock farmers in the Central Corn Belt.

Milking machines were reported on 24.4 percent of all the commercial farms, but on only 16.3 percent of the cash-grain farms and 19 percent of the livestock farms. Milking machines were most frequently reported in the Northern Corn Belt, which borders on the dairy country of Minnesota and Wisconsin. In the Northern Corn Belt, milking machines were reported on 44.3 percent of the livestock farms and on 27.4 percent of the cash-grain farms.

For the Corn Belt as a whole, tractors, cornpickers, and grain combines were reported on larger percentages of the cash-grain farms than of the livestock farms. On the other hand, larger percentages of the livestock farms reported having pickup hay balers, field forage harvesters, power feed grinders, milking machines, and electric pig brooders. Motortrucks were reported by an equal proportion of the farmers on cash-grain and livestock farms.

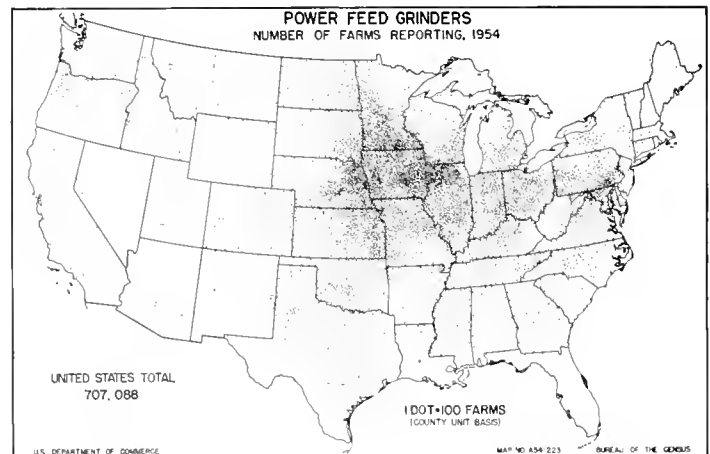


FIGURE 22.

Tractors were reported on 96 to 98 percent of all Economic Classes I, II, and III farms in the Corn Belt. Among the Classes IV, V, and VI farms the percentage of farmers having tractors was smaller (table 36). Only two-thirds of the Economic Class VI cash-grain farms and only half of the Economic Class VI livestock farms reported tractors.

For every one of the specified farm machines, the percentage of farms reporting these machines declines consistently from a relatively high figure on Economic Class I farms to a relatively low figure on Economic Class VI farms. For example, among the cash-grain farms, about 93 percent of the Class I farms had grain combines, but only 30 percent of the Class V farms and 15 percent of the Class VI farms had these machines. Similarly, for example, among livestock farms, pickup hay balers were reported on 44 percent of the Class I farms, on 23 percent of the Class III farms, and on only 3 percent of the Class VI farms.

The only exception to the rule that the percentage of farms reporting specified machines declines as we look from Class I to Class VI farms, is in the instance of milking machines. In this case, the percentage of farms reporting is smaller for Class I farms of both the cash-grain and livestock types than it is for the Class II and Class III farms. Apparently, the explanation is the relatively small percentage of Class I cash-grain and livestock farms that have dairy herds.

TABLE 36.—PERCENT OF COMMERCIAL FARMS IN EACH TYPE, BY ECONOMIC CLASS, REPORTING SPECIFIED FARM MACHINES, IN THE CORN BELT: 1954

Type and economic class of farm	Tractors	Motor-trucks	Corn-pleckers	Grain combines	Pickup hay balers	Field forage harvesters	Power feed grinders	Milking machines	Electric pig brooders
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
All commercial farms.....	89.8	51.1	58.8	50.3	18.6	7.6	38.0	24.4	8.0
Cash-grain farms:									
Total.....	93.1	52.5	65.1	60.4	14.3	4.3	29.3	16.3	4.7
Class I.....	98.1	89.7	94.6	92.6	35.7	16.1	47.9	17.3	14.2
II.....	97.4	70.7	86.3	82.6	22.8	7.8	40.2	25.7	8.8
III.....	96.0	53.8	73.2	67.3	15.3	4.2	32.5	19.9	4.6
IV.....	92.7	42.6	54.4	48.8	9.2	2.2	23.2	10.1	2.2
V.....	85.6	35.2	33.4	29.9	4.8	.9	14.7	4.7	1.3
VI.....	66.2	23.5	15.0	15.4	3.3	.9	8.1	1.9	1.0
Livestock farms: <sup>1</sup>									
Total.....	89.9	52.5	60.3	47.2	22.1	9.8	45.9	19.0	11.2
Class I.....	97.6	80.9	86.9	75.2	44.2	36.8	70.1	17.4	22.7
II.....	97.0	65.8	80.7	68.6	33.3	15.8	59.8	25.9	17.9
III.....	95.7	52.0	68.9	52.3	22.6	7.7	50.9	25.3	10.9
IV.....	89.8	43.7	48.2	33.2	14.2	3.6	37.1	14.5	6.3
V.....	75.8	36.8	25.6	16.4	6.9	1.6	22.7	6.0	4.0
VI.....	50.0	26.3	11.0	7.1	3.3	.9	10.9	2.1	1.1

<sup>1</sup> Livestock other than dairy and poultry farms.

Farmers who do not have their own machines for handling grain and hay depend on hiring such machines on a custom-work basis, or they depend on exchange work, or they use less mechanized methods that require more labor.

The intensity of mechanization on Corn Belt farms is indicated by the percentage of farms that report various types and combinations of types of work power (table 37). Tractors were reported on approximately 90 percent of all commercial farms in the Corn Belt. Sixty-seven percent of the farms had tractors but no horses or mules. Only 3.1 percent of the commercial farms reported horses and/or mules and no tractor. Horses or mules were found on a substantial number of farms, however, as 22.2 percent of all commercial farms reported having one or more tractors and horses or mules. On 7.4 percent of the farms, no tractor, horses, or mules were reported. The region with the largest percentage of farms reporting no tractor or animal power was the Eastern Corn Belt, where 10.6 percent of the farms thus reported. Farmers who do not have their own tractors or horses or mules generally have

their fieldwork done by custom operators, or neighbors, or they rent power units. On relatively very few farms the land is all in hay or pasture, and no land is plowed or cultivated. Farms of this type require little or no mechanical power.

The high degree of mechanization, as indicated by the use of tractors, is general throughout the Corn Belt on cash-grain and livestock farms and on other commercial types. It is most intensive in the Central, Northern, and Western Corn Belt. The Southern Corn Belt has the largest percentage of farms using horses or mules and no tractor. In that region, 7 percent of the commercial farms reported horse or mule power only, and 30 percent reported horses and/or mules in addition to tractors. For the Corn Belt as a whole, about as many farms reported 2 tractors as reported 1 tractor. Only 13.5 percent of the farms had 3 tractors or more. In the Central and Northern Corn Belt, more than 50 percent of the farmers reported 2 tractors, while from 28 to 31 percent (approximately) reported only 1 tractor. In the Southern and Eastern Corn Belt more farms reported

TABLE 37.—PERCENT OF COMMERCIAL FARMS REPORTING, BY TYPE OF WORK POWER AND NUMBER OF TRACTORS,<sup>1</sup> BY TYPE OF FARM, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Percentage distribution of farms reporting—				Farms reporting tractors, as a percent of all commercial farms	Percentage distribution of farms reporting—			
	No tractor, horses, or mules	Horses and/or mules and no tractor	Tractor and horses or mules	Tractor and no horses or mules		Any tractors	1 tractor	2 tractors	3 or more tractors
Total Corn Belt:									
All commercial farms.....	7.4	3.1	22.2	67.3	89.5	100.0	43.4	43.1	13.5
Cash-grain farms.....	5.9	1.3	16.0	76.8	92.8	100.0	40.9	43.9	15.2
Livestock farms <sup>2</sup> .....	6.7	3.9	27.4	62.0	89.4	100.0	41.9	43.9	14.2
Eastern Corn Belt:									
All commercial farms.....	10.6	2.6	12.3	74.5	86.8	100.0	48.1	39.7	12.2
Cash-grain farms.....	7.7	1.1	9.6	81.6	91.2	100.0	46.6	40.6	12.8
Livestock farms <sup>2</sup> .....	11.2	2.8	15.1	70.9	86.1	100.0	45.9	40.6	13.5
Central Corn Belt:									
All commercial farms.....	6.3	1.5	17.1	75.1	92.2	100.0	29.3	51.5	19.2
Cash-grain farms.....	5.2	0.9	13.2	80.7	93.9	100.0	28.4	50.9	20.7
Livestock farms <sup>2</sup> .....	5.5	1.8	21.2	71.5	92.7	100.0	27.8	52.8	19.4
Northern Corn Belt:									
All commercial farms.....	5.0	1.7	23.0	70.3	93.3	100.0	33.5	50.8	15.7
Cash-grain farms.....	5.2	0.7	15.4	78.7	94.1	100.0	31.2	50.1	18.7
Livestock farms <sup>2</sup> .....	4.0	2.0	25.9	68.1	93.9	100.0	32.1	51.2	16.7
Western Corn Belt:									
All commercial farms.....	5.8	2.8	28.9	62.5	91.4	100.0	42.9	44.2	12.9
Cash-grain farms.....	4.9	1.5	22.2	71.4	93.7	100.0	41.2	42.6	13.2
Livestock farms <sup>2</sup> .....	5.4	3.3	34.0	57.3	91.4	100.0	39.5	46.2	14.3
Southern Corn Belt:									
All commercial farms.....	8.3	7.1	30.1	54.5	84.6	100.0	62.4	30.0	7.6
Cash-grain farms.....	5.9	2.7	22.5	68.9	91.5	100.0	55.0	34.8	10.2
Livestock farms <sup>2</sup> .....	8.2	8.7	31.9	48.2	83.1	100.0	64.3	28.4	7.3

<sup>1</sup> Farms reporting tractors, other than garden tractors.

<sup>2</sup> Livestock other than dairy and poultry farms.



TABLE 38.—PERCENT OF COMMERCIAL FARMS REPORTING, BY TYPE OF WORK POWER AND NUMBER OF TRACTORS,<sup>1</sup> BY TYPE AND ECONOMIC CLASS OF FARM, IN THE CORN BELT: 1954

Type and economic class of farm	Percentage distribution of farms reporting—				Farms reporting tractors, as a percent of all commercial farms	Percentage distribution of farms reporting—			
	No tractor, horses, or mules	Horses and/or mules and no tractor	Tractor and horses or mules	Tractor and no horses or mules		Any tractors	1 tractor	2 tractors	3 or more tractors
All commercial farms.....	7.4	3.1	22.2	67.3	89.5	100.0	43.4	43.1	13.5
Cash-grain farms:									
Total.....	5.9	1.3	16.0	76.8	92.8	100.0	40.9	43.9	15.2
Class I.....	1.9	0.3	22.2	75.6	97.8	100.0	2.3	19.3	78.4
II.....	2.4	0.4	16.2	81.0	97.3	100.0	12.6	56.4	31.0
III.....	3.7	0.5	15.5	80.3	95.8	100.0	35.1	53.3	11.6
IV.....	6.4	1.2	16.2	76.2	92.4	100.0	59.8	35.1	5.1
V.....	12.4	2.8	15.8	69.0	84.8	100.0	78.0	19.4	2.6
VI.....	24.5	11.4	13.2	50.9	64.2	100.0	87.4	11.2	1.4
Livestock farms: <sup>2</sup>									
Total.....	6.7	3.9	27.4	62.0	89.4	100.0	41.9	43.9	14.2
Class I.....	1.7	0.9	35.1	62.3	97.4	100.0	6.2	39.2	54.6
II.....	2.3	0.7	26.7	70.3	96.9	100.0	18.6	59.3	22.1
III.....	3.0	1.5	27.4	68.1	95.5	100.0	40.4	50.6	9.0
IV.....	6.7	4.1	30.0	59.2	89.2	100.0	63.0	32.5	4.5
V.....	16.1	9.7	25.0	49.2	74.2	100.0	79.8	18.4	1.8
VI.....	31.7	19.9	17.5	30.9	48.4	100.0	88.3	10.9	0.8

<sup>1</sup> Farms reporting tractors, other than garden tractors.

<sup>2</sup> Livestock other than dairy and poultry farms.

1 tractor than reported 2 tractors. Farms having 3 or more tractors were relatively most numerous in the Central and Northern Corn Belt.

Use of tractors is more universal among the larger than among the smaller farms (table 38). About 97 to 98 percent of the Economic Class I and Class II farms, of the cash-grain and livestock types, reported tractors; among the Class V and Class VI farms the proportions ranged from about 48 to 85 percent. The largest proportion of farmers having tractors but no horses or mules were on Class II and Class III farms, on both cash-grain and livestock types. The larger farms also usually had both tractors and horses or mules more frequently than did the smaller farms. Among the livestock farms in each economic class, there were larger percentages of farms having both tractors and horses or mules than there were among cash-grain farms in the respective economic classes. Farms having horses or mules and no tractors were relatively uncommon among all economic classes, but the proportion was about 11 percent of the Class VI cash-grain farms and about 20 percent of the Class VI livestock farms. The proportion of farms reporting 1 tractor, 2 tractors, or 3 or more tractors was strongly correlated with size of farm. The small farms were generally in the 1-tractor group and the larger farms were in the 2-tractor or 3-or-more-tractor groups.

The average value of total investment in machinery and equipment per farm was more than \$15,000 on Economic Class I cash-grain farms (table 39), but it was consistently less on the smaller sized economic classes, ranging down to \$2,404 on cash-grain farms of Economic Class VI. The investment in machinery and equipment per farm averaged highest on commercial farms in the Central Corn Belt, but on the basis of economic class groups it was highest on the Class I cash-grain farms in the Southern Corn Belt and lowest on Class VI livestock farms in that region.

The total investment in machinery and equipment (not including household equipment) on all commercial farms in the Corn Belt was estimated at 4.8 billion dollars (table 40). The Western, Central, and Eastern Corn Belt regions each accounted for over a billion dollars of this total. The bulk of the capital investment usually is found on Class II and Class III farms, although these are not always the groups with the most numerous farms (tables 9 and 10). The total value of capital investment on Class V and Class VI farms in the Corn Belt is relatively small, but in the case of cash-grain farms it is more than the total investment on the large Class I farms in all regions except the Central Corn Belt, and in the case of livestock farms it is greater than the capital value on Class I farms in the Southern Corn Belt.

TABLE 39.—ESTIMATED AVERAGE VALUE OF TOTAL INVESTMENT IN MACHINERY AND EQUIPMENT, PER COMMERCIAL FARM, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Type and economic class of farm	Corn Belt, total	Eastern Corn Belt	Central Corn Belt	Northern Corn Belt	Western Corn Belt	Southern Corn Belt
All commercial farms.....	Dollars 5,986	Dollars 5,913	Dollars 6,697	Dollars 6,407	Dollars 6,056	Dollars 4,937
Cash-grain farms:						
Total.....	6,400	6,180	7,186	6,635	6,250	5,500
Class I.....	15,025	15,674	14,432	15,147	14,898	17,408
II.....	9,019	9,233	8,800	9,216	8,899	9,654
III.....	6,482	6,550	6,262	6,546	6,529	6,694
IV.....	4,901	4,802	4,741	4,924	5,075	4,931
V.....	3,659	3,630	3,483	3,741	3,786	3,649
VI.....	2,404	2,185	2,518	2,730	2,553	2,413
Livestock farms: <sup>1</sup>						
Total.....	6,313	6,390	7,309	6,884	6,399	4,810
Class I.....	12,774	14,655	12,516	12,608	12,016	13,392
II.....	8,482	8,909	8,464	8,719	8,195	8,352
III.....	6,198	6,270	6,339	6,349	6,260	5,748
IV.....	4,606	4,470	4,890	4,868	4,857	4,146
V.....	3,256	3,278	3,491	3,335	3,533	2,976
VI.....	2,050	1,958	2,228	2,268	2,370	1,877

<sup>1</sup> Livestock other than dairy and poultry farms.

TABLE 40.—ESTIMATED VALUE OF TOTAL INVESTMENT IN MACHINERY AND EQUIPMENT ON COMMERCIAL FARMS IN THE CORN BELT AND COMPONENT REGIONS: 1954

Type and economic class of farm	Corn Belt, total	Eastern Corn Belt	Central Corn Belt	Northern Corn Belt	Western Corn Belt	Southern Corn Belt
All commercial farms.....	1,000 dollars 4,772,390	1,000 dollars 1,048,209	1,000 dollars 1,124,087	1,000 dollars 695,590	1,000 dollars 1,127,503	1,000 dollars 777,901
Cash-grain farms:						
Total.....	1,693,157	422,074	496,130	182,244	367,950	224,759
Class I.....	97,004	25,281	46,485	6,150	12,917	6,772
II.....	559,197	129,816	230,658	61,785	96,179	40,759
III.....	584,138	133,936	156,051	73,978	145,275	74,898
IV.....	304,113	83,377	48,121	29,600	83,721	59,294
V.....	124,194	43,435	12,259	8,944	25,434	34,123
VI.....	23,910	6,230	2,555	1,788	4,424	8,913
Livestock farms: <sup>1</sup>						
Total.....	2,062,172	328,959	526,764	279,561	584,702	342,186
Class I.....	290,079	50,752	101,270	32,831	80,974	24,253
II.....	708,749	115,069	223,060	103,968	187,819	78,833
III.....	585,904	84,101	131,173	93,986	175,662	100,982
IV.....	308,496	46,801	50,515	38,456	95,797	76,927
V.....	130,235	25,509	16,703	8,324	34,799	44,901
VI.....	38,709	6,728	4,044	1,996	9,652	16,290

<sup>1</sup> Livestock other than dairy and poultry farms.



## HORSES AND MULES

Data on the number and distribution of horses and mules on Corn Belt farms are given in tables 68 to 72 along with data on other livestock. Horses and mules are important as work power, and so should be mentioned briefly at this point.

The number of horses and mules on farms in the North Central States has shown a decline in every Census year since 1920. The total number on farms in the North Central States in 1954 was only about 9 percent of the number in 1920.

In 1954 there were 451,000 horses and mules on commercial farms in the Corn Belt. Only 1 farm out of 4 reported horses or mules that year. Horses and mules were found most frequently on farms in the Southern Corn Belt, where they were reported on 37.2 percent of all the commercial farms and on 43.6 percent of the livestock farms. They were found relatively least frequently (on only 10.7 percent of the farms) among cash-grain farms in the Eastern Corn Belt. The average number of horses and mules on the farms reporting was 2 in every region, on cash-grain and livestock farms as well as on all commercial farms. The average number per farm reporting was also 2 for each of the economic classes of farms except Class I farms where the average number was 3.

## AUTOMOBILES AND HOME FACILITIES

Upwards of 90 percent of the commercial farms in the Corn Belt as a whole had automobiles (table 41). The proportion of farmers reporting automobiles varied somewhat between the regions, being as high as 94 percent in the Central and Northern Corn Belt and as low as 83 percent in the Southern Corn Belt. There was practically no difference between cash-grain and livestock farms in the same region as to possession of automobiles.

Practically all commercial farms in the Corn Belt have the use of electric current. Electricity was reported by about 97 percent of the farms in 1954 (table 41). The great increase in use of electricity on these farms is an event of the last 10 years. In 1945, only 56.8 percent of the farms in the 5 Corn Belt States had the use of electricity (2). In 1945, 59 percent of the farms in Iowa had electricity; in 1955 the proportion was 97.6 percent.

Telephones were reported on about 78 percent of the commercial farms. The proportion having telephones ranged from 87 percent in the Central Corn Belt to 69 percent in the Southern Corn Belt.

Television sets were reported on 1 out of every 2 cash-grain and livestock farms and on only slightly fewer of the other commercial farms. The proportion was highest in the Eastern Corn Belt and lowest in the Northern and Southern Corn Belt. Having or not having a TV set depends upon being within range of a TV broadcasting station as well as upon having the income available for buying the receiving set.

About two-thirds of the farms in the Corn Belt had piped running water in 1954. The proportion was highest on livestock farms in the Eastern Corn Belt (82.5 percent) and was lowest on cash-grain farms in the Southern Corn Belt (47.7 percent). Piped running water was more common on livestock farms than on cash-grain farms. Running water is an especial convenience and labor-saver in connection with livestock production.

Home freezers were reported on about 45 percent of the farms in the Corn Belt as a whole. Generally, they were found somewhat more frequently on livestock farms in the Eastern Corn Belt and were least common on commercial farms other than cash-grain or livestock in the Southern Corn Belt.

In the case of automobiles and facilities such as electricity, telephone, TV set, and piped running water, as in the case of farm machinery and equipment, there was a positive correlation between the percentage of farms reporting and size (economic class) of farm (table 42). For example, electricity was reported on 99.1 percent of the Class I cash-grain farms and on 81.3 percent of the Class VI cash-grain farms. Piped running water was reported on 94.8 percent of the Class I livestock farms but on only 36.9 percent of the Class VI farms of this type.

TABLE 41.—PERCENT OF COMMERCIAL FARMS IN EACH TYPE REPORTING SPECIFIED FACILITIES AND EQUIPMENT, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Auto- mobile	Elec- tricity	Tele- phone	Televi- sion set	Piped running water	Home freezer
	Percent	Percent	Percent	Percent	Percent	Percent
Total Corn Belt:						
All commercial farms...	90.5	96.7	78.2	48.7	66.7	44.9
Cash-grain farms...	91.4	95.6	73.8	50.5	63.4	43.8
Livestock farms <sup>1</sup> ...	91.0	97.4	82.4	50.6	70.6	46.5
Eastern Corn Belt:						
All commercial farms...	90.0	97.7	76.9	62.7	78.8	54.3
Cash-grain farms...	91.2	97.6	73.4	64.1	76.0	51.5
Livestock farms <sup>1</sup> ...	90.2	98.2	81.6	65.8	82.5	58.8
Central Corn Belt:						
All commercial farms...	94.0	97.6	87.3	56.5	72.8	52.1
Cash-grain farms...	94.2	96.8	84.1	56.3	68.8	51.7
Livestock farms <sup>1</sup> ...	94.8	98.5	90.8	60.0	78.3	53.5
Northern Corn Belt:						
All commercial farms...	94.1	96.5	79.1	37.7	64.6	46.1
Cash-grain farms...	94.2	94.1	69.9	35.8	55.0	41.6
Livestock farms <sup>1</sup> ...	94.4	97.5	84.8	41.5	71.3	49.2
Western Corn Belt:						
All commercial farms...	92.2	95.8	78.2	44.0	65.2	37.7
Cash-grain farms...	92.2	93.3	72.3	41.4	57.3	32.2
Livestock farms <sup>1</sup> ...	92.8	97.1	82.0	47.9	71.9	42.2
Southern Corn Belt:						
All commercial farms...	82.6	95.6	69.3	37.9	49.5	34.1
Cash-grain farms...	83.9	94.5	62.0	40.9	47.7	36.0
Livestock farms <sup>1</sup> ...	83.4	96.0	73.8	38.9	52.1	34.3

<sup>1</sup> Livestock other than dairy and poultry farms.

TABLE 42.—PERCENT OF COMMERCIAL FARMS IN EACH TYPE, BY ECONOMIC CLASS, REPORTING SPECIFIED FACILITIES AND EQUIPMENT, IN THE CORN BELT: 1954

Type and economic class of farm	Auto- mobile	Elec- tricity	Tele- phone	Televi- sion set	Piped running water	Home freezer
	Percent	Percent	Percent	Percent	Percent	Percent
All commercial farms...	90.5	96.7	78.2	48.7	66.7	44.9
Cash-grain farms:						
Total.....	91.4	95.6	73.8	50.5	63.4	43.8
Class I.....	98.1	99.1	90.3	74.8	90.5	74.1
II.....	97.2	98.7	85.8	63.4	79.9	60.7
III.....	94.0	97.2	77.3	50.8	64.9	45.0
IV.....	89.4	94.4	66.6	43.3	54.0	34.5
V.....	82.5	90.5	59.7	40.9	48.8	28.5
VI.....	69.9	84.3	50.2	27.6	37.0	19.3
Livestock farms: <sup>1</sup>						
Total.....	91.0	97.4	82.4	50.6	70.6	46.5
Class I.....	98.3	99.5	95.7	72.7	94.8	70.2
II.....	96.8	99.2	91.3	62.6	85.8	59.6
III.....	93.9	98.4	84.7	50.8	73.1	47.3
IV.....	88.7	97.0	77.3	42.0	60.3	37.1
V.....	82.2	95.0	69.9	39.0	52.1	31.8
VI.....	68.7	88.0	60.5	25.0	36.9	19.7

<sup>1</sup> Livestock other than dairy and poultry farms.

## FARM LABOR

## CHARACTERISTICS OF OPERATORS

The average age of farm operators in the North Central States in 1954 was 49 years. This is only slightly older (about two-tenths of a year) than it was in 1945. In the United States as a whole, however, the average age of farm operators in 1954 was about a year older than in 1945. In the South the average age was almost 2 years older than in 1945.

Information on average age and age composition of operators gives some indication of the age of retirement and of the rate of replacement of older operators by younger men. From 1945 to 1954 in the North Central States, the decrease in number of operators under 25 years old was relatively greater than the decrease in number of farms. The proportion of operators 25 to 34 years of age in 1954 was practically the same as in 1945, while the proportion 35 to 44 years of age increased. The proportion of operators in the 45- to 64-year group declined, but the proportion in the 65-years-old and over group increased. This indicates that relatively few young men (under 25 years) had been entering farming during the decade, but that, on the other hand, farmers of 25 to 44 years of age had stayed in farming to a relatively greater extent than the older age groups. Apparently, the farms or farm lands freed by the operators of age 45 and over who retired or departed from farming were taken up by the younger group. However, farmers reaching age 65 who continued to operate farms, were a somewhat larger proportion of the total number of farmers than in 1945.

Among the factors that in recent years have deterred young men from becoming farm operators are, on the one hand, the relatively attractive opportunities and incomes in nonfarm work and, on the other hand, the relatively large amount of capital that is required to equip and operate a farm. The large capital required also tends to restrain a young man from going into farming until he has accumulated more capital or obtained a stronger financial backing than was necessary a generation ago.

Reports on age were obtained in the 1954 Census from practically all farm operators. Nearly half of all the commercial farm operators in the Corn Belt were 35 to 54 years old in 1954. The largest 10-year-span age group was the 35- to 44-year group, but operators in the 45- to 54-year group were almost as numerous. Relatively few operators were under 25 years of age and the total number under 35 years was less than the number who were 35 to 44 or 45 to 54 years old. About a fifth of the operators were 55 to 64 years old and about a seventh were 65 years old or over (table 43). Older operators were relatively most numerous in the Southern and Eastern Corn Belt, while the Northern Corn Belt had the largest proportion of younger operators. In general, there was a relatively larger proportion of younger operators on cash-grain farms than on livestock farms. It is usually easier to get started in cash-grain farming than in livestock farming. Less capital is needed for the total investment in machinery and livestock and, although the land requirement is large, the land often may be rented.

Class II farms had the largest percentage of operators under the age of 35 (table 44). On Classes I, II, and III farms, from about 19 percent to 24 percent of the operators were under 35 years, while on Classes IV, V, and VI farms, this age group accounted for only 4 percent to 19 percent of all the operators. For both cash-grain and livestock farms, as we go from the large to the smaller sizes of farms, we find a larger proportion of the operators in the older age groups. Nearly 39 percent of the Class VI cash-grain farms and almost 47 percent of the Class VI livestock farms were operated by farmers 65 years old or over.

TABLE 43.—NUMBER AND PERCENTAGE OF COMMERCIAL FARM OPERATORS, BY AGE, BY TYPE OF FARM, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Operators reporting age		Percentage distribution of operators reporting age				
	Total	Percent of all operators	Total operators reporting	Age under 35 years	Age 35 to 54 years	Age 55 to 64 years	Age 65 years and over
<b>Total Corn Belt:</b>							
All commercial farms.....	787, 218	98. 7	100. 0	18. 5	47. 7	20. 1	13. 7
Cash-grain farms.....	260, 982	98. 7	100. 0	20. 8	47. 8	19. 2	12. 2
Livestock farms <sup>1</sup> .....	322, 886	98. 8	100. 0	17. 5	48. 1	20. 6	13. 8
<b>Eastern Corn Belt:</b>							
All commercial farms.....	174, 535	98. 5	100. 0	16. 2	44. 8	21. 5	17. 5
Cash-grain farms.....	67, 159	98. 3	100. 0	18. 6	45. 9	20. 3	15. 2
Livestock farms.....	50, 684	98. 5	100. 0	14. 9	44. 8	22. 2	18. 1
<b>Central Corn Belt:</b>							
All commercial farms.....	165, 707	98. 7	100. 0	20. 6	49. 5	18. 5	11. 4
Cash-grain farms.....	68, 126	98. 7	100. 0	21. 1	48. 6	19. 1	11. 2
Livestock farms.....	71, 263	98. 9	100. 0	20. 3	50. 9	17. 9	10. 9
<b>Northern Corn Belt:</b>							
All commercial farms.....	107, 557	99. 1	100. 0	21. 6	50. 9	17. 8	9. 7
Cash-grain farms.....	27, 206	99. 0	100. 0	21. 5	48. 8	19. 0	10. 7
Livestock farms.....	40, 290	99. 2	100. 0	21. 3	50. 7	18. 4	9. 6
<b>Western Corn Belt:</b>							
All commercial farms.....	184, 218	98. 9	100. 0	20. 7	48. 7	19. 4	11. 2
Cash-grain farms.....	58, 306	99. 0	100. 0	23. 4	48. 6	18. 0	10. 0
Livestock farms.....	90, 392	98. 9	100. 0	19. 3	49. 3	20. 1	11. 3
<b>Southern Corn Belt:</b>							
All commercial farms.....	155, 201	98. 6	100. 0	14. 2	45. 2	22. 8	17. 8
Cash-grain farms.....	40, 185	98. 3	100. 0	19. 7	47. 6	19. 5	13. 2
Livestock farms.....	70, 257	98. 8	100. 0	12. 1	44. 3	24. 1	19. 5

<sup>1</sup> Livestock other than dairy and poultry farms.

TABLE 44.—NUMBER AND PERCENTAGE OF COMMERCIAL FARM OPERATORS, BY AGE, BY TYPE AND ECONOMIC CLASS OF FARM, IN THE CORN BELT: 1954

Type and economic class of farm	Operators reporting age		Percentage distribution of operators reporting age				
	Total	Percent of all operators	Total operators reporting	Age under 35 years	Age 35 to 54 years	Age 55 to 64 years	Age 65 years and over
All commercial farms.....	787, 218	98. 7	100. 0	18. 5	47. 7	20. 1	13. 7
<b>Cash-grain farms:</b>							
Total.....	260, 982	98. 7	100. 0	20. 8	47. 8	19. 2	12. 2
Class I.....	6, 414	98. 7	100. 0	19. 6	59. 9	14. 7	5. 8
II.....	61, 308	98. 9	100. 0	24. 3	55. 2	14. 7	5. 8
III.....	89, 259	99. 1	100. 0	22. 5	50. 3	18. 2	9. 0
IV.....	61, 178	98. 6	100. 0	18. 9	42. 7	23. 0	15. 4
V.....	33, 187	97. 8	100. 0	16. 7	40. 5	22. 7	20. 1
VI.....	9, 636	96. 9	100. 0	10. 0	26. 4	24. 8	38. 8
<b>Livestock farms:<sup>1</sup></b>							
Total.....	322, 886	98. 8	100. 0	17. 5	48. 1	20. 6	13. 8
Class I.....	22, 413	98. 7	100. 0	22. 9	55. 9	15. 2	6. 0
II.....	82, 644	98. 9	100. 0	24. 1	54. 8	15. 4	5. 7
III.....	93, 789	99. 2	100. 0	18. 9	51. 9	20. 0	9. 2
IV.....	66, 189	98. 8	100. 0	13. 6	44. 8	24. 8	16. 8
V.....	39, 349	98. 4	100. 0	10. 1	37. 8	26. 0	26. 1
VI.....	18, 502	98. 0	100. 0	4. 1	22. 0	27. 2	46. 7

<sup>1</sup> Livestock other than dairy and poultry farms.

Less than 8 percent of the commercial farm families in the Corn Belt had incomes from other sources exceeding the value of all farm products sold (table 45). This emphasizes the importance of the farm business and farm incomes to the vast majority of farm families in the Corn Belt. The proportion of farm families with other incomes larger than the value of farm products sold was smallest in the Central and Northern Corn Belt. It was largest in the Eastern Corn Belt; there about 14 percent of the operators

reported nonfarm incomes to themselves and members of their families greater than the value of farm products sold. Opportunities for nonfarm earnings are generally greatest in the Eastern Corn Belt because there are more cities and industrial establishments there than in other parts of the Corn Belt. A larger percentage of cash-grain farmers than of livestock farmers had a relatively large income from nonfarm sources, reflecting the greater amount of time available for nonfarm activities by cash-grain farmers at some seasons of the year.

Somewhat more than two-thirds of the farm operators in the Corn Belt who gave information as to off-farm work reported none at all. Off-farm work includes work on farms other than the oper-

ator's own farm as well as jobs in industrial plants and in nonfarm occupations. The proportion of operators not doing any off-farm work was largest in the Western Corn Belt and smallest in the Eastern Corn Belt. Most of the operators who did some off-the-farm work worked less than 100 days at such activities. The group of operators who spent the most time at off-farm work was among the cash-grain farmers in the Eastern Corn Belt. About 18 percent of these worked 200 or more days off their farms in 1954.

The economic classes of farms with the largest percentages of farms reporting other income exceeding the value of farm products sold were Classes IV and V (table 46). The relatively low farm incomes on these farms make outside sources of income more urgent

TABLE 45.—NUMBER AND PERCENTAGE OF COMMERCIAL FARM OPERATORS REPORTING AS TO OTHER INCOME AND OFF-FARM WORK, BY TYPE OF FARM, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Operators with other income exceeding value of farm products sold <sup>1</sup>		Operators reporting as to off-farm work		Percentage distribution of operators reporting as to off-farm work				
	Operators reporting	Percent of all operators	Total operators reporting	Percent of all operators	Total operators reporting	Not working off farm	Working off farm—		
							1 to 99 days	100 to 199 days	200 days or more
<b>Total Corn Belt:</b>									
All commercial farms.....	60,409	7.6	769,593	96.5	100.0	67.9	21.5	3.4	7.2
Cash-grain farms.....	23,056	8.7	254,731	96.3	100.0	63.5	23.3	4.4	8.8
Livestock farms <sup>2</sup> .....	21,584	6.6	315,900	96.7	100.0	71.5	20.0	2.5	6.0
<b>Eastern Corn Belt:</b>									
All commercial farms.....	25,456	14.4	169,263	95.5	100.0	60.0	19.3	5.4	15.3
Cash-grain farms.....	11,411	16.7	65,239	95.5	100.0	55.1	20.3	6.2	18.4
Livestock farms <sup>2</sup> .....	6,881	13.4	49,096	95.4	100.0	63.6	18.2	4.5	13.7
<b>Central Corn Belt:</b>									
All commercial farms.....	7,392	4.4	161,359	96.1	100.0	71.0	22.1	2.4	4.5
Cash-grain farms.....	2,991	4.3	65,978	95.6	100.0	68.4	23.6	3.0	5.0
Livestock farms <sup>2</sup> .....	2,969	4.1	69,590	96.6	100.0	73.5	20.8	1.8	3.9
<b>Northern Corn Belt:</b>									
All commercial farms.....	3,898	3.6	105,224	96.9	100.0	71.8	22.6	2.0	3.6
Cash-grain farms.....	1,282	4.7	26,653	97.0	100.0	67.5	24.3	3.2	5.0
Livestock farms <sup>2</sup> .....	1,260	3.1	39,335	96.9	100.0	73.6	22.1	1.3	3.0
<b>Western Corn Belt:</b>									
All commercial farms.....	8,742	4.7	181,090	97.3	100.0	72.0	21.5	2.4	4.1
Cash-grain farms.....	2,798	4.8	57,308	97.3	100.0	67.8	24.7	3.3	4.2
Livestock farms <sup>2</sup> .....	4,064	4.4	88,808	97.2	100.0	75.4	18.9	1.8	3.9
<b>Southern Corn Belt:</b>									
All commercial farms.....	14,921	9.5	152,657	97.0	100.0	66.0	22.4	4.3	7.3
Cash-grain farms.....	4,574	11.2	39,553	96.8	100.0	60.2	25.2	5.9	8.7
Livestock farms <sup>2</sup> .....	6,410	9.0	69,071	97.1	100.0	68.9	20.5	3.6	7.0

<sup>1</sup> Farm operators with other income of family exceeding value of farm products sold.

<sup>2</sup> Livestock other than dairy and poultry farms.

TABLE 46.—NUMBER AND PERCENTAGE OF COMMERCIAL FARM OPERATORS REPORTING AS TO OTHER INCOME AND OFF-FARM WORK, BY TYPE AND ECONOMIC CLASS OF FARM, IN THE CORN BELT: 1954

Type and economic class of farm	Operators with other income exceeding value of farm products sold <sup>1</sup>		Operators reporting as to off-farm work		Percentage distribution of operators reporting as to off-farm work				
	Operators reporting	Percent of all operators	Total operators reporting	Percent of all operators	Total operators reporting	Not working off farm	Working off farm—		
							1 to 99 days	100 to 199 days	200 days or more
All commercial farms.....	60,409	7.6	769,593	96.5	100.0	67.9	21.5	3.4	7.2
<b>Cash-grain farms:</b>									
Total.....	23,056	8.7	254,731	96.3	100.0	63.5	23.3	4.4	8.8
Class I.....	107	1.6	6,233	96.0	100.0	72.7	22.6	1.6	3.1
II.....	911	1.5	59,658	96.2	100.0	70.5	25.3	1.9	2.3
III.....	3,498	3.9	87,030	96.6	100.0	66.5	25.0	3.7	4.8
IV.....	8,044	13.0	59,849	96.5	100.0	59.1	21.7	6.3	12.9
V.....	10,496	30.9	32,754	96.5	100.0	46.0	17.3	8.9	27.8
VI.....			9,207	92.6	100.0	74.0	26.0		
<b>Livestock farms: <sup>2</sup></b>									
Total.....	21,584	6.6	315,900	96.7	100.0	71.5	20.6	2.5	6.0
Class I.....	442	1.9	22,044	97.1	100.0	77.3	19.2	1.2	2.3
II.....	1,215	1.5	80,886	96.8	100.0	74.4	22.4	1.2	2.0
III.....	2,669	2.8	91,499	96.8	100.0	74.1	20.6	2.1	3.2
IV.....	6,714	10.0	64,764	96.7	100.0	68.1	18.9	3.9	9.1
V.....	10,544	26.4	38,754	96.9	100.0	56.9	16.3	6.1	20.7
VI.....			17,983	95.2	100.0	81.7	18.3		

<sup>1</sup> Farm operators with other income of family exceeding value of farm products sold.

<sup>2</sup> Livestock other than dairy and poultry farms.

than on the larger farms. Class VI farms have the lowest farm incomes (value of products sold) of all the economic classes of farms. But, by definition, these farms do not include any farms on which other sources of income exceeded the value of farm products sold nor any farms on which the operator worked 100 or more days at off-farm work. The proportion of operators not doing any off-farm work declines consistently as we go from Class I to Class V farms of both the cash-grain and livestock types. The percentage of farm operators working 100 or more days off the farm also increases as the size of farm decreases, exclusive of the Class VI farms. Approximately 28 percent of the Class V cash-grain farm operators and 21 percent of the Class V livestock farm operators worked 200 days or more off their farms in 1954.

It is rather significant that even among the larger economic classes of livestock farms, which ordinarily require some labor throughout the year, about 23 to 26 percent of the operators found time for some off-farm work. This may indicate that many operators of small farms could spend more time in such work than they now do, if the employment were available. From the standpoint of work on his own farm, the role of mechanization in freeing the farmer from long hours of manual labor is a decided factor in making more off-farm work possible.

### SIZE AND COMPOSITION OF LABOR FORCE

Family-operated farms are the prevailing and predominant kind in the Corn Belt. Upwards of 95 percent of the commercial farms in most of the belt reported some family or hired workers during the specified week of the 1954 Census (table 47). Farms reporting hired labor were only half as numerous as were farms reporting operator and family labor only. From 39 percent to 51 percent

TABLE 47.—NUMBER AND PERCENTAGE OF COMMERCIAL FARMS, BY KIND OF FARM WORKERS, BY TYPE OF FARM, IN THE CORN BELT AND COMPONENT REGIONS, IN SPECIFIED WEEK: 1954<sup>1</sup>

Region and type of farm	Farms reporting family and/or hired workers		Percentage distribution of farms reporting—				
	Farms reporting	Percent of all farms	Family and/or workers	Operator only	Unpaid family workers only	Operator and family workers only	Hired workers <sup>2</sup>
<b>Total Corn Belt:</b>							
All commercial farms.....	761,668	95.5	100.0	46.8	1.2	34.1	17.9
Cash-grain farms.....	247,924	93.7	100.0	50.8	1.2	30.0	18.0
Livestock farms <sup>3</sup> .....	315,891	96.7	100.0	46.1	1.1	33.0	19.8
<b>Eastern Corn Belt:</b>							
All commercial farms.....	165,476	93.3	100.0	49.3	1.5	30.4	18.8
Cash-grain farms.....	62,727	91.8	100.0	53.5	1.4	27.5	17.6
Livestock farms <sup>3</sup> .....	48,540	94.3	100.0	48.9	1.3	27.1	22.7
<b>Central Corn Belt:</b>							
All commercial farms.....	161,171	96.0	100.0	45.8	1.1	29.8	23.3
Cash-grain farms.....	65,109	94.3	100.0	48.7	1.1	25.8	24.4
Livestock farms <sup>3</sup> .....	70,230	97.4	100.0	43.7	1.1	31.0	24.2
<b>Northern Corn Belt:</b>							
All commercial farms.....	105,042	96.8	100.0	39.3	1.2	40.0	19.5
Cash-grain farms.....	25,879	94.2	100.0	45.8	1.2	34.3	18.6
Livestock farms <sup>3</sup> .....	39,778	98.0	100.0	39.0	0.9	38.2	21.9
<b>Western Corn Belt:</b>							
All commercial farms.....	178,902	96.1	100.0	46.1	1.1	37.0	15.8
Cash-grain farms.....	55,618	94.5	100.0	50.0	1.0	35.2	13.8
Livestock farms <sup>3</sup> .....	88,736	97.1	100.0	45.0	1.0	35.5	18.5
<b>Southern Corn Belt:</b>							
All commercial farms.....	151,077	96.0	100.0	51.0	1.2	35.4	12.5
Cash-grain farms.....	38,591	94.4	100.0	54.6	1.3	30.9	13.2
Livestock farms <sup>3</sup> .....	68,607	96.4	100.0	52.1	1.1	32.8	13.9

<sup>1</sup> The specified week for which information on farm labor was obtained in the 1954 Census was as follows for the States included or partly included in the Corn Belt: September 26-October 2 for Minnesota, Wisconsin, Michigan, South Dakota, Nebraska, Kansas, and Kentucky; October 24-30 for Iowa, Illinois, Indiana, Ohio, and Missouri.

<sup>2</sup> Total of farms reporting hired workers and family workers and farms reporting hired workers only.

<sup>3</sup> Livestock other than dairy and poultry farms.

of the farms in the different regions of the Corn Belt reported operators only, with no family or hired workers. This percentage was highest in the Southern Corn Belt and lowest in the Northern Corn Belt. It was higher on cash-grain farms than on livestock farms. Operator and family workers only, with no hired workers, were reported on 34 percent of the farms. Only 18 percent of all the commercial farms reported hired workers, but this percentage ranged from about 24 percent on cash-grain farms in the Central Corn Belt down to 13 percent on cash-grain farms in the Southern Corn Belt.

The number of farms reporting expenditures for hired labor is greater than the number of farms reporting hired workers in the specified week of September or October. This is so because expenditures were reported for labor even if the labor were used for a very short time. The average number of hired workers during the specified week was approximately the same as the average number for the year in the Corn Belt States.

The proportion of farms reporting different kinds and combinations of farmworkers is related to economic class or size of farm (table 48). For example, only 13.2 percent of the Class I cash-grain farms reported operator labor only, but 70.5 percent of these farms reported hired workers. At the other extreme, 77.1 percent of Class VI cash-grain farms reported operator labor only, while only 2.8 percent reported hired workers. The largest percentages of farms reporting operator and family workers only were found in Classes II, III, and IV among both cash-grain and livestock farms. These are, in general, the most typical sizes and types of farms in the Corn Belt.

In order to make an estimate of the total quantity of labor on the various types and sizes of farms it is necessary to use a common denominator for the different kinds of labor. All labor reported was therefore converted to man-equivalents. A man-equivalent is taken to be an average full-time mature worker, or the equivalent of a man working full time for a year.

The total number of farm operators is the same as the number of farms. In converting the number of operators to man-equivalents, adjustments were made for the estimated man-years of work

TABLE 48.—NUMBER AND PERCENTAGE OF COMMERCIAL FARMS, BY KIND OF FARM WORKERS, BY TYPE AND ECONOMIC CLASS OF FARM, IN THE CORN BELT, IN SPECIFIED WEEK: 1954<sup>1</sup>

Type and economic class of farm	Farms reporting family and/or hired workers		Percentage distribution of farms reporting—				
	Farms reporting	Percent of all farms	Family and/or workers	Operator only	Unpaid family workers only	Operator and family workers only	Hired workers <sup>2</sup>
<b>All commercial farms.....</b>	<b>761,668</b>	<b>95.5</b>	<b>100.0</b>	<b>46.8</b>	<b>1.2</b>	<b>34.1</b>	<b>17.9</b>
<b>Cash-grain farms:</b>							
Total.....	247,924	93.7	100.0	50.8	1.2	30.0	18.0
Class I.....	6,381	98.2	100.0	13.2	0.5	15.8	70.5
II.....	60,101	96.9	100.0	37.0	1.0	29.7	32.4
III.....	85,871	95.3	100.0	49.9	1.1	33.9	15.1
IV.....	57,170	92.1	100.0	58.7	1.4	30.4	9.5
V.....	29,997	88.4	100.0	66.9	1.6	25.3	6.2
VI.....	8,404	84.5	100.0	77.1	1.2	18.9	2.8
<b>Livestock farms:<sup>3</sup></b>							
Total.....	315,891	96.7	100.0	46.1	1.1	33.0	19.8
Class I.....	22,481	99.0	100.0	18.7	0.6	17.5	63.3
II.....	82,089	98.2	100.0	36.8	0.7	32.8	29.7
III.....	92,167	97.5	100.0	45.6	1.1	37.7	15.6
IV.....	64,321	96.0	100.0	51.4	1.2	36.8	10.6
V.....	37,621	94.1	100.0	62.2	1.7	29.8	6.3
VI.....	17,212	91.2	100.0	73.7	1.4	21.7	3.2

<sup>1</sup> The specified week for which information on farm labor was obtained in the 1954 Census was as follows for the States included or partly included in the Corn Belt: September 26-October 2 for Minnesota, Wisconsin, Michigan, South Dakota, Nebraska, Kansas, and Kentucky; October 24-30 for Iowa, Illinois, Indiana, Ohio, and Missouri.

<sup>2</sup> Total of farms reporting hired workers and family workers and farms reporting hired workers only.

<sup>3</sup> Livestock other than dairy and poultry farms.

off the farm and for work done by operators 65 years old and over. A farm operator was counted as a full man-equivalent unless he was 65 years old or over or unless he did some off-farm work in 1954. Farm operators 65 years of age and over were counted as 0.5 man-equivalent. Operators reporting specified amounts of off-farm work were converted to man-equivalents as follows:

Days work off the farm	Man-equivalent
1 to 99 days.....	0.85
100 to 199 days.....	.50
200 days or more.....	.15

Unpaid family workers, according to the Census, were members of the operator's family who did 15 or more hours of work on the farm during the week of September 26 to October 2 or during the week of October 24 to October 30, without receiving cash wages (see table 47, footnote 1). Each unpaid family worker reported by the Census was counted as 0.5 man-equivalent in the present study. This adjustment to man-equivalents takes into account the usually large proportion of women, children, and elderly persons in the unpaid family labor force.

The number of man-equivalents of hired workers was computed from the expenditure for hired wages reported in the Census. A composite average annual wage rate was determined for each economic subregion. In the Corn Belt the wage rates ranged from about \$1,600 to \$2,200. The total expenditure for hired labor in each subregion was divided by the estimated average annual wage rate in the subregion to obtain the man-equivalent number of hired workers.

The average quantity of all labor per commercial farm in the Corn Belt in 1954 was 1.3 man-equivalents. This amounts to the same as one man working full time at farmwork for a year and a second man working for about a third of the year. Most of the labor used was that of the farm operator (table 49). The labor of operators amounted to an average of 0.8 of a man-equivalent per farm, while the labor of unpaid family workers and of hired workers averaged 0.3 and 0.2 man-equivalents, respectively.

On the average, farm operators accounted for about two-thirds of all the labor resources on commercial farms in the Corn Belt in 1954. Unpaid members of the operator's family accounted for about a fourth, and hired workers for about a sixth of the work. The average quantity of total labor used per farm did not differ greatly between regions and types of farms in the Corn Belt. But it was highest on livestock farms in the Northern Corn Belt and lowest on cash-grain farms in the Eastern Corn Belt. Hired labor did not average more than 0.2 man-equivalent per farm in any region of the Corn Belt.

Large farms had more labor of all kinds than did small farms. The average quantity of total labor per commercial farm ranged from 2.4 man-equivalents on Class I cash-grain farms down to 0.8 man-equivalent on Class V and Class VI cash-grain farms and livestock farms (table 50). Classes IV, V, and VI farms had less operator labor as well as less unpaid family and hired labor per farm than that on Classes I, II, and III farms. Only on the large Class I farms did hired labor account for as much as half the labor used. On Class I cash-grain farms, hired labor averaged 1.2 man-equivalents per farm. On Classes IV, V, and VI farms, the quantity of hired labor was very small.

The factor 0.5 as a man-equivalent for unpaid family labor may be somewhat low. This may be especially true on farms where work is relatively light or highly mechanized. For jobs that are done by machine, a boy or girl or an elderly person can often accomplish practically as much as a man in the prime of life. The younger person generally requires more supervision than a mature person who is experienced. But many of the jobs on the farm are routine or mechanized, for example, feeding livestock, other livestock chores, milking cows, driving a tractor for plowing or cultivating, or hauling produce to market by automobile or

truck. It is believed, therefore, that the computed man-equivalent of unpaid family labor used in this study is rather conservative and that family labor is relatively even more important compared with hired labor than indicated by the data in tables 49 and 50. However, even if factors as much as a third larger had been used for unpaid family labor and for operators of age 65 and over, the estimated total labor per farm would have been increased by less than 0.2 of a man-equivalent. From the standpoint of labor used, it is clear that the typical farm in the Corn Belt is the family-sized farm.

TABLE 49.—LABOR FORCE OF FARM WORKERS EXPRESSED IN TERMS OF AVERAGE NUMBER OF MAN-EQUIVALENTS PER FARM, BY TYPE OF FARM, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Average number of man-equivalents per farm			
	Total labor	Operator labor	Unpaid family labor	Hired labor
<b>Total Corn Belt:</b>				
All commercial farms.....	1.3	0.8	0.3	0.2
Cash-grain farms.....	1.2	0.8	0.3	0.1
Livestock farms <sup>1</sup> .....	1.3	0.8	0.3	0.2
<b>Eastern Corn Belt:</b>				
All commercial farms.....	1.2	0.7	0.3	0.2
Cash-grain farms.....	1.0	0.7	0.2	0.1
Livestock farms <sup>1</sup> .....	1.1	0.7	0.2	0.2
<b>Central Corn Belt:</b>				
All commercial farms.....	1.3	0.8	0.3	0.2
Cash-grain farms.....	1.2	0.8	0.2	0.2
Livestock farms <sup>1</sup> .....	1.3	0.8	0.3	0.2
<b>Northern Corn Belt:</b>				
All commercial farms.....	1.4	0.8	0.4	0.2
Cash-grain farms.....	1.2	0.8	0.3	0.1
Livestock farms <sup>1</sup> .....	1.5	0.9	0.4	0.2
<b>Western Corn Belt:</b>				
All commercial farms.....	1.3	0.8	0.3	0.2
Cash-grain farms.....	1.2	0.8	0.3	0.1
Livestock farms <sup>1</sup> .....	1.3	0.8	0.3	0.2
<b>Southern Corn Belt:</b>				
All commercial farms.....	1.2	0.8	0.3	0.1
Cash-grain farms.....	1.1	0.8	0.2	0.1
Livestock farms <sup>1</sup> .....	1.2	0.8	0.3	0.1

<sup>1</sup> Livestock other than dairy and poultry farms.

TABLE 50.—LABOR FORCE OF FARM WORKERS, EXPRESSED IN TERMS OF AVERAGE NUMBER OF MAN-EQUIVALENTS PER FARM, BY TYPE AND ECONOMIC CLASS OF FARM, IN THE CORN BELT: 1954

Type and economic class of farm	Average number of man-equivalents per farm			
	Total labor	Operator labor	Unpaid family labor	Hired labor
All commercial farms.....	1.3	0.8	0.3	0.2
<b>Cash-grain farms:</b>				
Total.....	1.2	0.8	0.3	0.1
Class I.....	2.4	0.9	0.3	1.2
II.....	1.4	0.9	0.3	0.2
III.....	1.2	0.8	0.3	0.1
IV.....	1.0	0.7	0.2	(Z)
V.....	0.8	0.6	0.2	(Z)
VI.....	0.8	0.7	0.1	(Z)
<b>Livestock farms:<sup>1</sup></b>				
Total.....	1.3	0.8	0.3	0.2
Class I.....	2.3	0.9	0.3	1.1
II.....	1.5	0.9	0.3	0.3
III.....	1.3	0.9	0.3	0.1
IV.....	1.2	0.8	0.3	0.1
V.....	0.8	0.6	0.2	(Z)
VI.....	0.8	0.7	0.1	(Z)

Z .05 percent or less.

<sup>1</sup> Livestock other than dairy and poultry farms.

## CROP PRODUCTION

## CROPS GROWN

Soils and climate of the Corn Belt are favorable for the production of a wide variety of crops. With the exception of cotton, tobacco, citrus fruits, and other crops which require a milder climate and a longer growing season, almost any temperate-zone crop can be grown successfully here. The principal crops that have been adopted by the farmers are corn, soybeans, oats, wheat, barley, rye, and a wide variety of hay and pasture crops. These crops have generally shown the relatively greatest advantage in terms of contribution of farm income.

On almost every farm at least 2 or 3 kinds of crops are produced every year. The combination of crops, or the principal crops, grown on a farm vary somewhat from one part of the Corn Belt to another. On some farms, there are fields where corn is grown for several years in succession without alternating with other crops; but most farmers try to follow some system of crop sequence or crop rotation in which a number of crops will be grown successively on the land over a series of years. Some of the typical cropping systems or crop rotations are the following: Corn, oats, meadow; corn, corn, oats, meadow; corn, corn, oats (with sweetclover); corn, soybeans, oats, meadow; corn, soybeans, wheat, meadow; corn, soybeans, wheat or oats. The meadow crop is used for pasture or hay. In frequent cases the meadow crop (which may be clover, alfalfa, or combinations of clovers and grasses) will occupy the land for 2 or 3 years. Sweetclover seeded with oats or with other small grain is grown primarily for plowing under for soil improvement.

**Farms reporting specified crops.**—Corn is the most widely grown crop in the Corn Belt. It was reported on 91 percent of all the commercial farms in 1954. About 92 percent of the corn acreage for all purposes was harvested for grain. The remainder was harvested for silage or fodder, or was hogged down or grazed. The acreages harvested for silage or fodder were generally largest relative to the total corn acreage near the fringes of the Corn Belt. For example, along the northern fringe, where dairy farms are relatively numerous, the percentage of the crop harvested for silage is relatively high.

Corn harvested for grain was reported on 87.6 percent of all the commercial farms in the Corn Belt in 1954 (table 51). The crop was produced for grain on 95.2 percent of the cash-grain farms and on 85.8 percent of the livestock farms. The proportion of farmers producing corn for grain was highest on cash-grain farms in the Central Corn Belt (98.9 percent), and lowest on livestock farms in the Southern Corn Belt (71.5 percent).

Soybeans have become a major crop in the Corn Belt during the last 20 years. The expansion of this crop has been tremendous (4, 8). Soybeans for beans now rank second only to corn in total value of production among crops in the Corn Belt. Soybeans harvested for beans were reported on 41.2 percent of all the commercial farms and on 65.5 percent of the cash-grain farms in 1954. In the Central Corn Belt, the area of heaviest concentration, 82.2 percent of the cash-grain farmers grew soybeans. They were grown by a considerably larger proportion of the cash-grain farmers than of the livestock farmers in all regions of the Corn Belt. This reflects the fact that soybeans are rather strictly a cash crop; practically the entire quantity is sold by the farmers. The Western Corn Belt had the smallest percentage of farmers reporting soybeans for beans. This part of the Corn Belt includes the western fringe of the area to which soybeans are adapted. The crop was reported on only 22.7 percent of the cash-grain farms and 12.4 percent of the livestock farms in this region. Only 2 percent of all the commercial farms reported soybeans cut for hay. The proportion was highest in the Southern Corn Belt and lowest in the Western Corn Belt.

Oats were harvested for grain on about 3 out of every 4 commercial farms in the Corn Belt in 1954. Oats are the most popular small grain used as a companion crop (sometimes referred to as nurse crop) for new seedings of clover, alfalfa, or of other legumes and grasses grown for forage or soil improvement. The oat crop is harvested in late June or early July, leaving the young legume and grass plants to grow and develop for later use as forage or for plowing under. In the Northern Corn Belt, oats for grain (threshed or combined) were reported by almost as many farmers as reported corn for grain. In other regions of the Corn Belt also oats were a leading crop, being found on 2 to 3 out of every 4 farms.

TABLE 51.—PERCENT OF FARMS REPORTING SPECIFIED CROPS, BY TYPE OF FARM, IN THE CORN BELT AND COMPONENT REGIONS:1954

Region and type of farm	Corn harvested for grain	Soybeans harvested for beans	Wheat threshed or combined	Oats threshed or combined	Barley threshed or combined	Rye threshed or combined	Soybeans cut for hay	Red clover seed harvested	Irish potatoes harvested	Vegetables harvested for sale	Land in fruit orchards, etc. <sup>1</sup>
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
<b>Total Corn Belt:</b>											
All commercial farms.....	87.6	41.2	35.6	72.4	5.6	4.3	2.0	4.1	20.0	2.1	5.2
Cash-grain farms.....	95.2	65.5	50.1	72.2	5.4	5.1	1.8	4.8	15.0	2.1	3.6
Livestock farms <sup>2</sup> .....	85.8	26.8	24.9	74.8	5.2	3.8	1.4	3.5	21.4	1.0	5.5
<b>Eastern Corn Belt:</b>											
All commercial farms.....	89.0	50.1	63.2	61.3	5.2	8.2	2.9	7.5	13.1	3.8	4.3
Cash-grain farms.....	97.3	74.7	73.1	62.1	3.9	9.3	2.3	9.0	10.6	3.1	3.1
Livestock farms <sup>2</sup> .....	85.2	35.7	57.9	61.3	7.2	8.4	2.6	5.5	12.6	1.8	3.5
<b>Central Corn Belt:</b>											
All commercial farms.....	94.3	55.8	13.9	85.7	1.4	1.9	0.9	3.6	12.6	2.5	5.2
Cash-grain farms.....	98.9	82.2	23.9	85.6	1.5	2.4	1.1	3.6	9.1	2.6	4.0
Livestock farms <sup>2</sup> .....	93.0	34.2	6.5	88.5	1.5	1.4	0.5	3.8	14.7	1.3	5.7
<b>Northern Corn Belt:</b>											
All commercial farms.....	94.2	39.8	7.5	90.8	7.6	1.4	0.5	2.7	18.0	3.2	2.9
Cash-grain farms.....	96.5	72.1	13.5	90.6	13.2	2.8	0.3	2.6	14.2	3.6	2.1
Livestock farms <sup>2</sup> .....	94.4	25.2	4.6	92.0	5.4	0.9	0.4	3.0	17.1	1.7	3.1
<b>Western Corn Belt:</b>											
All commercial farms.....	89.2	15.7	37.2	72.6	4.8	3.6	0.3	1.6	23.2	0.6	4.8
Cash-grain farms.....	95.0	22.7	59.5	71.0	5.1	3.4	0.2	1.5	19.4	0.5	3.5
Livestock farms <sup>2</sup> .....	87.7	12.4	23.1	75.3	4.5	3.6	0.3	1.9	24.4	0.3	5.1
<b>Southern Corn Belt:</b>											
All commercial farms.....	72.6	46.8	45.4	57.6	10.0	5.6	5.4	4.7	33.0	1.0	8.4
Cash-grain farms.....	84.5	79.1	66.8	56.0	9.6	7.0	5.4	6.4	26.5	0.8	4.8
Livestock farms <sup>2</sup> .....	71.5	32.1	33.5	60.0	8.4	4.9	3.6	3.9	33.1	0.4	8.8

<sup>1</sup> Land in bearing and nonbearing fruit orchards, groves, vineyards, and planted nut trees.<sup>2</sup> Livestock other than dairy and poultry farms.



Wheat was produced on slightly more than a third of all the commercial farms in the Corn Belt. Most of this is winter wheat. Soft red winter wheat is the kind most generally grown in the Eastern and Southern Corn Belt and hard red winter wheat is grown mainly in the Central and Western Corn Belt. The range in percentage of farms reporting wheat was from 4.6 percent of the livestock farms in the Northern Corn Belt to 73.1 percent of the cash-grain farms in the Eastern Corn Belt. Wheat was a relatively unimportant small grain in comparison with oats in the Northern Corn Belt, but in the Eastern Corn Belt wheat was produced on more farms than was oats. The Northern Corn Belt is not well adapted to production of winter wheat, because of frequent losses from winter killing. On the other hand, this area is not as well adapted to spring wheat as the area to the northwest of the Corn Belt.

Barley was grown on relatively few farms, especially in the Central Corn Belt. In the Northern Corn Belt, which is the part best adapted to production of malting barley, 13.2 percent of the cash-grain farmers reported growing barley in 1954.

Rye was grown for grain on only 4.3 percent of the commercial farms and mainly in the eastern, southern, and western portions of the Corn Belt. On some additional farms rye was grown as a winter cover crop or for fall and spring pasture.

Flax was an important cash crop in the extreme northwestern part of the Corn Belt, particularly in Economic Subregion 87, in Minnesota and South Dakota. In this part of the Northern Corn Belt, flaxseed threshed or combined was reported in 1954 on more than half the farms in about a dozen counties.

Only 4.1 percent of the commercial farmers in the Corn Belt reported red clover seed harvested in 1954. The number of Corn Belt farmers producing red clover seed has declined as competition with seed producers in other parts of the country has increased. However, 9 percent of the cash-grain farms in the Eastern Corn Belt and 6.4 percent of the cash-grain farms in the Southern Corn Belt reported red clover seed harvested.

Irish potatoes were reported on a fifth of the commercial farms in the Corn Belt in 1954. Most of the potatoes grown in the Corn Belt are for household use on the farms where grown. Twenty years ago, more than half the farmers produced some potatoes for home use or for sale. During the last 20 years, potato production has become increasingly concentrated on farms of specialized growers in a relatively few areas in about a dozen States—all outside of the Corn Belt—while potato production as a small enterprise has been discontinued on a large proportion of farms throughout the country. Only in the Southern Corn Belt

did more than 25 percent of the farmers report potatoes harvested for home use or for sale, in 1954.

Vegetable production for sale was reported on only 2.1 percent of all the commercial farms in the Corn Belt. Sweet corn, tomatoes, watermelons, and green peas are some of the leading vegetable crops in terms of acreage and value of production. Farms reporting vegetables harvested for sale were relatively most numerous in the Eastern and Northern Corn Belt.

Land in fruit orchards, vineyards, and nut trees was reported on 5.2 percent of the commercial farms, not including those that had less than 20 trees or grapevines. Farmers reporting this item were found in small numbers throughout the Corn Belt, but were relatively fewest on cash-grain farms in all regions. The principal fruits grown were apples, grapes, peaches, pears, cherries, and plums. The principal nut trees were black walnuts and pecans.

On both the cash-grain and livestock farms larger percentages of the Classes I, II, and III farms than of the Classes IV, V, and VI farms produced corn for grain, soybeans for beans, and wheat, oats, barley, and rye for grain (table 52). In general, the percentage of farms reporting these crops declines from class to class as we go from Class I farms to Class VI farms. On cash-grain farms, corn harvested for grain was reported on 98.9 percent of the Class I farms, but on only 81.2 percent of the Class VI farms. On livestock farms, corn for grain was reported on 94.5 percent of the Class I farms and on only 48.8 percent of the Class VI farms. Only 34.5 percent of the Class VI cash-grain farms grew soybeans for beans and only 22.7 percent of the Class VI livestock farms grew oats for grain.

The relatively small proportions of Class V and Class VI farms reporting corn and other principal crops can be explained largely by the land-use pattern on these smaller income classes of farms. As shown above (table 27), these farms had a significantly smaller proportion of their total farm acreage in cropland harvested and a larger proportion in cropland used only for pasture, cropland neither harvested nor pastured, woodland pastured, and pasture other than cropland or woodland than was the case for the larger income classes of farms.

Soybeans cut for hay were reported on larger percentages of the Classes IV, V, and VI farms than of the Classes I, II, and III farms. This may have been related to the presence more frequently on the smaller farms of small tracts of cropland that are relatively inconvenient for combining or other grain harvesting operations. In other cases it may reflect a more frequent occurrence on small farms of insufficient quantities of perennial or biennial legume hays, such as alfalfa and clover.

TABLE 52.—PERCENT OF FARMS REPORTING SPECIFIED CROPS, BY ECONOMIC CLASS OF FARM, IN THE CORN BELT: 1954

Type and economic class of farm	Corn harvested for grain	Soybeans harvested for beans	Wheat threshed or combined	Oats threshed or combined	Barley threshed or combined	Rye threshed or combined	Soybeans cut for hay	Red clover seed harvested	Irish potatoes harvested	Vegetables harvested for sale	Land in fruit orchards, etc. <sup>1</sup>
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
All commercial farms.....	87.6	41.2	35.6	72.4	5.6	4.3	2.0	4.1	20.0	2.1	5.2
Cash-grain farms:											
Total.....	95.2	65.5	50.1	72.2	5.4	5.1	1.8	4.8	15.0	2.1	3.6
Class I.....	98.9	86.5	64.7	80.7	5.6	9.4	0.8	5.7	7.5	5.0	4.8
II.....	98.6	80.6	50.1	83.6	5.7	5.4	1.0	6.3	10.5	3.1	3.5
III.....	97.2	68.5	50.7	79.6	6.0	5.4	1.5	5.4	15.0	1.9	3.3
IV.....	94.4	57.5	52.7	67.7	5.4	4.8	2.1	4.4	16.9	1.4	3.8
V.....	88.2	49.3	47.1	49.8	4.0	4.6	3.1	2.6	18.9	1.6	3.8
VI.....	81.2	34.5	29.1	34.0	1.8	2.9	3.5	0.7	22.6	1.6	3.5
Livestock farms: <sup>2</sup>											
Total.....	85.8	26.8	24.9	74.8	5.2	3.8	1.4	3.5	21.4	1.0	5.5
Class I.....	94.5	36.2	29.4	86.3	6.7	5.3	0.4	3.7	11.0	2.3	5.5
II.....	95.7	38.2	28.8	89.6	6.2	4.2	0.7	4.6	16.2	1.2	5.3
III.....	92.8	29.2	28.0	85.0	5.9	4.2	1.1	4.2	21.7	0.8	5.3
IV.....	82.8	20.6	24.5	70.2	4.9	3.6	1.9	3.0	24.9	0.6	5.8
V.....	65.9	11.9	16.0	45.2	3.0	2.9	2.8	1.5	26.7	0.8	6.2
VI.....	48.8	6.2	6.7	22.7	1.3	1.4	3.1	0.5	31.6	0.7	5.5

<sup>1</sup> Land in bearing and nonbearing fruit orchards, groves, vineyards, and planted nut trees.

<sup>2</sup> Livestock other than dairy and poultry farms.

The proportion of farms reporting potatoes increases consistently as we go from Class I to Class VI farms. For example, only 11 percent of the Class I livestock farms reported potatoes harvested, but 31.6 percent of the Class VI livestock farms reported this crop. This reflects the tendency of the smaller farms to be more self-sufficient from the standpoint of production for direct consumption by the farm household; it may also reflect the relatively more ample supply of family labor on many of these farms.

**Cropland used for specified crops.**—The pattern of distribution of corn acreage harvested for grain in the United States is shown in figure 23. There are large acreages in the Southern and Southeastern States, but the largest concentration is in the Corn Belt of the North Central States. There were 39,358,892 acres of

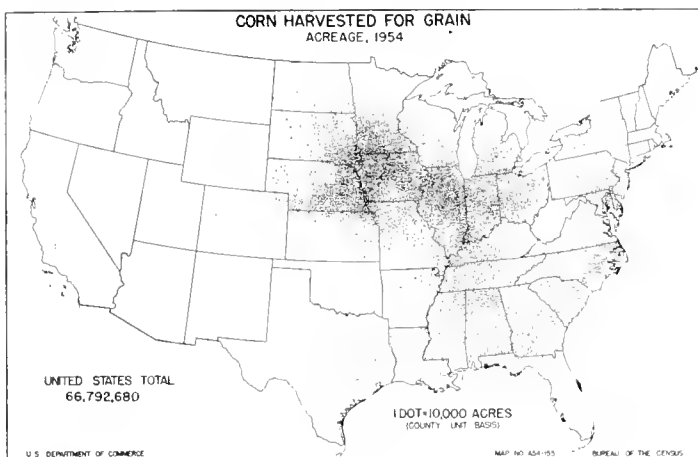


FIGURE 23.

corn harvested for grain on commercial farms in the Corn Belt in 1954. This was 62.1 percent of the 63,394,112 acres of corn harvested for grain on all commercial farms in the United States that year.

Almost a third of the total acreage of cropland in the Corn Belt was in corn harvested for grain, in 1954 (table 53). The proportion of all cropland used for this crop on livestock farms (32.4 percent) was only slightly smaller than the proportion (34.5 percent) so used on cash-grain farms. The percentage of cropland in corn for grain was greatest on cash-grain farms in the Central Corn Belt (39.7 percent) and smallest on livestock farms in the Southern Corn Belt (21.6 percent). In all regions except in the Northern Corn Belt the cash-grain farms had a slightly larger percentage of their cropland in corn for grain than did livestock farms. In the Northern Corn Belt the livestock farms had a slightly larger percentage of their cropland in corn for grain than did cash-grain farms, but the cash-grain farms had larger percentages in soybeans, wheat, and barley.

The distribution of soybean acreage harvested for beans in the United States is shown in figure 24. The large areas of acreage concentration of this crop are in the Corn Belt. Smaller areas, also important in soybean acreage and production, are the Mississippi Delta reaching from southeastern Missouri southward into Mississippi and Louisiana, and the Atlantic Coast area in North and South Carolina, Virginia, and Maryland. The Corn Belt had 11,773,052 acres of soybeans harvested for beans on commercial farms in 1954. This was 72.7 percent of the 16,189,376 acres of soybeans for beans on all commercial farms in the United States. As shown on the map, the areas of heaviest concentration within the Corn Belt are in east central Illinois, central Indiana, and northwestern Iowa and southwestern Minnesota.

TABLE 53.—PERCENT OF TOTAL CROPLAND IN SPECIFIED CROPS, BY TYPE OF FARM, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Corn harvested for grain	Soybeans harvested for beans	Wheat threshed or combined	Oats threshed or combined	Barley threshed or combined	Rye threshed or combined	Soybeans cut for hay	Red clover seed harvested	Land in fruit orchards, etc. <sup>1</sup>
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
<b>Total Corn Belt:</b>									
All commercial farms.....	32.3	9.7	6.8	15.9	0.7	0.4	0.1	0.4	0.1
Cash-grain farms.....	34.5	16.3	10.0	13.6	0.7	0.4	0.1	0.4	(Z)
Livestock farms <sup>2</sup> .....	32.4	4.7	4.2	17.8	0.6	0.4	0.1	0.3	0.1
<b>Eastern Corn Belt:</b>									
All commercial farms.....	32.3	13.4	11.3	9.3	0.5	0.7	0.2	0.9	0.2
Cash-grain farms.....	34.5	20.7	12.3	8.2	0.3	0.7	0.1	1.0	(Z)
Livestock farms <sup>2</sup> .....	32.7	7.6	10.6	9.8	0.7	0.7	0.2	0.6	0.1
<b>Central Corn Belt:</b>									
All commercial farms.....	38.8	14.0	2.1	19.9	0.2	0.1	(Z)	0.3	(Z)
Cash-grain farms.....	39.7	21.9	3.5	17.6	0.2	0.2	(Z)	0.3	(Z)
Livestock farms <sup>2</sup> .....	38.6	6.2	0.8	22.0	0.2	0.1	(Z)	0.4	0.1
<b>Northern Corn Belt:</b>									
All commercial farms.....	29.5	8.7	1.1	23.3	1.4	0.2	(Z)	0.2	(Z)
Cash-grain farms.....	29.8	16.5	2.1	21.8	2.4	0.4	(Z)	0.2	(Z)
Livestock farms <sup>2</sup> .....	31.8	4.2	0.6	24.1	0.9	0.1	(Z)	0.2	(Z)
<b>Western Corn Belt:</b>									
All commercial farms.....	34.6	2.4	9.4	17.0	0.6	0.4	(Z)	0.1	(Z)
Cash-grain farms.....	35.8	3.7	16.5	13.4	0.6	0.4	(Z)	0.1	(Z)
Livestock farms <sup>2</sup> .....	34.2	1.5	4.5	19.5	0.6	0.5	(Z)	0.1	(Z)
<b>Southern Corn Belt:</b>									
All commercial farms.....	22.1	13.5	8.7	9.4	1.2	0.4	0.4	0.5	0.2
Cash-grain farms.....	25.9	23.8	12.8	7.1	1.0	0.5	0.3	0.6	0.1
Livestock farms <sup>2</sup> .....	21.6	7.4	5.6	10.9	1.1	0.4	0.3	0.4	0.1

Z 0.05 percent or less.

<sup>1</sup> Land in bearing and nonbearing fruit orchards, groves, vineyards, and planted nut trees.<sup>2</sup> Livestock other than dairy and poultry farms.



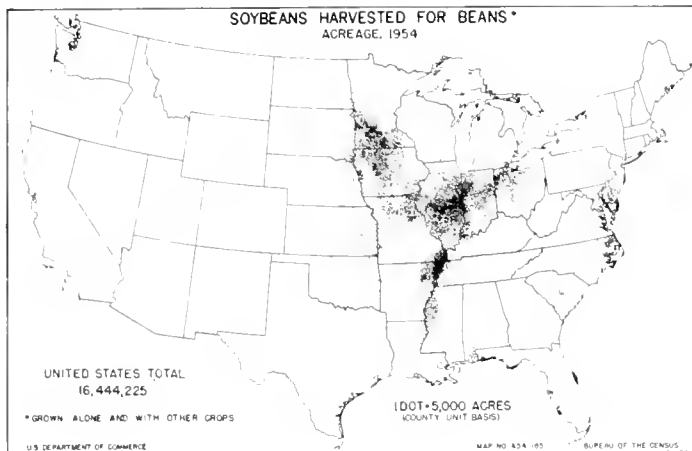


FIGURE 21.

Increases in soybean acreage and production have been a striking development in American agriculture during the last 30 years. In 1924 less than 2 million acres of soybeans were grown for all purposes and only a fourth of this acreage was harvested for beans (4). But the acreage increased gradually until 1934, and after that at a more rapid rate. At the same time, the proportion of the acreage harvested for beans increased from 25 percent in 1925 to 94 percent in 1956. The acreage harvested for beans in 1956 was estimated at 20.9 million acres (6, 1956). In 1954, soybeans for beans ranked sixth in acreage harvested and seventh in total value of production among all crops in the United States (6, 1955; 7). This rapid increase was made possible by the program of developing and testing improved varieties, by the development of markets for soybean oil and meal, and by the expansion of the soybean processing industry (4). It was encouraged also by the Government agricultural programs restricting the acreage of corn.

In the Corn Belt as a whole 9.7 percent of the total cropland on all commercial farms was in soybeans harvested for beans in 1954 (table 53). On cash-grain farms 16.3 percent of the cropland was in this crop. Livestock farms had smaller percentages of their cropland in soybeans than did cash-grain farms, but the livestock farms had a larger proportion of their cropland in oats. The Central Corn Belt had the largest proportion of cropland in soybeans and the Western Corn Belt had the smallest. Mainly because of the relatively low rainfall, the high summer temperatures, and the drying winds, soybeans are relatively less well adapted to the Western Corn Belt than are wheat and corn. Cash-grain farmers in the Central Corn Belt used 21.9 percent of their cropland for soybeans. At the other extreme were the livestock farmers in the Western Corn Belt, who used only 1.5 percent of their cropland for this crop.

The distribution of acreage of oats threshed or combined in the United States in 1954 is shown in figure 25. Oats are grown throughout most of the country, but especially in the northern half. The largest area of rather concentrated production is in the North Central States. Commercial farms in the Corn Belt had 19,343,798 acres of oats harvested for grain in 1954. This was 51.8 percent of the total acreage of oats threshed or combined on all commercial farms in the United States.

Oats harvested for grain (threshed or combined) were grown on 15.9 percent of the total cropland on all commercial farms in the Corn Belt in 1954 (table 53). This crop was second only to corn in total acreage harvested. Oats occupied a larger proportion of the cropland on livestock farms than on cash-grain farms. The largest proportion of cropland in oats was on livestock farms in the Northern Corn Belt; the smallest proportion was on cash-grain

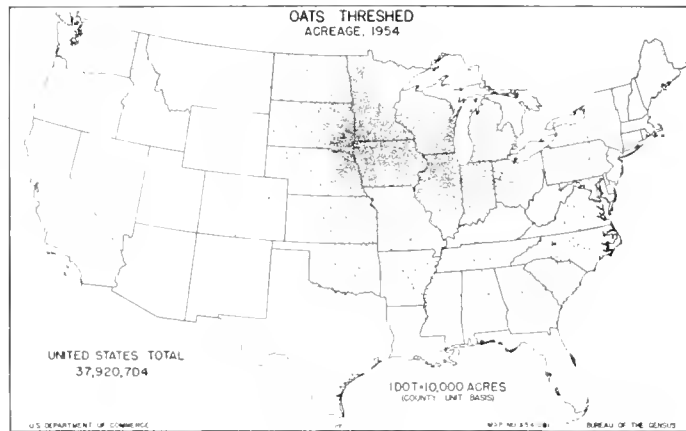


FIGURE 25.

farms in the Southern Corn Belt. The proportion of cropland in oats was exceeded by that in soybeans in the Southern Corn Belt and by that in wheat as well as in soybeans in the Eastern Corn Belt. Most of the oats produced are fed to livestock on the farms where the crop is grown. On some farms, especially on cash-grain farms, not all the oats produced are needed for feed, so a large proportion of the crop is sold.

Most of the wheat acreage in the United States is in the Great Plains and in other western States, but wheat is also an important crop in the Corn Belt (fig. 26). Commercial farms in the Corn Belt harvested 8,283,849 acres of wheat for grain in 1954. This was 16.4 percent of the 50,582,348 acres harvested for grain on all commercial farms in the United States. The proportion of total production in the Corn Belt was still greater because yields per acre of wheat averaged higher in the Corn Belt than in the rest of the country. The Corn Belt accounted for 23.2 percent of the total production of wheat on all commercial farms in the United States in 1954.

Wheat harvested for grain was grown on 6.8 percent of the cropland on commercial farms in the Corn Belt in 1954 (table 53). The proportion of total cropland used for wheat was highest in the Eastern Corn Belt and lowest in the Northern Corn Belt. A larger percentage of the cropland was used for wheat on cash-grain farms than on livestock farms. This was especially true in the Western and Southern Corn Belt. In the Western Corn Belt, for example, 16.5 percent of the cropland on cash-grain farms was in wheat, whereas only 4.5 percent of the cropland on livestock farms was in this crop.

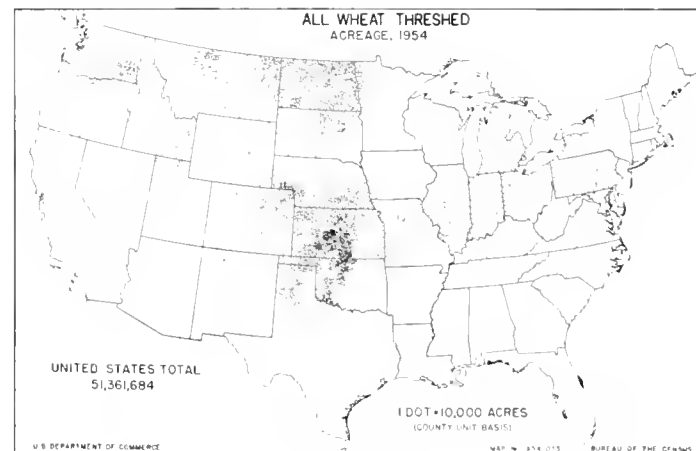


FIGURE 26.

Barley and rye for grain each occupied less than 1 percent of the cropland on commercial farms in this belt in 1954. The largest proportion of cropland in barley was on cash-grain farms in the Northern Corn Belt (2.4 percent), while the largest proportion in rye (0.7 percent) was on commercial farms in the Eastern Corn Belt. The smallest percentages of cropland in either barley or rye were in the Central Corn Belt.

Red clover seed was harvested on only 0.4 percent of the cropland on these commercial farms in 1954. The acreage from which red clover seed was harvested ranged from about 1 percent of the cropland in the Eastern Corn Belt to 0.1 percent of the cropland in the Western Corn Belt.

Alfalfa is the most important hay crop in the Corn Belt. In 1954, a total of 8,265,755 acres of alfalfa and alfalfa mixtures were cut for hay on the commercial farms. This was 31.8 percent of the total acreage of alfalfa and alfalfa mixtures cut for hay on all farms in the United States. The distribution of acreage of alfalfa cut for hay in 1954 is shown in figure 27. Most of the acreage is in the northern and western States. The large areas of heaviest concentration of acreage are in the dairy region of the Lake States, in the Northern and Western Corn Belt, and in the Central Valley of California. In the Corn Belt, alfalfa cut for hay in 1954 occupied 6.8 percent of all the cropland on commercial farms. The areas with the largest percentages of cropland in alfalfa were in northwestern Illinois, southwestern Wisconsin, eastern Iowa, and southeastern Nebraska. Most of the alfalfa crop was grown on livestock farms, but a large proportion was grown on cash-grain farms, for example, in southeastern Nebraska.

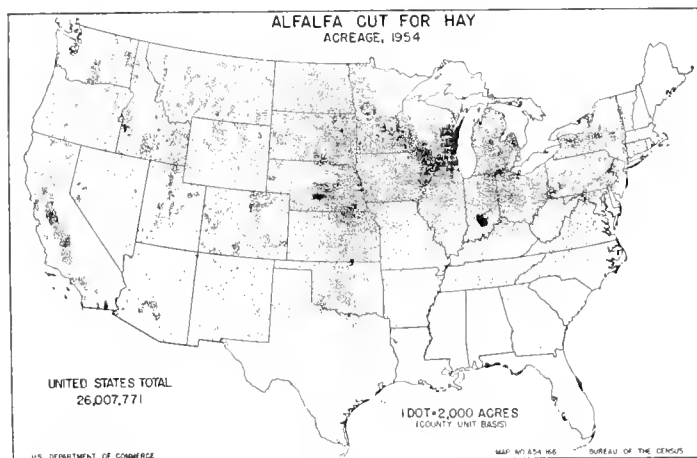


FIGURE 27.

Clover, timothy, and mixtures of clover and grasses constitute the second most important hay crop in the Corn Belt. A total of 5,368,928 acres of this hay crop was harvested on the commercial farms in the Corn Belt in 1954. This was 31.7 percent of the acreage on all farms in the United States. Most of the acreage of clover or timothy cut for hay in the country as a whole is in the North Central and Northeastern States (fig. 28). In the Corn Belt, clover, timothy, and mixtures of clover and grasses cut for hay occupied 4.4 percent of the cropland on commercial farms in that year. The smallest percentage of cropland in this hay crop was in the Western Corn Belt. The relatively heaviest areas of acreage concentration were on livestock farms in northeastern and southern Iowa and in the northeastern part of Missouri.

**Averages per farm reporting for principal crops.**—The percentage of farms reporting various crops in the Corn Belt has been discussed above. Data have been presented also on the acreage of cropland used for the different crops. From the standpoint of proportion of cropland utilized, as well as from the standpoint of

percentage of farms reporting, the leading crops are corn, oats, soybeans, and wheat, with soybeans ranking second to corn in total value of production.

In order to show more clearly the scale of crop production on individual farms in the different regions of the Corn Belt and in order to make comparisons between types and economic classes of farms, data for the four principal crops are given on a per-farm-reporting basis in the following tables.

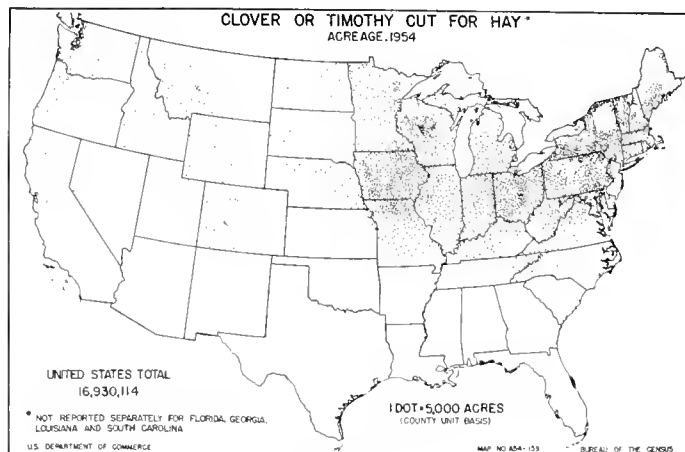


FIGURE 28.

The average acreage of corn harvested for grain per farm reporting in the Corn Belt in 1954 was 56 acres (table 54). On cash-grain farms the average was 65 acres, and on livestock farms 58 acres. In appraising these acreages it is helpful to keep in mind that cash-grain farms averaged larger than livestock farms in terms of acreage of cropland harvested (table 25). Cash-grain farms in the Western Corn Belt had the largest acreage of corn per farm reporting (83 acres), and livestock farms in the Southern Corn Belt had the smallest acreage (38 acres). In the Eastern Corn Belt the acreage of corn per farm reporting was almost as large on livestock farms as it was on cash-grain farms. However, corn was reported on a larger percentage of the cash-grain farms than of the livestock farms (see table 51).

TABLE 54.—AVERAGE ACREAGE OF PRINCIPAL CROPS PER FARM REPORTING, BY TYPE OF FARM, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Corn harvested for grain	Soybeans harvested for beans	Wheat threshed or combined	Oats threshed or combined
	Acres	Acres	Acres	Acres
<b>Total Corn Belt:</b>				
All commercial farms.....	56	36	29	34
Cash-grain farms.....	65	45	36	34
Livestock farms <sup>1</sup> .....	58	27	25	36
<b>Eastern Corn Belt:</b>				
All commercial farms.....	43	32	21	18
Cash-grain farms.....	49	38	23	18
Livestock farms <sup>1</sup> .....	48	27	23	20
<b>Central Corn Belt:</b>				
All commercial farms.....	67	41	24	38
Cash-grain farms.....	75	50	27	39
Livestock farms <sup>1</sup> .....	64	28	19	39
<b>Northern Corn Belt:</b>				
All commercial farms.....	49	35	23	40
Cash-grain farms.....	59	44	30	46
Livestock farms <sup>1</sup> .....	51	26	20	40
<b>Western Corn Belt:</b>				
All commercial farms.....	74	29	48	45
Cash-grain farms.....	83	37	61	42
Livestock farms <sup>1</sup> .....	72	22	36	48
<b>Southern Corn Belt:</b>				
All commercial farms.....	40	38	25	21
Cash-grain farms.....	50	50	31	21
Livestock farms <sup>1</sup> .....	38	30	21	23

<sup>1</sup> Livestock other than dairy and poultry farms.

The average acreage of soybeans harvested for beans per commercial farm reporting was 36 acres, the average for cash-grain farms was 45 acres, and for livestock farms, 27 acres. Cash-grain farms had substantially larger acreages of soybeans than did livestock farms in all regions. The acreage of soybeans per farm reporting was as large on cash-grain farms in the Southern Corn Belt as in the Central Corn Belt, and almost as large in the Northern Corn Belt. Since nearly all farmers had corn and a large percentage in every region had soybeans, it is evident that the acreage of intertilled crops (row crops) approaches or exceeds 100 acres on many farms.

In general, the acreage of wheat threshed or combined per farm reporting was smaller than the acreage of soybeans. In the Western Corn Belt, however, acreages of wheat per farm were substantially larger than acreages of soybeans. Cash-grain farms had larger acreages of wheat than did livestock farms except in the Eastern Corn Belt where the average was 23 acres on both types.

Livestock farms generally had somewhat larger acreages of oats than did cash-grain farms. However, in the Central Corn Belt the average oat enterprise on both types of farms was 39 acres, and in the Northern Corn Belt it was largest on the cash-grain farms.

A look at the average acreages of the principal crops on the different economic classes of farms gives a clearer mental picture of the relative sizes of these farms and the general scale of their crop operations. Class I cash-grain farms averaged 196 acres of corn per farm reporting, while Class II farms averaged 97 acres, and Class III farms, 64 acres (table 55). The average acreage of corn per farm reporting declined consistently with economic class to an average of only 20 acres on Class VI cash-grain farms. On livestock farms the pattern was similar, although the average acreages of corn were substantially smaller on the Classes I, II, and III livestock farms than they were on these classes of the cash-grain farms. With soybeans, wheat, and oats—as with corn—the pattern is consistent. The average acreage of these crops per farm reporting declines as we proceed from Class I to Class VI, reflecting the strong correlation between income size (economic class) of farm and the acreage size of the principal crop enterprises. Economic Class V cash-grain farms had an average of less than 30 acres of corn, 20 acres of soybeans, and less than 20 acres of wheat or oats per farm reporting these crops. The contrast in average size of operations on Class V farms and Class II farms is striking. Obviously, farm incomes must be relatively very low on the Class V farms and even lower on the Class VI farms.

TABLE 55.—AVERAGE ACREAGE OF PRINCIPAL CROPS PER FARM REPORTING, BY TYPE AND ECONOMIC CLASS OF FARM, IN THE CORN BELT: 1954

Type and economic class of farm	Corn harvested for grain	Soybeans harvested for beans	Wheat threshed or combined	Oats threshed or combined
	Acres	Acres	Acres	Acres
All commercial farms.....	56	36	29	34
Cash-grain farms:				
Total.....	65	45	36	34
Class I.....	196	135	91	68
II.....	97	63	51	44
III.....	64	40	36	34
IV.....	43	28	25	25
V.....	29	20	16	17
VI.....	20	15	12	14
Livestock farms: <sup>1</sup>				
Total.....	58	27	25	36
Class I.....	122	54	56	61
II.....	74	32	32	44
III.....	53	22	22	35
IV.....	38	16	16	27
V.....	29	13	13	18
VI.....	19	10	10	14

<sup>1</sup> Livestock other than dairy and poultry farms.

The quantity of grain produced per farm reporting is another useful measure of the size of farm business. It comes a step closer to indicating the potential income than does the acreage of crops. The average quantity of corn produced in 1954 per commercial farm reporting this crop in the Corn Belt was 2,624 bushels (table 56). In most regions of the Corn Belt the cash-grain farms produced somewhat more corn per farm than the livestock farms, but the differences between types were smaller than the differences between the averages per commercial farm in different regions. Corn production per farm was largest in the Central Corn Belt and smallest in the Southern Corn Belt, but in all regions corn production stands out as the big crop enterprise.

TABLE 56.—QUANTITY PRODUCED PER FARM REPORTING CROP HARVESTED, FOR PRINCIPAL CROPS, BY TYPE OF FARM IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Corn	Soybeans	Wheat	Oats
	Bushels	Bushels	Bushels	Bushels
Total Corn Belt:				
All commercial farms.....	2,624	793	737	1,216
Cash-grain farms.....	2,995	1,006	898	1,190
Livestock farms <sup>1</sup> .....	2,729	604	648	1,344
Eastern Corn Belt:				
All commercial farms.....	2,489	765	617	789
Cash-grain farms.....	2,729	902	674	777
Livestock farms <sup>1</sup> .....	2,839	650	663	906
Central Corn Belt:				
All commercial farms.....	3,872	1,074	759	1,480
Cash-grain farms.....	4,224	1,308	856	1,446
Livestock farms <sup>1</sup> .....	3,836	750	564	1,575
Northern Corn Belt:				
All commercial farms.....	2,779	727	265	1,495
Cash-grain farms.....	3,158	935	332	1,635
Livestock farms <sup>1</sup> .....	3,107	562	245	1,555
Western Corn Belt:				
All commercial farms.....	2,528	669	988	1,372
Cash-grain farms.....	2,737	833	1,268	1,231
Livestock farms <sup>1</sup> .....	2,591	540	725	1,525
Southern Corn Belt:				
All commercial farms.....	1,082	556	727	773
Cash-grain farms.....	1,365	755	937	741
Livestock farms <sup>1</sup> .....	1,112	460	607	848

<sup>1</sup> Livestock other than dairy and poultry farms.

The volume of soybean production per farm on the farms reporting this crop indicates the generally substantial scale of this cash-crop enterprise, especially in the Central Corn Belt. Even on livestock farms in the Southern Corn Belt the average production per farm reporting was 460 bushels. At 1954 season average prices, 460 bushels had a value of about \$1,100. The volume of wheat produced per farm reporting exceeded the volume of soybeans produced per farm that reported soybeans, in the Western and Southern Corn Belt, but it was much smaller than soybean production per farm in the Central and Northern Corn Belt. The volume of oat production per farm reporting ranks second only to that of corn throughout the Corn Belt. The average size of the oat crop per farm reporting ranged from 741 bushels on cash-grain farms in the Southern Corn Belt to 1,635 bushels on cash-grain farms in the Northern Corn Belt.

Quantities shown in table 56 provide a generalized down-on-the-farm picture of the volume of crops available for sale or for feeding. They also help to explain the popularity of mechanical harvesting machinery and trucks as labor-saving equipment on Corn Belt farms. In addition, they indicate the scale of farm-storage buildings needed for crops that are to be fed on the farm, and for cash crops if these are to be held on the farm for a period before marketing.

The average volume of production of principal crops on different economic classes of farms provides a comparison of the relative sizes of these farms that is even more vivid than the average acreage comparisons made above. The average quantity of corn produced per farm reporting was 11,617 bushels on Class I cash-grain farms (table 57). This was more than 20 times as large as the average crop of corn on Class VI cash-grain farms that harvested

TABLE 57.—QUANTITY PRODUCED PER FARM REPORTING FOR PRINCIPAL CROPS, BY ECONOMIC CLASS OF FARM IN THE CORN BELT: 1954

Type and economic class of farm	Corn	Soybeans	Wheat	Oats
	<i>Bushels</i>	<i>Bushels</i>	<i>Bushels</i>	<i>Bushels</i>
All commercial farms.....	2,624	793	737	1,216
Cash-grain farms:				
Total.....	2,995	1,066	898	1,190
Class I.....	11,617	3,737	2,724	2,988
II.....	5,162	1,567	1,377	1,708
III.....	2,753	842	873	1,142
IV.....	1,560	490	562	751
V.....	899	291	367	502
VI.....	523	169	258	387
Livestock farms: <sup>1</sup>				
Total.....	2,729	604	648	1,344
Class I.....	7,077	1,450	1,582	2,714
II.....	3,852	762	847	1,722
III.....	2,298	435	532	1,198
IV.....	1,397	266	352	822
V.....	806	161	250	535
VI.....	490	116	194	377

<sup>1</sup> Livestock other than dairy and poultry farms.

corn for grain. The volume of corn produced per farm reporting on Class II cash-grain farms was more than 3 times as great as that on Class IV cash-grain farms. The volume of each of the 4 principal crops produced per farm declines consistently as we go from Class I farms to Class VI farms, for livestock farms as well as for cash-grain farms. It can readily be seen, for example, that feed-grain production on Classes IV, V, and VI livestock farms provides a relatively small base for feeding operations compared with the scale of production on the Classes I, II, and III farms.

### YIELDS PER ACRE

Average yields of corn per acre in the United States in 1954, on a county unit basis, are shown in figure 29. The largest area of yields averaging 60 bushels and over is in the North Central States. Most of this area is within the Corn Belt. It extends to the north of the Corn Belt in southern Wisconsin. Other areas of corn yields of 60 bushels and over are mainly in the irrigated sections of the West. In a large portion of the Northeast region to the east of the Corn Belt, yields of corn averaged from 40 to 59 bushels. Yields in the Southern and Western Corn Belt are significantly lower than those in the Central, Eastern, and Northern Corn Belt. The highest yields in the Corn Belt were obtained in the areas that had the most favorable combinations of fertile soil, adequate moisture, and warm summer temperature. Yields were considerably below average in the southern and southwestern parts of the Corn Belt in 1954 because of damage to the crop in those areas by severe drought. The average yield of corn per acre in the United States was 39.1 bushels.

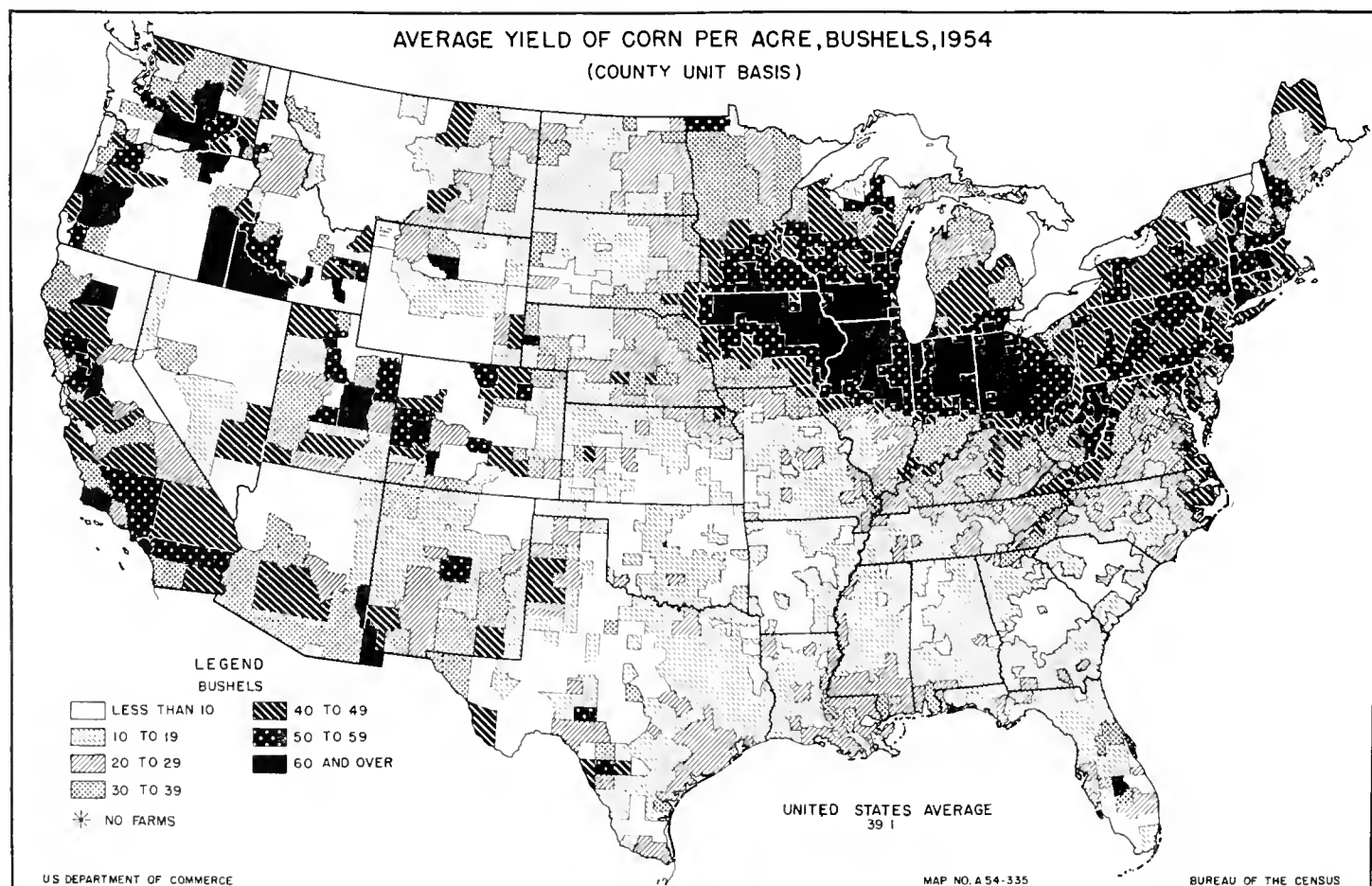


FIGURE 29.

The average yields per acre harvested for grain in 1954 for the 4 principal crops on all commercial farms in the Corn Belt were as follows: Corn, 46.6 bushels; soybeans, 22.1 bushels; wheat, 25.3 bushels; and oats, 36.3 bushels (table 58). The largest yields of corn were obtained in the Central Corn Belt (57.4 bushels), but yields in the Eastern and Northern Corn Belt were almost as high. Corn yields averaged only 27.2 bushels in the Southern Corn Belt, or less than half of those in the Central, Eastern, and Northern Corn Belt.

TABLE 58.—AVERAGE YIELD PER ACRE HARVESTED OF PRINCIPAL CROPS, BY TYPE OF FARM IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Corn harvested for grain	Soybeans harvested for beans	Wheat threshed or combined	Oats threshed or combined
	<i>Bushels</i>	<i>Bushels</i>	<i>Bushels</i>	<i>Bushels</i>
<b>Total Corn Belt:</b>				
All commercial farms.....	46.6	22.1	25.3	36.3
Cash-grain farms.....	46.1	22.5	25.2	35.4
Livestock farms <sup>1</sup> .....	47.4	22.3	25.4	37.0
<b>Eastern Corn Belt:</b>				
All commercial farms.....	57.2	23.8	28.9	43.6
Cash-grain farms.....	56.0	23.6	29.1	43.0
Livestock farms <sup>1</sup> .....	59.4	24.5	29.2	45.5
<b>Central Corn Belt:</b>				
All commercial farms.....	57.4	26.2	31.0	38.9
Cash-grain farms.....	56.0	26.1	31.5	37.4
Livestock farms <sup>1</sup> .....	59.5	26.8	29.4	40.8
<b>Northern Corn Belt:</b>				
All commercial farms.....	57.1	21.4	11.3	37.6
Cash-grain farms.....	53.6	21.4	11.0	35.6
Livestock farms <sup>1</sup> .....	60.4	21.8	12.2	38.7
<b>Western Corn Belt:</b>				
All commercial farms.....	34.1	23.3	20.5	30.7
Cash-grain farms.....	32.8	22.8	20.7	29.4
Livestock farms <sup>1</sup> .....	35.8	24.3	20.1	31.8
<b>Southern Corn Belt:</b>				
All commercial farms.....	27.2	14.8	29.1	36.0
Cash-grain farms.....	27.1	15.2	29.8	35.3
Livestock farms <sup>1</sup> .....	28.9	15.5	28.6	36.7

<sup>1</sup> Livestock other than dairy and poultry farms.

Yields of soybeans and wheat also were highest in the Central Corn Belt. The lowest average yield of soybeans was in the Southern Corn Belt (14.8 bushels), and the lowest average yield of wheat was in the Northern Corn Belt (11.3 bushels). The average yield of oats was highest in the Eastern Corn Belt (43.6 bushels), and lowest in the Western Corn Belt (30.7 bushels).

In every region of the Corn Belt the average yields of corn, soybeans, and oats were higher on livestock farms than on cash-grain farms in the respective regions. This appears to reflect a generally higher level of fertility of soils on livestock farms, brought about by the more frequent use of legumes and meadow crops in crop rotations, and by larger and more regular applications of livestock manure.

Yields of wheat averaged slightly higher on livestock farms than on cash-grain farms in the Corn Belt as a whole, but wheat yields were higher on cash-grain farms than on livestock farms in the Central, Western, and Southern Corn Belt. This may indicate that on livestock farms in these regions wheat was not given as high a priority among crops in the choice of land as it was given on cash-grain farms.

Yields per acre of the principal crops are strikingly correlated with economic class of farm (table 59). Yields are highest on the Class I farms, somewhat lower (but still above average) on the Class II farms, somewhat below average on the Class III farms, and so on down to the Class VI farms, which had the lowest yields. The higher levels of yield on the economic classes of farms with

larger income, coupled with the larger acreages of the principal crops on these farms, intensify the relative income-producing power of these farms. The higher yields on the larger income economic classes of farms are caused in part by the relatively high level of natural fertility of soils on these farms, but perhaps to a larger extent they are the result of superior management practices, heavier application of fertilizer, and other improved production techniques.

TABLE 59.—AVERAGE YIELD PER ACRE HARVESTED OF PRINCIPAL CROPS, BY TYPE AND ECONOMIC CLASS OF FARM, IN THE CORN BELT: 1954

Type and economic class of farm	Corn harvested for grain	Soybeans harvested for beans	Wheat threshed or combined	Oats threshed or combined
	<i>Bushels</i>	<i>Bushels</i>	<i>Bushels</i>	<i>Bushels</i>
All commercial farms.....	46.6	22.1	25.3	36.3
<b>Cash-grain farms:</b>				
Total.....	46.1	22.5	25.2	35.4
Class I.....	59.2	27.8	40.4	44.1
II.....	53.1	25.0	27.0	38.8
III.....	43.2	21.0	24.1	33.9
IV.....	35.9	17.7	22.5	30.6
V.....	31.2	14.6	22.7	29.0
VI.....	25.6	11.5	21.3	27.1
<b>Livestock farms:<sup>1</sup></b>				
Total.....	47.4	22.3	25.4	37.0
Class I.....	58.0	26.7	28.3	44.6
II.....	52.2	23.9	26.8	39.6
III.....	43.7	19.8	24.2	34.5
IV.....	36.4	16.3	22.0	30.8
V.....	30.0	12.6	19.9	29.2
VI.....	25.5	11.2	19.2	27.6

<sup>1</sup> Livestock other than dairy and poultry farms.

## CROP SALES

The value of crops sold from commercial farms in the Corn Belt in 1954 was approximately 2.5 billion dollars. This was about a fifth of the total value of crops sold by all commercial farms in the United States that year. Sales of crops accounted for somewhat more than a third of the total value of all farm products sold by commercial farms in the Corn Belt.

Crops contributing the largest share of receipts from crops sold in the Corn Belt are corn, soybeans, wheat, and oats. Sales of corn and oats are made by farmers who grow more of these feed crops than is needed on their farms. Most of the cash-grain farms as well as the livestock farms have some livestock. The average size of herds or flocks is generally smaller on cash-grain farms than on livestock farms. Soybeans for beans are grown as a cash crop on all farms that grow them. Wheat is grown primarily as a cash crop on both livestock and cash-grain farms. Differences between cash-grain and livestock farms as to sales of crops produced are reflected by the percentages of crops sold (table 60).

TABLE 60.—QUANTITY SOLD AS A PERCENTAGE OF TOTAL PRODUCTION, FOR SPECIFIED CROPS IN THE CORN BELT, BY TYPE OF FARM: 1954

Type of farm	Percentage of crops sold						
	Corn	Wheat	Oats	Barley	Rye	Alfalfa hay	Clover-timothy hay <sup>1</sup>
All commercial farms.....	41.5	90.4	25.9	35.3	63.1	10.3	6.4
Cash-grain farms.....	71.5	92.7	49.2	58.1	70.1	16.9	12.2
Livestock farms <sup>2</sup> .....	14.9	87.5	12.4	17.7	57.7	5.3	3.1

<sup>1</sup> Clover, timothy, and mixtures of clover and grasses cut for hay.

<sup>2</sup> Livestock other than dairy and poultry farms.

In 1954, 41.5 percent of the corn grown on commercial farms in the Corn Belt was sold. On cash-grain farms the quantity sold was 71.5 percent of the crop produced, but on livestock farms only 14.9 percent of the corn crop was sold. Some of the corn is sold directly to other farmers in the community who need more feed, but most of the sales are made to local elevators and other buyers who, in turn, sell to farmers, terminal market buyers, or to commercial feed mixers. In recent years considerable quantities have been sold to the Government. Eventually, the major portion of all the corn sold is fed to livestock.

An estimated 96 percent of the total crop of soybeans produced on commercial farms in the Corn Belt in 1954 was sold. A small part of the crop was kept for seed on the farms where grown, but a large share of the seed used by farmers is of improved varieties grown by a relatively few certified seed growers and other producers. Less than 1 percent of the soybeans produced in the Corn Belt are fed directly to livestock. By far the largest part of the crop is sold for processing into oil and meal. The major uses of soybean oil are in the production of shortening, margarine, and other edible products; some soybean oil is used in paints and varnishes and other nonfood products. Most of the soybean meal is used for livestock feed. Soybean meal is the leading protein concentrate feed in the United States and large quantities are used on livestock farms in the Corn Belt.

About 90 percent of the wheat produced on commercial farms in the Corn Belt in 1954 was sold. Cash-grain farmers sold 92.7 percent of their production and livestock farmers 87.5 percent. Most of the wheat used for feed in the belt is fed to poultry.

A smaller percentage of the rye than of the wheat produced was sold (63.1 percent), but the difference between types of farms was greater in the case of rye. A relatively large percentage of the rye is kept for seed on the farms where grown, to be used for seeding rye for cover crop, green manure, or supplementary pasture, as well as for grain. About a fourth of the oat crop and a little more than a third of the barley crop were sold. Cash-grain farms sold a larger proportion of their production of these crops than did livestock farms.

Only relatively small percentages of the principal hay crops—alfalfa hay and clover-timothy hay—were sold on either cash-grain or livestock farms, but the percentage sold was larger on the cash-grain farms. This was true also for lespedeza hay, small-grain hay, and other hay.

In 1954, corn accounted for 43.7 percent, soybeans for 25.3 percent, wheat for 16 percent, and oats for 5 percent of the total value of all crops sold on commercial farms in the Corn Belt (table 61). Sales of all other crops accounted for only 10 percent

of the total farm receipts from crops sold. Corn accounted for more than half of the total value of all crops sold in the Central Corn Belt. Also, in the Northern and Western Corn Belt the value of corn sales amounted to almost half of the value of all crops sold. In the Southern Corn Belt, however, sales of soybeans and wheat were relatively greater than sales of corn, on both livestock and cash-grain farms. In the Eastern Corn Belt the value of corn sold was larger than that of either soybeans or wheat on cash-grain farms, but it was less than the value of either soybeans or wheat sold on livestock farms. Sales of oats made up a relatively small percentage of the total value of all crops sold in all regions. Oats were relatively most important as a cash crop in the Northern Corn Belt and relatively least important in the Southern and Eastern Corn Belt. Other crops which accounted for a total of 10 percent of the value of crops sold on all commercial farms were relatively most important in the Northern Corn Belt and relatively least so in the Central Corn Belt.

TABLE 61.—PERCENTAGE DISTRIBUTION OF VALUE AMONG CROPS SOLD, BY TYPE OF FARM, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Percentage distribution of value of—					
	All crops sold	Corn sold	Soybeans sold	Wheat sold	Oats sold	Other crops sold
<b>Total Corn Belt:</b>						
All commercial farms.....	100.0	43.7	25.3	16.0	5.0	10.0
Cash-grain farms.....	100.0	48.7	26.7	14.7	4.8	5.1
Livestock farms <sup>1</sup> .....	100.0	36.2	28.1	21.4	6.2	8.1
<b>Eastern Corn Belt:</b>						
All commercial farms.....	100.0	37.7	26.7	20.5	2.7	12.4
Cash-grain farms.....	100.0	47.0	29.5	16.7	3.1	3.7
Livestock farms <sup>1</sup> .....	100.0	18.3	32.1	39.4	2.4	7.8
<b>Central Corn Belt:</b>						
All commercial farms.....	100.0	54.2	31.7	4.5	5.9	3.7
Cash-grain farms.....	100.0	55.6	32.3	4.9	5.5	1.7
Livestock farms <sup>1</sup> .....	100.0	50.2	33.9	3.8	7.5	4.6
<b>Northern Corn Belt:</b>						
All commercial farms.....	100.0	48.7	26.6	1.4	8.1	15.2
Cash-grain farms.....	100.0	51.6	27.8	1.5	8.6	10.5
Livestock farms <sup>1</sup> .....	100.0	46.2	30.5	1.6	8.5	13.2
<b>Western Corn Belt:</b>						
All commercial farms.....	100.0	47.3	8.7	25.7	5.9	12.4
Cash-grain farms.....	100.0	49.7	8.1	27.9	5.0	9.3
Livestock farms <sup>1</sup> .....	100.0	45.2	12.3	24.6	8.5	9.4
<b>Southern Corn Belt:</b>						
All commercial farms.....	100.0	18.0	34.0	33.2	2.8	12.0
Cash-grain farms.....	100.0	23.9	36.6	30.5	2.7	6.3
Livestock farms <sup>1</sup> .....	100.0	11.2	37.5	38.9	3.0	9.4

<sup>1</sup> Livestock other than dairy and poultry farms.



## USE OF COMMERCIAL FERTILIZER AND LIME

## COMMERCIAL FERTILIZER

Fertilizers are applied to land for the purpose of improving the growth and increasing the yields of crops. Fertilizers contain one or more plant nutrients or elements that are needed by growing plants. Soils contain these same elements but often they are not present or available in sufficient quantity for best plant growth and yield. Hence, commercial fertilizers, barnyard manure, straw, and other fertilizing materials are applied to supplement the available nutrients in the soil.

The three major plant nutrients sold in commercial fertilizers are nitrogen, phosphorus, and potassium. Fertilizers may contain one, two, or all three of these elements and, in addition, they may contain calcium and/or some minor nutrients. Some of the common fertilizers containing nitrogen are ammonium nitrate, ammonium sulfate, and anhydrous ammonia. Among commercial fertilizers containing phosphorus the most widely used is superphosphate; others are finely ground phosphate rock, colloidal phosphate, and calcium metaphosphate. Muriate of potash is the most common fertilizer that supplies potassium. Mixed fertilizers contain two or all three of the major nutrients in various proportions. Soil tests and observation of growing plants are useful in indicating the particular mixture or proportion of nutrients that will give best results on a given soil for a given crop. The most profitable rate of application (pounds per acre) of fertilizer varies with the relative prices of the fertilizer and of the crop fertilized as well as with the yield response obtained from increasing quantities of fertilizer applied per acre.

Use of commercial fertilizer by farmers in the United States expanded greatly during the last 20 years. The proportion of all

farms reporting expenditures for commercial fertilizer and fertilizing material increased from 38.9 percent in 1939 to 44 percent in 1944 and 61 percent in 1951. In the North Central States the quantity of fertilizer used increased nearly three-fold during the 1941-50 decade (3). In some parts of this region the rate of increase was much greater than this. For example, the quantity of fertilizer used in Iowa increased from 9,000 tons in 1938 to over 600,000 tons in 1953 (1). The introduction of improved varieties of corn, the existence of relatively favorable fertilizer-crop price ratios, the increased knowledge of fertilizer use and soil management, and the improved capital position of farmers during this period contributed greatly to the expansion in fertilizer use in the Corn Belt. About two-thirds of the total fertilizer nutrients used in the belt is in the form of mixtures. In 1954, the commercial farms in the Corn Belt accounted for a fourth of the total expenditure for commercial fertilizer and fertilizing material by all commercial farms in the United States.

The percentage of farms reporting expenditures for commercial fertilizer in the United States, on a county basis, is shown in figure 30. The areas having the highest percentages of farms using commercial fertilizer are mainly in the eastern half of the country and particularly in the southern and southeastern States. Commercial fertilizer was used also by a large proportion of the farmers in irrigated areas of the West. In the Corn Belt, the highest percentage of farmers using commercial fertilizer was found in the eastern part. The proportion of farmers reporting expenditures for fertilizer ranged from more than 80 percent in parts of the Eastern and Northern Corn Belt to less than 10 percent in parts of the Western Corn Belt.

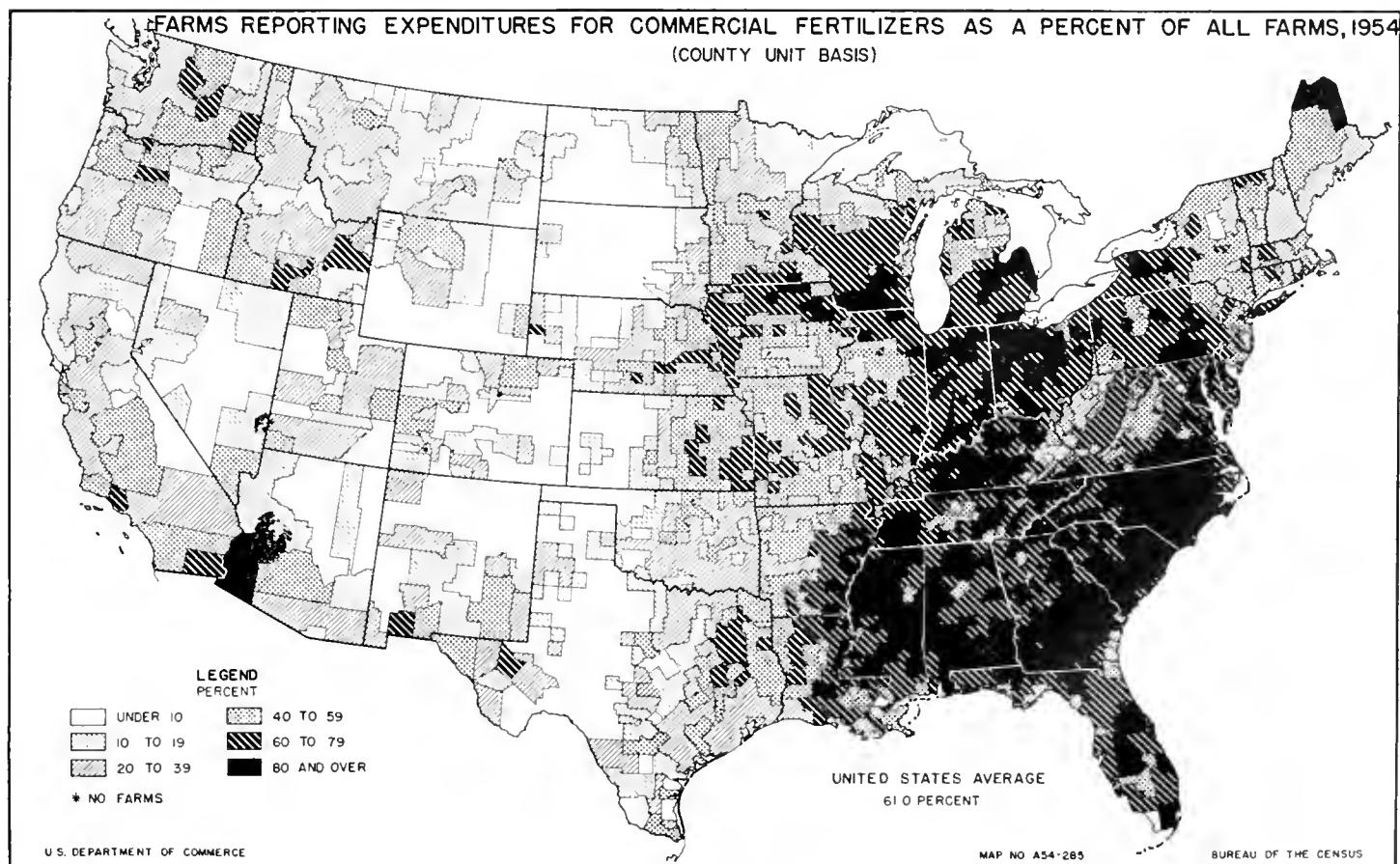


FIGURE 30.

Type of soil, amount and distribution of precipitation, and length of time the land has been farmed, are basic factors explaining the differences in kinds and quantities of commercial fertilizer used in different parts of the Corn Belt. The soils in the Eastern Corn Belt are relatively low in organic matter and native fertility, they are more acid, and they are more leached than are soils in most of the rest of the Corn Belt. Losses of available plant nutrients from leaching and cropping have been relatively greater in soils of the Eastern Corn Belt than in soils to the west and north because of the greater annual precipitation, the more open winters, and the longer time the land has been farmed. The prairie soils of the Central and Northern Corn Belt are generally high in organic matter and they are deeper, have a higher level of native fertility, and are less leached than are soils of the Eastern Corn Belt. Soils of the Southern Corn Belt generally have less organic matter, they are not as deep, and have less porous subsoils, and they are naturally less fertile than soils in most of the Central Corn Belt. The soils of the Western Corn Belt are generally well supplied with plant nutrients, including calcium, and they are often alkaline in reaction. Loss of native fertility has been at a relatively low rate in soils of the Western Corn Belt. There has been relatively little leaching. Moreover, losses from cropping have been rather light as the yields have been relatively low because of limited rainfall.

In the Corn Belt, the soil areas of relatively greatest deficiency in plant nutrients are in the eastern and southern regions. In these regions the precipitation is greater than in most of the rest of the Corn Belt so the supply of moisture does not limit the yield response to applications of fertilizer as often as it does in other parts. Nitrogen is used throughout the Corn Belt, and constitutes a higher percentage of the total fertilizer used in the western half than in the eastern half of the Corn Belt. Phosphate also is used in all parts, but the relatively greatest use is in the eastern half. Potash is used relatively little in the Western Corn Belt because of the high level of available potassium in most of the soils there. Potash is used relatively more in the Eastern and Southern Corn Belt and to an intermediate extent in the Northern and Central Corn Belt (3).

In the 1954 Census, the inquiry on fertilizer included all fertilizer purchased or to be purchased during the calendar year 1954 for use on the farm, whether bought by the operator or by the landlord, or jointly. Soil conditioners—such as lime, marl, and gypsum—were not to be included as commercial fertilizers or fertilizing materials. Also not to be included were barnyard manure, straw, and other refuse materials. No specific mention was made of basic slag, and this item was not considered to be a fertilizing material by many farmers and enumerators in the Corn Belt. The acreage fertilized was to be counted only once even if fertilizer was applied more than once to the same crop during 1954. The total tonnage used was to be reported whether applied in one or in more than one application.

Two out of every three commercial farms in the Corn Belt reported expenditures for commercial fertilizer and fertilizing material in 1954. A slightly larger percentage of the cash-grain farms than of the livestock farms in the Corn Belt as a whole reported this expenditure (table 62). In the Northern Corn Belt, the larger percentage of livestock farms than of cash-grain farms reporting commercial fertilizer may be explained by the fact that most of the livestock farms are in the eastern part, while most of the cash-grain farms are in the western part. The relatively lower level of native fertility of much of the soil in the eastern part,

along with the more ample supply of moisture compared with the western part of this region, results in a more marked response from applications of commercial fertilizer in the eastern part of the Northern Corn Belt.

Commercial fertilizer was most widely used by farmers in the Eastern Corn Belt, where expenditures for this item were reported on 88.1 percent of the commercial farms. The area ranking second was the Southern Corn Belt with 68.8 percent of the commercial farms reporting such expense. Only half of the commercial farms in the Western Corn Belt reported expenditures for fertilizer and fertilizing material.

Corn is the crop on which commercial fertilizer was most commonly used. It was used on corn by 56.7 percent of the commercial farms in the Corn Belt. The contrast in fertilizer use from east to west is shown by the percentage of cash-grain farms reporting, which ranged from 87.8 percent in the Eastern Corn Belt to 38.0 percent in the Western Corn Belt.

Use of commercial fertilizer on hay and pasture was reported by a larger proportion of the livestock farms than of the cash-grain farms in each region of the Corn Belt. This is partly a reflection of the more common occurrence of hay and pasture crops on livestock farms and partly a reflection of the greater importance placed on these crops by operators of livestock farms. Relatively very few farmers reported using commercial fertilizer on fruits, vegetables, and potatoes.

TABLE 62.—PERCENT OF ALL COMMERCIAL FARMS REPORTING EXPENDITURES FOR COMMERCIAL FERTILIZER AND USE OF COMMERCIAL FERTILIZER ON SPECIFIED CROPS, BY TYPE OF FARM, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Percent of all commercial farms						
	Farms reporting expenditures for commercial fertilizer and fertilizing material	Farms reporting commercial fertilizer used—					
		On hay and crop-land pasture	On other pasture	On corn	On wheat	On fruits, vegetables, and potatoes	On other crops
<b>Total Corn Belt:</b>							
All commercial farms.....	66.5	12.9	2.9	56.7	(NA)	1.3	(NA)
Cash-grain farms.....	68.8	9.9	1.9	59.6	(NA)	1.0	(NA)
Livestock farms <sup>1</sup> .....	65.4	14.5	3.5	55.8	(NA)	0.6	(NA)
<b>Eastern Corn Belt:</b>							
All commercial farms.....	88.1	16.0	3.4	82.7	(NA)	3.4	(NA)
Cash-grain farms.....	92.7	10.8	2.2	87.8	(NA)	2.5	(NA)
Livestock farms <sup>1</sup> .....	86.9	19.6	4.5	83.2	(NA)	1.8	(NA)
<b>Central Corn Belt:</b>							
All commercial farms.....	61.3	13.1	1.8	51.4	(NA)	0.6	(NA)
Cash-grain farms.....	64.4	12.0	1.5	54.2	(NA)	0.5	(NA)
Livestock farms <sup>1</sup> .....	61.2	13.8	2.1	51.8	(NA)	0.2	(NA)
<b>Northern Corn Belt:</b>							
All commercial farms.....	63.9	11.7	1.7	57.3	(NA)	0.7	(NA)
Cash-grain farms.....	54.3	11.3	0.8	46.7	(NA)	0.4	(NA)
Livestock farms <sup>1</sup> .....	71.6	12.5	1.9	65.8	(NA)	0.4	(NA)
<b>Western Corn Belt:</b>							
All commercial farms.....	50.2	10.6	3.4	38.3	12.7	0.3	20.5
Cash-grain farms.....	49.3	6.8	2.3	38.0	19.1	0.2	16.7
Livestock farms <sup>1</sup> .....	52.5	13.0	4.2	40.9	8.4	0.2	23.6
<b>Southern Corn Belt:</b>							
All commercial farms.....	68.8	12.8	3.8	54.3	34.8	1.3	30.2
Cash-grain farms.....	74.4	8.3	2.3	61.1	47.4	0.8	27.6
Livestock farms <sup>1</sup> .....	67.2	14.8	4.4	53.2	27.4	0.8	31.3

NA Not available.

<sup>1</sup> Livestock other than dairy and poultry farms.



Larger proportions of the farms in the higher economic classes than of the farms in the lower economic classes reported using commercial fertilizer. This was true in the case of each of the crops or groups of crops for which the information was obtained, on both the cash-grain and the livestock farms (table 63). For example, 77.0 percent of the Class I livestock farms reported using commercial fertilizer on corn, compared with 21.7 percent of the Class VI livestock farms.

TABLE 63.—PERCENT OF ALL COMMERCIAL FARMS REPORTING EXPENDITURES FOR COMMERCIAL FERTILIZER AND USE OF COMMERCIAL FERTILIZER ON SPECIFIED CROPS, BY TYPE AND ECONOMIC CLASS OF FARM, IN THE CORN BELT: 1954

Type and economic class of farm	Percent of all commercial farms						
	Farms reporting expenditures for commercial fertilizer and fertilizing material	Farms reporting commercial fertilizer used—					
		On hay and crop-land pasture	On other pasture	On corn	On wheat	On fruits, vegetables, and potatoes	On other crops
All commercial farms..	66.5	12.9	2.9	56.7	(NA)	1.3	(NA)
Cash-grain farms:							
Total.....	68.8	9.9	1.9	59.6	(NA)	1.0	(NA)
Class I.....	88.4	18.5	4.2	81.4	(NA)	2.1	(NA)
II.....	80.9	15.9	2.6	71.7	(NA)	1.3	(NA)
III.....	69.0	10.0	2.0	59.7	(NA)	0.9	(NA)
IV.....	62.2	6.5	1.5	52.9	(NA)	0.7	(NA)
V.....	60.8	5.1	1.2	51.2	(NA)	0.8	(NA)
VI.....	48.0	2.8	0.3	38.3	(NA)	0.9	(NA)
Livestock farms: 1							
Total.....	65.4	14.5	3.5	55.8	(NA)	0.6	(NA)
Class I.....	84.9	23.6	5.9	77.0	(NA)	1.2	(NA)
II.....	80.2	19.7	4.4	70.6	(NA)	0.7	(NA)
III.....	69.0	14.9	3.6	58.8	(NA)	0.6	(NA)
IV.....	56.8	10.7	2.9	46.5	(NA)	0.5	(NA)
V.....	45.6	8.9	2.3	35.7	(NA)	0.5	(NA)
VI.....	31.0	5.0	1.3	24.7	(NA)	0.5	(NA)

NA Not available.  
 1 Livestock other than dairy and poultry farms.

Commercial fertilizer was applied on 30.2 percent of all the cropland on commercial farms in the Corn Belt in 1954 (table 64). The percentage of cropland fertilized was highest in the Eastern Corn Belt (56.5 percent), and lowest in the Western Corn Belt (18.0 percent). There was relatively little difference between cash-grain farms and livestock farms in the percentage of cropland fertilized, except in the Northern Corn Belt where 29 percent of the cropland on livestock farms was fertilized compared with about 19 percent of the cropland on cash-grain farms. (Again, this situation in the Northern Corn Belt reflects the predominance of livestock farms in the eastern part and of cash-grain farms in the western part of the Northern Corn Belt.) Corn acreage accounted for half, or more than half, of the acreage fertilized in every region of the Corn Belt. In the Southern Corn Belt, about half of the acreage fertilized was in corn; in the Central Corn Belt about two-thirds; and in the Northern Corn Belt about three-fourths of the fertilized acreage was in corn. Of the total tonnage of fertilizer used on all crops, the proportion used on corn ranged from 49.3 percent in the Southern Corn Belt to 67.6 percent in the Northern Corn Belt.

In the Corn Belt as a whole only slightly more than half of the corn acreage was fertilized, but this practice differed considerably between regions, ranging from 91.7 percent of the corn acreage on

commercial farms in the Eastern Corn Belt down to 28.8 percent in the Western Corn Belt.

The average quantity of fertilizer applied per acre on corn, on all commercial farms in the Corn Belt, was 208 pounds (table 64). The average quantity applied per acre on all crops was 220 pounds. The quantity of fertilizer applied per acre on corn averaged highest on livestock farms in the Eastern Corn Belt (270 pounds), and lowest on cash-grain farms in the Western Corn Belt (148 pounds). In the Central and Northern Corn Belt, quantities of fertilizer applied per acre on other crops averaged higher than quantities applied on corn; but in the Eastern, Western, and Southern Corn Belt the rate of application on corn was about the same as on other crops.

TABLE 64.—USE OF COMMERCIAL FERTILIZER AND FERTILIZING MATERIAL ON COMMERCIAL FARMS, BY TYPE OF FARM, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Total acres fertilized as a percentage of total cropland	Acres of corn fertilized as a percentage of total acres fertilized	Acres of corn fertilized as a percentage of corn acreage for all purposes	Fertilizer used on corn as a percentage of total tons of fertilizer used	Quantity of fertilizer used per acre (pounds)	
					Average for total acres fertilized	Average for corn fertilized
Total Corn Belt:						
All commercial farms.....	30.2	59.1	51.1	56.3	220	208
Cash-grain farms.....	30.5	59.7	51.1	57.9	220	214
Livestock farms 1.....	29.4	60.9	49.8	58.3	218	208
Eastern Corn Belt:						
All commercial farms.....	56.5	54.4	91.7	54.2	254	254
Cash-grain farms.....	55.7	55.5	88.5	56.2	244	246
Livestock farms 1.....	59.2	55.9	95.6	56.7	266	270
Central Corn Belt:						
All commercial farms.....	26.8	66.7	44.6	59.9	240	214
Cash-grain farms.....	27.6	66.6	45.7	59.9	258	232
Livestock farms 1.....	26.4	67.8	44.1	61.2	222	200
Northern Corn Belt:						
All commercial farms.....	24.2	74.8	55.5	67.6	184	166
Cash-grain farms.....	18.6	75.0	45.0	70.7	182	172
Livestock farms 1.....	29.0	78.0	63.8	71.4	184	168
Western Corn Belt:						
All commercial farms.....	18.0	58.5	28.8	58.3	158	158
Cash-grain farms.....	17.6	60.2	28.9	61.5	144	148
Livestock farms 1.....	18.9	58.7	29.8	58.2	168	166
Southern Corn Belt:						
All commercial farms.....	33.4	50.7	59.4	49.3	212	208
Cash-grain farms.....	35.3	52.0	61.4	51.3	200	196
Livestock farms 1.....	31.7	52.1	57.3	51.1	228	224

1 Livestock other than dairy and poultry farms.

As with the percentage of farms reporting, the percentage of total cropland fertilized declines as we go from Class I to Class VI farms (table 65). Commercial fertilizer was used on 43.3 percent of the cropland on Class I cash-grain farms but on only 21.5 percent of the cropland on Class VI cash-grain farms. Corn represented close to two-thirds of the total acreage fertilized on all economic classes of farms. But the three lower economic classes fertilized a smaller proportion of their corn acreage than did the three higher economic classes. Also, in general, the quantities of fertilizer used per acre on corn and other crops were smaller on the lower economic classes of farms. For example, the average rate of application on corn was 186 pounds on Class VI livestock farms, compared with 242 pounds on Class I livestock farms.

TABLE 65.—USE OF COMMERCIAL FERTILIZER AND FERTILIZING MATERIAL ON COMMERCIAL FARMS, BY TYPE AND ECONOMIC CLASS OF FARM, IN THE CORN BELT: 1954

Type and economic class of farm	Total acres fertilized as a percentage of total cropland	Acres of corn fertilized as a percentage of total acres fertilized	Acres of corn fertilized as a percentage of corn acreage for all purposes	Fertilizer used on corn as a percentage of total tons of fertilizer used	Quantity of fertilizer used per acre (pounds)	
					Average for total acres fertilized	Average for corn fertilized
All commercial farms.....	30.2	59.1	51.1	56.3	220	208
Cash-grain farms:						
Total.....	30.5	59.7	51.1	57.9	220	214
Class I.....	43.3	60.3	69.6	61.7	266	272
II.....	34.3	60.7	57.3	58.7	230	222
III.....	27.3	59.1	45.9	56.4	202	200
IV.....	25.2	57.6	41.7	55.2	200	192
V.....	27.1	59.1	46.3	56.5	206	200
VI.....	21.5	65.1	39.4	61.7	208	196
Livestock farms: <sup>1</sup>						
Total.....	29.4	60.9	49.8	58.3	218	208
Class I.....	39.7	62.3	62.9	61.3	246	242
II.....	33.0	61.2	54.1	58.7	214	206
III.....	25.8	60.4	43.9	56.7	204	192
IV.....	21.5	59.4	38.8	55.2	208	192
V.....	20.4	57.8	39.2	53.3	216	198
VI.....	18.2	62.8	42.5	57.8	204	186

<sup>1</sup> Livestock other than dairy and poultry farms.

## LIME

Much of the land in the Corn Belt requires liming to correct soil acidity and to furnish available calcium for growing crops. Lime applied to acid soil also improves the physical condition of the soil, steps up the efficiency of fertilizers and manures applied, and increases the availability of phosphorus in the soil (11). Liming is particularly necessary on some soils for successful production of legume crops such as alfalfa, red clover, and sweet-clover. The quantity of lime used in the Corn Belt in 1954 was more than double the quantity used in 1939.

Lime and liming materials in the 1954 Census enumeration were to include ground limestone, hydrated and burnt lime, marl, oyster shells, and other forms of lime. All lime and liming materials purchased or to be purchased during the calendar year 1954 for use on the farm were to be included whether paid for by the operator, or by the landlord, or jointly. Lime used under the Agricultural Conservation Program was to be included. All lime used for sprays or for sanitation purposes was to be excluded. Gypsum was not included or counted as a liming material.

The proportion of farms reporting expenditures for lime and liming material in 1954 is shown on a county-unit basis for the United States in figure 31. In the western half of the country, lime was used on relatively few farms. In the eastern half, the percentage of farms reporting expenditures for lime ranged from less than 5 percent in many counties to 40 percent or more in some

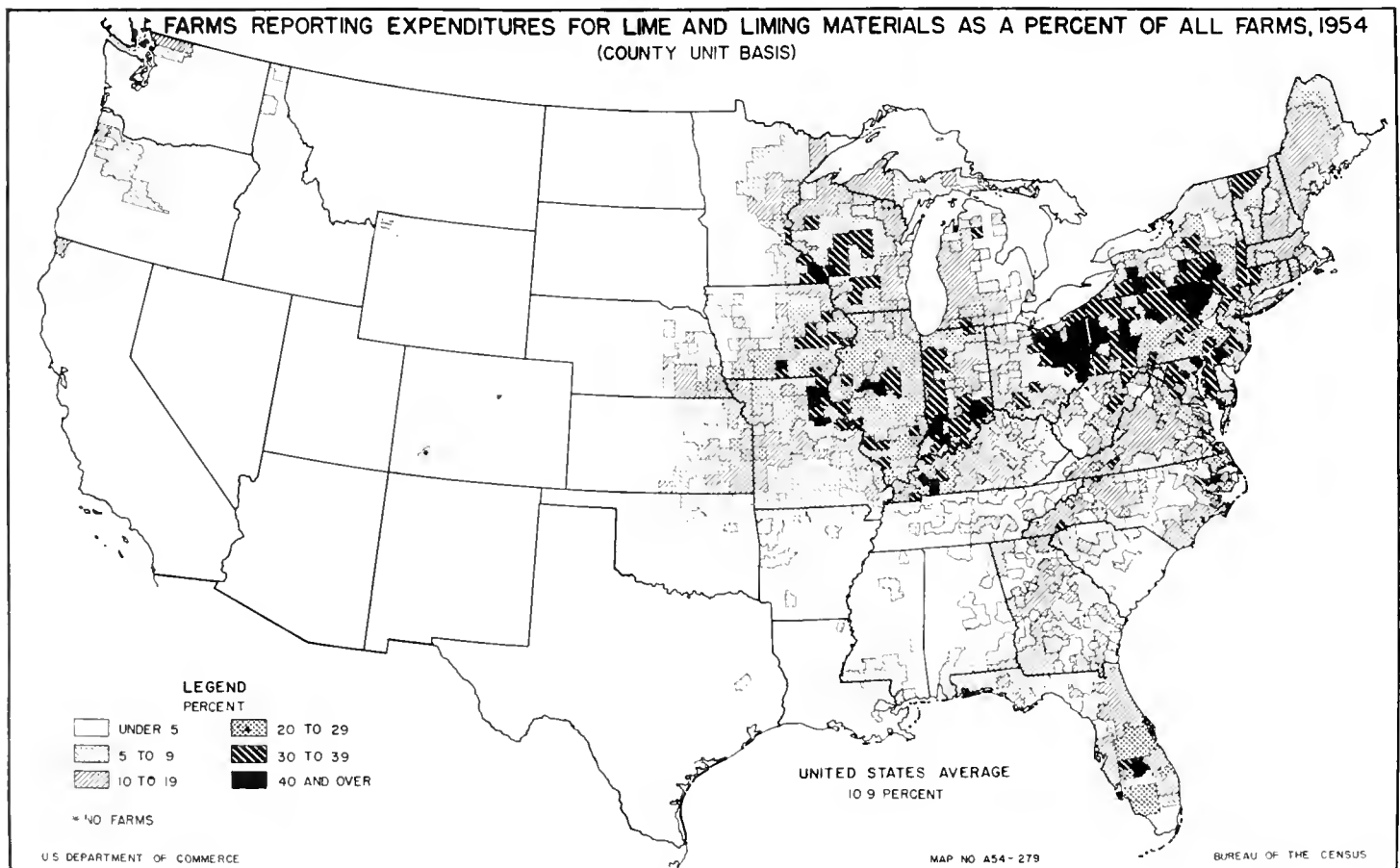


FIGURE 31.

counties. The area of most dense concentration of farms using lime was to the east of the Corn Belt, mainly in eastern Ohio, western and northern Pennsylvania, and southern New York. In the Corn Belt, most of the counties with relatively large percentages of the farms reporting expenditures for lime and liming material were in the eastern and southern areas. In the Western Corn Belt there were relatively few counties in which more than 10 percent of the farms reported this expenditure.

In the Corn Belt as a whole, 19 percent of the commercial farms reported expenditures for lime and liming material in 1954 (table 66). Slightly more than a fourth of the commercial farms in the Southern and Eastern Corn Belt and about a fifth of those in the Central Corn Belt reported this item. The smallest proportions of farms using lime were among the cash-grain farms of the Northern and Western Corn Belt.

TABLE 66.—USE OF LIME AND LIMING MATERIAL ON COMMERCIAL FARMS, BY TYPE OF FARM, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Percent of commercial farms reporting expenditures for lime and liming material	Acres limed as a percentage of total cropland	Average quantity of lime and liming material used per acre limed (tons)
Total Corn Belt:			
All commercial farms.....	19.0	3.0	2.1
Cash-grain farms.....	17.8	2.7	2.1
Livestock farms <sup>1</sup> .....	20.9	3.5	2.1
Eastern Corn Belt:			
All commercial farms.....	26.1	5.1	1.9
Cash-grain farms.....	24.4	4.3	1.9
Livestock farms <sup>1</sup> .....	31.6	6.6	1.9
Central Corn Belt:			
All commercial farms.....	20.1	3.5	2.1
Cash-grain farms.....	20.1	3.3	2.1
Livestock farms <sup>1</sup> .....	22.2	3.9	2.2
Northern Corn Belt:			
All commercial farms.....	13.9	2.0	2.5
Cash-grain farms.....	6.5	0.9	2.4
Livestock farms <sup>1</sup> .....	18.7	2.8	2.5
Western Corn Belt:			
All commercial farms.....	7.7	1.1	1.8
Cash-grain farms.....	6.4	0.8	1.8
Livestock farms <sup>1</sup> .....	8.7	1.3	1.8
Southern Corn Belt:			
All commercial farms.....	26.8	4.6	2.2
Cash-grain farms.....	27.0	4.0	2.3
Livestock farms <sup>1</sup> .....	28.7	5.4	2.1

<sup>1</sup> Livestock other than dairy and poultry farms.

Only 3 percent of the cropland on commercial farms in the Corn Belt was limed in 1954. On livestock farms in the Eastern Corn Belt 6.6 percent, and on livestock farms in the Southern Corn Belt 5.4 percent of the cropland was limed that year. But these percentages indicate that liming is an important farm practice in these areas, for after a field has been limed it usually does not have to be relimed for 6 to 10 years or more.

The average quantity of lime or liming material used per acre limed was 2.1 tons. The heaviest applications, on the average, were made in the Northern Corn Belt and the lightest in the Western Corn Belt.

Expenditures for lime and liming material were reported by larger proportions of the higher economic classes than of the lower economic classes of farms (table 67). About a third of the Class I farms reported using lime, compared with about a tenth of the Class VI farms. The percentage of cropland limed in 1954 did not show any particular relation to economic class except that the largest percentage of acreage limed was on the Class I farms. Rates of application per acre on Class V and Class VI farms appeared to be only slightly smaller than the average for all commercial farms.

TABLE 67.—USE OF LIME AND LIMING MATERIAL ON COMMERCIAL FARMS, BY TYPE AND ECONOMIC CLASS OF FARM, IN THE CORN BELT: 1954

Type and economic class of farm	Percent of commercial farms reporting expenditures for lime and liming material	Acres limed as a percentage of total cropland	Average quantity of lime and liming material used per acre limed (tons)
All commercial farms.....	19.0	3.0	2.1
Cash-grain farms:			
Total.....	17.8	2.7	2.1
Class I.....	34.7	4.2	2.1
II.....	23.8	2.9	2.1
III.....	17.0	2.2	2.1
IV.....	14.8	2.3	2.1
V.....	13.9	2.8	2.0
VI.....	9.7	2.5	2.0
Livestock farms: <sup>1</sup>			
Total.....	20.9	3.5	2.1
Class I.....	30.9	4.5	2.1
II.....	25.9	3.6	2.1
III.....	21.4	3.1	2.1
IV.....	17.6	2.9	2.1
V.....	14.2	3.4	2.0
VI.....	9.7	3.5	1.9

<sup>1</sup> Livestock other than dairy and poultry farms.

## LIVESTOCK PRODUCTION

The Corn Belt is a major region in American food production. It is particularly important in the production of livestock for meat. In 1954, 69.7 percent of all hogs and pigs sold, 28.2 percent of all cattle and calves sold, and 21.3 percent of all sheep and lambs sold by commercial farms in the United States came from the Corn Belt. In addition, it produced 31.4 percent of all chicken eggs sold, and 20.7 percent of all milk sold by commercial farms. Most of the corn, oats, barley, and hay produced there is fed to livestock in the region, but large quantities of these feed crops, especially of corn and oats, are shipped out of the Corn Belt to be fed to dairy cattle, poultry, and other livestock in other regions of the country.

## KIND AND NUMBER OF LIVESTOCK

**Cattle and calves.**—There were 22.9 million head of cattle and calves on commercial farms in the Corn Belt in 1954 (table 68). This was approximately a fourth of the United States total. Cattle and calves were distributed throughout the belt on all types of farms; somewhat more than half of the number were found on livestock farms, about a fifth on cash-grain farms, and the remainder on other types of farms. The heaviest concentration of cattle and calves was in the Western Corn Belt, which accounted for about a third of the total number.

A little more than a third of the cattle and calves in the Corn Belt were cows, but less than half of these were kept for milk (table 68). The large proportion of calves and other young stock, as well as the proportion of cows kept for raising calves but not for milk, reflects the emphasis on cattle kept for beef production. Milk cows were relatively most numerous in the

Northern and Eastern Corn Belt and most of them were on dairy farms.

A large proportion of the cattle fed on Corn Belt farms are calves and yearlings bought from the western range country. These young cattle are bought usually in the fall of the year and are kept for 3 to 15 months, during which time they are fed for additional growth and finish, to be marketed as fat heifers or steers. The length of time these feeder cattle (as they are called) are fed depends upon the supply of hay or other roughage and pasture available on the farm to which they are brought for fattening.

On farms where most of the land is level and practically all used for crops, with little or no hay or pasture (as on many farms in the Central Corn Belt), the feeder cattle are fed mainly corn and protein-supplement feeds for a period only long enough to obtain a good finish at a relatively rapid gain in weight. On the other hand, on farms that have a surplus of pasture or of hay and pasture, the feeder calves bought in the fall are generally fed mainly on roughage (hay, corn fodder, or oat straw, for example) through the winter, and mainly on pasture through the following summer, after which they are placed in the feed lot and fed mainly on corn and oil meal for a few months. They are then marketed as prime or choice fat cattle.

The size of the cattle-feeding enterprise, or the number of cattle fed on a farm, is flexible. It often varies considerably from year to year on a particular farm. An important factor affecting the scale of feeding operations is the supply of corn or other feed available and this varies from year to year with the volume of crop production, which in turn is affected by weather and other production conditions. Other major factors are the relative prices of feed grains, feeder cattle, and finished cattle. The anticipated market price of hogs, compared with that of cattle, is also a principal consideration to the farmer who weighs the alternative methods of marketing his feed grain.

Beef breeding herds are found usually on farms that have a large proportion of rolling or rough land or other unillable land that is kept in pasture or hay. Many such farms are found in the Corn Belt, especially in the southern and western parts. On these farms beef cows are kept for the primary purpose of producing calves; the calves are raised and fattened mainly on feed grown on the farm or they may be sold to other farmers for fattening. On some farms where calves are raised from beef cows on the farm, additional calves or young feeder cattle may be purchased, to be fed and fattened for market.

In 1954, cattle and calves were reported on 88.5 percent of all the commercial farms in the Corn Belt (table 69). The number of farms reporting ranged from about 82 percent in the Eastern Corn Belt to about 92 percent in the Western Corn Belt. Even among the cash-grain farms, 78.4 percent reported cattle and calves. Cows were reported on 82.9 percent and milk cows on 69.6 percent of the commercial farms. The difference in percentage of farms reporting milk cows and those reporting all cows is only a partial indication of the proportion of beef-breeding farms, as many farms with primarily beef herds had one or more milk cows for producing milk for home use or for sale. Also, the difference in percentage of farms reporting cows and those reporting any cattle and calves does not fully indicate the proportion of farms having feeder cattle only. Some farms had, or would have feeder cattle at some time during the year even though they did not have them on the dates of the Census enumeration.

TABLE 68.—NUMBER OF SPECIFIED LIVESTOCK ON COMMERCIAL FARMS, BY TYPE OF FARM, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Horses and/or mules	All cattle and calves	Cows <sup>1</sup>	Milk cows	Hogs and pigs	All sheep	Chickens <sup>2</sup>
	1,000 head	1,000 head	1,000 head	1,000 head	1,000 head	1,000 head	1,000 head
<b>Total Corn Belt:</b>							
All commercial farms.....	451	22,908	8,719	4,158	36,654	5,424	110,369
Cash-grain farms.....	95	4,438	1,969	850	5,048	1,068	28,448
Livestock farms <sup>3</sup> .....	235	13,521	4,399	1,434	25,366	3,498	45,225
<b>Eastern Corn Belt:</b>							
All commercial farms.....	60	3,173	1,323	848	6,401	1,200	19,433
Cash-grain farms.....	15	746	332	195	1,036	322	5,236
Livestock farms <sup>3</sup> .....	21	1,362	455	173	3,997	602	4,942
<b>Central Corn Belt:</b>							
All commercial farms.....	70	4,993	1,658	768	11,138	1,231	25,219
Cash-grain farms.....	21	1,261	522	222	1,850	330	8,210
Livestock farms <sup>3</sup> .....	36	3,070	842	316	7,950	773	10,948
<b>Northern Corn Belt:</b>							
All commercial farms.....	62	3,438	1,378	1,026	6,100	736	21,080
Cash-grain farms.....	10	467	195	122	644	142	4,603
Livestock farms <sup>3</sup> .....	27	1,750	567	337	3,617	428	7,794
<b>Western Corn Belt:</b>							
All commercial farms.....	131	7,352	2,534	860	8,306	1,137	26,508
Cash-grain farms.....	28	1,336	559	198	919	140	6,676
Livestock farms <sup>3</sup> .....	79	4,980	1,520	376	6,380	887	13,692
<b>Southern Corn Belt:</b>							
All commercial farms.....	129	3,952	1,825	656	4,708	1,120	18,128
Cash-grain farms.....	21	629	301	113	599	134	3,722
Livestock farms <sup>3</sup> .....	71	2,360	1,016	232	3,423	807	7,849

<sup>1</sup> All cows, including heifers that have calved.

<sup>2</sup> Chickens 4 months old and over.

<sup>3</sup> Livestock other than dairy and poultry farms.

TABLE 69.—PERCENT OF COMMERCIAL FARMS, BY TYPE, REPORTING SPECIFIED KINDS OF LIVESTOCK, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Horses and/or mules	All cattle and calves	Cows <sup>1</sup>	Milk cows	Hogs and pigs	All sheep	Chick-ens <sup>2</sup>
<b>Total Corn Belt:</b>							
All commercial farms.....	Percent 25.3	Percent 88.5	Percent 82.9	Percent 69.6	Percent 69.4	Percent 15.8	Percent 78.3
Cash-grain farms.....	17.3	78.4	74.0	57.3	50.1	13.9	69.9
Livestock farms <sup>3</sup> .....	31.3	95.0	87.7	70.0	87.3	18.7	80.6
<b>Eastern Corn Belt:</b>							
All commercial farms.....	14.8	82.3	75.6	62.1	60.3	19.5	70.2
Cash-grain farms.....	10.7	71.9	64.9	50.8	43.0	16.9	60.5
Livestock farms <sup>3</sup> .....	17.9	91.1	80.4	57.4	86.2	26.6	70.3
<b>Central Corn Belt:</b>							
All commercial farms.....	18.6	88.1	81.6	64.2	73.7	19.3	76.6
Cash-grain farms.....	14.1	80.7	76.2	54.8	54.1	19.1	70.4
Livestock farms <sup>3</sup> .....	23.0	94.8	84.6	67.0	92.7	20.3	79.6
<b>Northern Corn Belt:</b>							
All commercial farms.....	24.8	89.6	84.8	75.1	77.4	16.3	81.0
Cash-grain farms.....	16.1	74.3	69.8	56.5	53.5	14.5	73.0
Livestock farms <sup>3</sup> .....	28.0	95.3	86.6	72.6	91.8	18.5	82.1
<b>Western Corn Belt:</b>							
All commercial farms.....	31.7	91.7	87.5	73.5	69.5	8.4	82.8
Cash-grain farms.....	23.7	83.4	80.7	64.7	48.6	6.0	76.1
Livestock farms <sup>3</sup> .....	37.3	96.6	90.2	74.4	85.3	10.1	84.9
<b>Southern Corn Belt:</b>							
All commercial farms.....	37.2	91.4	85.5	75.5	69.3	16.5	81.8
Cash-grain farms.....	25.2	80.9	78.5	62.5	54.9	10.8	73.6
Livestock farms <sup>3</sup> .....	43.6	95.9	93.3	75.1	82.8	22.3	82.5

<sup>1</sup> All cows, including heifers that have calved.

<sup>2</sup> Chickens 4 months old and over.

<sup>3</sup> Livestock other than dairy and poultry farms.

The percentage of farms reporting cattle and calves was higher among the upper economic classes of farms, especially among the cash-grain farms (table 70). For example, 85.7 percent of the Class I cash-grain farms reported cattle and calves compared with 55.5 percent of the Class VI farms. In the case of livestock farms, the percentages of farms reporting cattle and calves were about the same for Classes I, II, and III, but were slightly smaller for Classes IV, V, and VI. The differences between economic classes were wider in the case of farms reporting cows. It should be noted also that the percentage of Class I farms reporting cows was smaller than that for farms in some of the other economic classes, especially among the livestock farms. This indicates the relatively greater frequency of feeder-cattle ventures on the Class I farms. Milk cows also were reported relatively less often on Class I and Class II farms than on Class III farms.

TABLE 70.—PERCENT OF FARMS IN EACH TYPE, REPORTING SPECIFIED KINDS OF LIVESTOCK, BY ECONOMIC CLASS OF FARM, IN THE CORN BELT: 1954

Type and economic class of farm	Horses and/or mules	All cattle and calves	Cows <sup>1</sup>	Milk cows	Hogs and pigs	All sheep	Chick-ens <sup>2</sup>
<b>All commercial farms.....</b>	Percent 25.3	Percent 88.5	Percent 82.9	Percent 69.6	Percent 69.4	Percent 15.8	Percent 78.3
<b>Cash-grain farms:</b>							
Total.....	17.3	78.4	74.0	57.3	50.1	13.9	69.9
Class I.....	22.5	85.7	77.8	54.4	60.5	20.1	60.1
II.....	16.5	85.3	80.1	60.1	60.1	18.5	71.2
III.....	16.0	83.1	79.4	62.8	55.3	14.4	74.5
IV.....	17.4	75.4	71.4	55.6	44.0	11.6	68.8
V.....	18.6	64.2	59.0	46.2	33.7	9.4	61.2
VI.....	24.6	55.5	51.4	40.3	27.0	5.4	61.7
<b>Livestock farms:<sup>3</sup></b>							
Total.....	31.3	95.0	87.7	70.0	87.3	18.7	80.6
Class I.....	36.0	96.6	75.9	63.6	90.0	19.6	70.0
II.....	27.5	96.5	85.8	69.9	92.8	19.5	80.9
III.....	28.9	96.5	91.4	74.7	92.4	18.2	84.1
IV.....	34.1	95.0	90.7	71.7	87.7	19.0	81.5
V.....	34.8	91.1	86.2	63.9	75.6	18.3	77.8
VI.....	37.4	87.2	83.4	61.8	58.1	16.5	76.5

<sup>1</sup> All cows, including heifers that have calved.

<sup>2</sup> Chickens 4 months old and over.

<sup>3</sup> Livestock other than dairy and poultry farms.

The commercial farms reporting cattle and calves had an average of 32 head of cattle and calves per farm (table 71). The average size of herd was almost twice as large in the Western Corn Belt as in the Eastern (43 head compared with 22). Livestock farms averaged 44 head per herd, while cash-grain farms averaged 21. The largest herds were on livestock farms in the Western Corn Belt (averaging 56 head), and the smallest were on cash-grain farms in the Eastern Corn Belt (averaging 15 head). But herds on livestock farms in the Eastern Corn Belt averaged larger than those on cash-grain farms in every region. The number of cows per herd ranged from an average of 10 in the Eastern Corn Belt to 16 in the Western Corn Belt. The number of milk cows per farm reporting was largest in the Northern Corn Belt and smallest in the Southern and Western Corn Belt.

TABLE 71.—AVERAGE NUMBER OF SPECIFIED LIVESTOCK PER FARM REPORTING, FOR COMMERCIAL FARMS BY TYPE, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Horses and/or mules	All cattle and calves	Cows <sup>1</sup>	Milk cows	Hogs and pigs	All sheep	Chick-ens <sup>2</sup>
<b>Total Corn Belt:</b>							
All commercial farms.....	Number 2	Number 32	Number 13	Number 7	Number 66	Number 43	Number 177
Cash-grain farms.....	2	21	10	6	38	29	154
Livestock farms <sup>3</sup> .....	2	44	15	6	89	57	172
<b>Eastern Corn Belt:</b>							
All commercial farms.....	2	22	10	8	60	35	156
Cash-grain farms.....	2	15	7	6	35	28	127
Livestock farms <sup>3</sup> .....	2	29	11	6	90	44	137
<b>Central Corn Belt:</b>							
All commercial farms.....	2	34	12	7	90	38	196
Cash-grain farms.....	2	23	10	6	50	25	169
Livestock farms <sup>3</sup> .....	2	45	14	7	119	53	191
<b>Northern Corn Belt:</b>							
All commercial farms.....	2	35	15	13	73	42	240
Cash-grain farms.....	2	23	10	8	41	36	230
Livestock farms <sup>3</sup> .....	2	45	16	11	97	56	234
<b>Western Corn Belt:</b>							
All commercial farms.....	2	43	16	6	64	73	172
Cash-grain farms.....	2	27	12	5	32	39	149
Livestock farms <sup>3</sup> .....	2	56	18	6	82	96	176
<b>Southern Corn Belt:</b>							
All commercial farms.....	2	27	14	6	43	43	141
Cash-grain farms.....	2	19	9	4	27	30	124
Livestock farms <sup>3</sup> .....	2	35	15	4	58	51	134

<sup>1</sup> All cows, including heifers that have calved.

<sup>2</sup> Chickens 4 months old and over.

<sup>3</sup> Livestock other than dairy and poultry farms.

TABLE 72.—AVERAGE NUMBER OF SPECIFIED LIVESTOCK PER FARM REPORTING, BY TYPE OF FARM BY ECONOMIC CLASS, IN THE CORN BELT: 1954

Type and economic class of farm	Horses and/or mules	All cattle and calves	Cows <sup>1</sup>	Milk cows	Hogs and pigs	All sheep	Chick-ens <sup>2</sup>
<b>All commercial farms.....</b>	Number 2	Number 32	Number 13	Number 7	Number 66	Number 43	Number 177
<b>Cash-grain farms:</b>							
Total.....	2	21	10	6	38	29	154
Class I.....	3	54	21	7	96	53	176
II.....	2	29	13	7	55	35	186
III.....	2	21	10	6	36	28	168
IV.....	2	16	7	5	23	24	134
V.....	2	10	5	3	14	19	99
VI.....	2	7	4	3	8	13	75
<b>Livestock farms:<sup>3</sup></b>							
Total.....	2	44	15	6	89	57	172
Class I.....	3	135	24	6	220	206	211
II.....	2	55	19	7	126	61	209
III.....	2	38	16	7	79	45	185
IV.....	2	28	13	6	51	38	151
V.....	2	20	10	4	31	34	115
VI.....	2	13	7	3	18	26	85

<sup>1</sup> All cows, including heifers that have calved.

<sup>2</sup> Chickens 4 months old and over.

<sup>3</sup> Livestock other than dairy and poultry farms.

The average size of cattle herd shows a strong correlation with economic class of farm (table 72). Among the cash-grain farms, Class I farms had an average of 54 head of cattle and calves per farm reporting, while Class VI farms had an average of only 7. Among the livestock farms, Class I farms had an average of 135 head per farm reporting; Class VI farms had 13. The size of herds on other economic classes of farms ranged between these extremes. The situation was similar for cows per herd on the different economic classes of farms. The general pattern was also similar for milk cows, but the differences were less extreme.

**Hogs and pigs.**—Hogs and pigs on commercial farms in the Corn Belt in 1954 numbered 36.7 million head, approximately two-thirds of the total number on all commercial farms in the United States (table 68). Hog numbers in the United States and in the Corn Belt were relatively low in 1954 in comparison with numbers during the preceding 15 years (9). Hogs and pigs were found on all types of farms throughout the Corn Belt, but were relatively most numerous on livestock farms in the Central Corn Belt. In the Corn Belt as a whole, about 69 percent of the hogs and pigs were on livestock farms.

Hogs and pigs are not found on as many farms as are cattle and calves, but hog production is a major enterprise and a principal source of income on a larger proportion of farms. Pigs are usually raised and finished for market on the farm where they are farrowed. Relatively few commercial farms in the Corn Belt raise feeder pigs that are shipped in from other areas. Usually, less than two-thirds as many litters of pigs are farrowed in the fall as in the spring in the Corn Belt as a whole. Fall farrowing is much less common in the Western and Northern Corn Belt than in the Eastern and Southern Corn Belt because the more severe winters in the northern and western regions are less favorable for the raising of fall pigs. As hogs are fed largely on concentrate feeds, the hog enterprise is well adapted to farms where large crops of corn are raised. Hogs and beef cattle, or hogs and dairy production, are often found on the same farm. Where beef cattle are fed, hogs can salvage feed that otherwise would be wasted; and on dairy farms where only cream is sold, the skim milk can be fed to hogs.

Hogs and pigs were reported on 69.4 percent of the commercial farms in the Corn Belt in 1954 (table 69). They were most frequently reported on farms in the Northern and Central Corn Belt and relatively least frequently in the Eastern Corn Belt. They were found on 50.1 percent of the cash-grain farms and on 87.3 percent of the livestock farms in the Corn Belt.

Hogs and pigs were found relatively more often on the higher income classes than on the lower income classes of farms (table 70). On cash-grain farms about 60 percent of the Class I and Class II farms reported hogs and pigs compared with 27 percent on Class VI farms. On livestock farms, hogs and pigs were reported on 90 percent or more of the Classes I, II, and III farms and on 75.6 percent of the Class V farms.

The average number of hogs and pigs per farm reporting in the Corn Belt was 66 for all commercial farms, 38 for cash-grain farms, and 89 for livestock farms (table 71). The average number per farm was highest on livestock farms in the Central Corn Belt (119 head), and lowest on cash-grain farms in the Southern Corn Belt (27 head). The great variation in size of the hog enterprise on different farms is shown strikingly in table 72. Class I livestock farms had an average of 220 hogs and pigs per farm reporting while Class II livestock farms had 126, Class VI livestock farms had 18, Class I cash-grain farms had 96, and Class VI cash-grain farms had 8.

**Chickens.**—Approximately a third of all the chickens 4 months old and over on commercial farms in the United States in the fall of 1954 were in the Corn Belt. From the national standpoint, the Corn Belt is a leading source of chicken eggs. The 110.4 million chickens reported on commercial farms in the Corn Belt in 1954 were widely distributed throughout all regions and were found on all types of farms (table 68). Chickens were reported on from 70 percent to 83 percent of all commercial farms in the various regions (table 69). They were found somewhat more frequently on livestock farms than on cash-grain farms. Flocks were kept by a relatively larger proportion of the Classes II, III, and IV farms than of the higher income and lower income classes of farms (table 70). The average size of flock on all farms reporting was 177 birds (table 71). The largest average size of flock was on commercial farms in the Northern Corn Belt and the smallest on cash-grain farms in the Southern Corn Belt. In general, the higher economic classes of farms had larger flocks than the lower economic classes, the number of birds ranging from an average of 211 on Class I livestock farms down to 75 on Class VI cash-grain farms (table 72).

Farm flocks of chickens in the Corn Belt are kept mainly for egg production. Hens and a few cockerels are raised mainly from chicks bought in the spring from commercial hatcheries. The principal income from the flocks is from eggs sold. Sales of chickens for meat arise mainly from the culling of hens and pullets and the sale of a few extra chickens, so as to reduce the size of flock to the capacity of the poultry house in the fall.

From the standpoint of total farm income in the Corn Belt, chicken and egg production is a relatively minor enterprise. Nevertheless, it is a fairly important source of income on many farms and it provides a valuable contribution in the form of eggs and meat for the household on most of the farms. The farm flock requires a relatively small investment of capital and much of the labor is relatively light and is frequently done by the farm wife or other members of the operator's family.

**Sheep.**—Sheep production is a minor enterprise in the Corn Belt as a whole. However, there were 5.4 million sheep on commercial farms in the Corn Belt in 1954 and they were found on all types of farms in all regions. Sheep production is of two general types. The most usual is the farm flock, found most frequently on farms having a high percentage of untillable land or other low-grade pasture, and on which the production of concentrate feeds in proportion to pasture crops is not great enough to produce beef cattle. Such farms are found scattered throughout the Corn Belt and are relatively most numerous in the Southern and Eastern Corn Belt. The other form of the sheep enterprise is the feeding and fattening of western lambs. Most of the lamb feeding is on farms in the Central and Western Corn Belt where large quantities of corn and oats are grown.

Sheep were reported on 15.8 percent of the commercial farms in the Corn Belt in 1954, and more frequently on livestock farms than on cash-grain farms (table 69). Among cash-grain farms, sheep were reported on relatively fewer of the lower income classes of farms, but among livestock farms the frequency of reporting was more nearly alike on all economic classes. The average size of flock per commercial farm reporting was 43 head. Flocks averaged largest on livestock farms in the Western Corn Belt (96 head), and smallest on cash-grain farms in the Central Corn Belt (25 head per farm reporting). Size of flock declines steadily as we go from the higher to the lower economic classes of farms. Class I livestock farms had an average of 206 sheep per flock; Class VI livestock farms had an average of 26.

SALES OF LIVESTOCK AND LIVESTOCK PRODUCTS

Data on sales of livestock and livestock products are essential to an accurate understanding of livestock operations on commercial farms. Sales data serve to supplement the information on farms reporting and on numbers of livestock on an inventory date. They give a more complete picture of livestock enterprises by revealing livestock production carried on at a different time of the year but not present at the time of the Census enumeration—for example, cattle sold, hogs sold, etc. They present the commercial phase of livestock operations as distinguished from the overall phase which often includes a considerable proportion of production that is primarily or exclusively for direct use by the farm household.

Distribution of cattle and calves sold alive in the United States in 1954 is shown in figure 32. Cattle are sold on farms throughout the Nation, but the main regions where large numbers are sold are the Corn Belt and the Great Plains States. The concentration of sales is particularly heavy in areas of the Western and Central Corn Belt. Sales of cattle were reported on 81.9 percent of the farms in the Corn Belt in 1954 (table 73). This was a larger percentage of farms than reported sales of any other livestock or livestock product in the Corn Belt as a whole. The greatest proportion of farms reporting sales of cattle and calves was among livestock farms in the Western Corn Belt and the smallest proportion was among cash-grain farms in the Eastern Corn Belt. Cattle were sold by 97.9 percent of the Class I livestock farms and by more than 90 percent of the Classes II, III, and IV livestock farms (table 74). Only 27 percent of the Class VI cash-grain farms reported cattle sold, but even this number was greater than the number selling any other livestock item except chicken eggs. The average value of cattle sold per farm reporting, however, was smaller than the average sales of hogs per farm reporting on every economic class of farm except Class I (table 75). The wide differences in incomes of the different economic classes of farms are apparent from the great spread from Class I to Class VI farms in the receipts from the two principal classes of livestock—cattle and hogs.]

TABLE 73.—PERCENT OF FARMS REPORTING SALES OF SPECIFIED LIVESTOCK AND LIVESTOCK PRODUCTS, BY PRINCIPAL TYPES OF FARMS, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Livestock and livestock products sold				
	Cattle and calves	Hogs and pigs	Chickens	Chicken eggs	Sheep
<b>Total Corn Belt:</b>					
All commercial farms.....	81.9	69.0	48.9	66.2	13.7
Cash-grain farms.....	65.6	48.1	39.4	55.9	11.1
Livestock farms <sup>1</sup> .....	92.8	89.1	51.6	69.4	17.3
<b>Eastern Corn Belt:</b>					
All commercial farms.....	73.4	59.3	41.6	54.1	16.6
Cash-grain farms.....	57.0	40.1	31.9	44.1	13.4
Livestock farms <sup>1</sup> .....	87.4	88.6	42.8	55.3	24.2
<b>Central Corn Belt:</b>					
All commercial farms.....	80.8	74.8	51.7	65.6	15.9
Cash-grain farms.....	68.3	54.2	44.0	57.0	15.1
Livestock farms <sup>1</sup> .....	92.1	94.9	54.7	69.4	17.8
<b>Northern Corn Belt:</b>					
All commercial farms.....	85.6	77.9	55.0	74.1	13.3
Cash-grain farms.....	64.4	53.0	45.2	65.1	11.5
Livestock farms <sup>1</sup> .....	94.3	93.5	58.3	76.4	16.3
<b>Western Corn Belt:</b>					
All commercial farms.....	86.2	69.8	52.0	72.8	7.6
Cash-grain farms.....	72.5	47.5	42.2	64.1	4.9
Livestock farms <sup>1</sup> .....	94.8	86.7	55.1	75.4	9.6
<b>Southern Corn Belt:</b>					
All commercial farms.....	84.9	66.7	46.5	67.0	15.8
Cash-grain farms.....	66.0	48.5	36.1	55.7	9.4
Livestock farms <sup>1</sup> .....	93.9	84.0	46.6	67.8	22.4

<sup>1</sup> Livestock other than dairy and poultry farms.

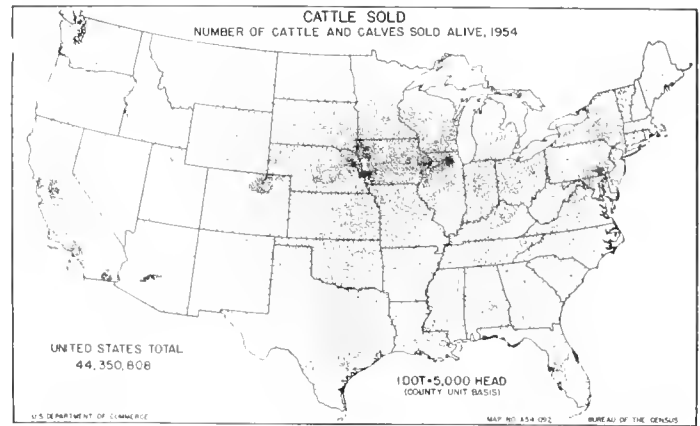


FIGURE 32.

TABLE 74.—PERCENT OF COMMERCIAL FARMS REPORTING SPECIFIED LIVESTOCK AND LIVESTOCK PRODUCTS SOLD, BY TYPE AND ECONOMIC CLASS OF FARM, IN THE CORN BELT: 1954

Type and economic class of farm	Livestock and livestock products sold				
	Cattle and calves	Hogs and pigs	Chickens	Chicken eggs	Sheep
All commercial farms.....	81.9	69.0	48.9	66.2	13.7
<b>Cash-grain farms:</b>					
Total.....	65.6	48.1	39.4	55.9	11.1
Class I.....	81.3	62.9	36.1	46.0	17.3
II.....	78.4	61.2	46.1	59.3	15.5
III.....	72.8	54.8	45.8	62.5	11.4
IV.....	59.9	40.4	35.3	54.5	9.2
V.....	41.9	27.0	24.4	42.3	7.0
VI.....	26.6	14.2	18.7	36.0	3.2
<b>Livestock farms <sup>1</sup>:</b>					
Total.....	92.8	89.1	51.6	69.4	17.3
Class I.....	97.9	92.6	49.8	59.9	18.7
II.....	96.9	95.1	60.1	72.6	18.1
III.....	95.3	94.3	57.7	75.1	16.7
IV.....	91.8	89.1	47.9	69.4	17.7
V.....	84.3	77.3	37.3	60.7	17.0
VI.....	76.9	56.5	29.5	55.9	15.2

<sup>1</sup> Livestock other than dairy and poultry farms.

TABLE 75.—AVERAGE VALUE OF SPECIFIED LIVESTOCK AND LIVESTOCK PRODUCTS SOLD PER COMMERCIAL FARM REPORTING, IN THE CORN BELT: 1954

Type and economic class of farm	Livestock and livestock products sold (dollars)				
	Cattle and calves	Hogs and pigs	Chickens	Chicken eggs	Sheep
All commercial farms.....	2,559	3,076	160	448	735
<b>Cash-grain farms:</b>					
Total.....	970	1,343	90	340	323
Class I.....	4,543	4,528	162	506	666
II.....	1,490	1,917	113	473	402
III.....	766	1,199	89	356	297
IV.....	466	652	70	254	242
V.....	278	378	58	162	179
VI.....	152	235	39	94	125
<b>Livestock farms <sup>1</sup>:</b>					
Total.....	4,462	4,383	94	401	1,115
Class I.....	28,450	13,325	165	601	7,907
II.....	5,325	6,680	112	547	899
III.....	2,055	3,551	90	422	512
IV.....	1,180	1,881	74	292	407
V.....	742	981	59	198	353
VI.....	391	450	40	108	260

<sup>1</sup> Livestock other than dairy and poultry farms.



Distribution of hogs and pigs sold alive in the United States in 1954 is shown in figure 33. Sales of hogs are not so widely diffused through all States as are cattle sales. The great bulk and concentration of hog sales is in the Corn Belt where they were reported on 69 percent of all the commercial farms. On livestock farms in the Eastern and Central Corn Belt, the numbers of farms reporting sales of hogs and pigs were slightly greater than the numbers reporting sales of cattle and calves (table 73). Sales of hogs and pigs were reported by 48.1 percent of the cash-grain farms and by 89.1 percent of the livestock farms. Sales from this enterprise were made by relatively more of the farms in the higher economic classes than in the lower economic classes.

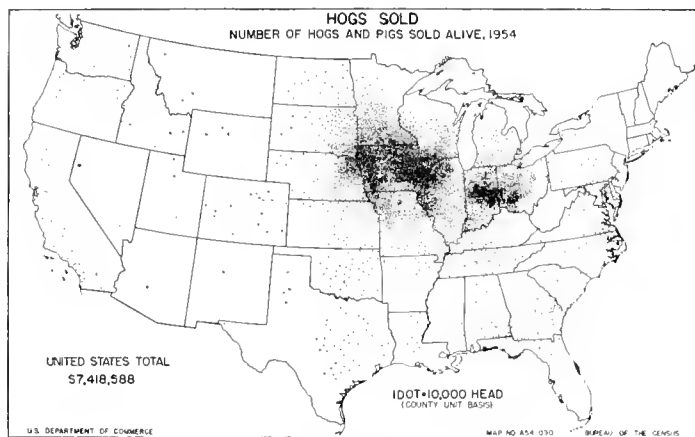


FIGURE 33.

The Corn Belt is one of the three main areas supplying chicken eggs for market in the United States (fig. 34). The other areas are in the Northeastern States and in California. Egg production is not so densely concentrated in any part of the Corn Belt as it is in some sections of the Northeast and of California. But the great number of laying flocks throughout the Corn Belt makes this one of the principal egg-producing regions of the country.

Chicken eggs were sold by 66.2 percent of all commercial farms in the Corn Belt in 1954. The highest proportion of farms selling

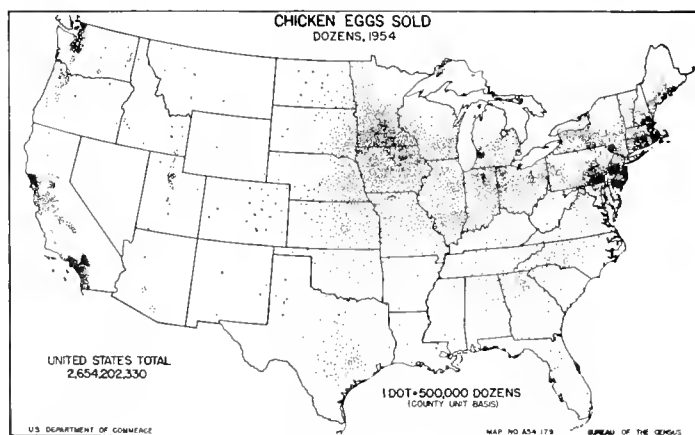


FIGURE 34.

eggs was in the Northern Corn Belt (74.1 percent). Egg sales were reported by 55.9 percent of the cash-grain farms and by 69.4 percent of the livestock farms in the Corn Belt. Farms selling eggs were a larger proportion of all farms among Class II and Class III farms than among Class I farms or among the lower economic classes. The average value of sales of eggs per farm reporting, however, was greatest on Class I farms. On livestock farms, the value of eggs sold per farm ranged from \$601 on Class I farms down to \$108 on Class VI farms. On Class VI cash-grain farms, sales of eggs averaged only \$94 per farm reporting. Sales of chickens were reported by fewer farms than the number reporting egg sales in all regions and on all economic classes of farms. The average value of chickens sold per farm was consistently less than the value of eggs sold.

Turkeys are raised on many farms throughout the United States, but the bulk of the production is concentrated in several relatively small areas in scattered locations (fig. 35). Several areas of intensive turkey production are located within the Corn Belt, mainly in the Northern, Central, and Eastern Corn Belt. Although turkey production is found on relatively few farms in the Corn Belt as a whole, it is a large enterprise in many counties, and is usually a major source of income to the producers. Turkey raising is typically a large-scale enterprise. Flocks of 5,000 or more turkeys are not uncommon. The average size of the turkey enterprise in Iowa in 1954 was about 2,000 birds.

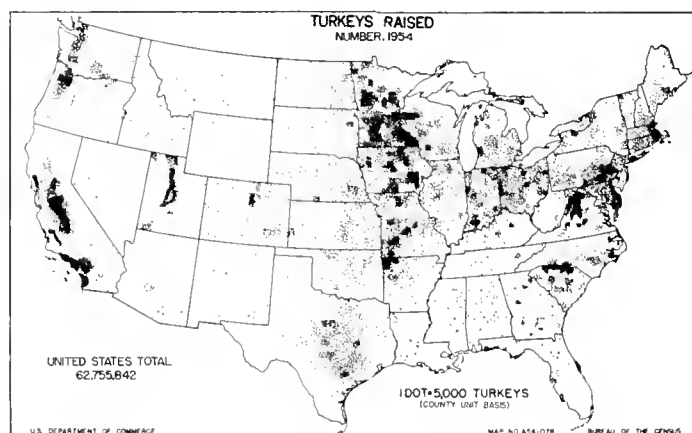


FIGURE 35.

Sales of sheep were reported by only 13.7 percent of all the commercial farms in the Corn Belt in 1954, but the proportion of farms selling sheep varied rather widely between regions and types of farms. Sheep were sold by about a fourth of the livestock farms in the Eastern Corn Belt, but by only a twentieth of the cash-grain farms in the Western Corn Belt. Generally, sales of sheep were reported by fewer farmers than reported sheep on hand. This reflects the practice of keeping sheep primarily for wool production on a number of farms. The average value of sheep sold per farm reporting among Class I livestock farms was \$7,907, but it ranged from \$899 on Class II livestock farms down to \$260 on Class VI livestock farms. On cash-grain farms, the average receipts from sheep sold were smaller. The large receipts from sheep sold on Class I livestock farms apparently were made up largely from sales of fattened feeder lambs.



Cattle and hogs each accounted for approximately 39 percent of the total value of livestock and livestock products sold on all commercial farms in the Corn Belt in 1954 (table 76). Cattle and hogs together accounted for 68.5 percent of the total on cash-grain farms and for 89.3 percent of the total on livestock farms. Sales of chickens and eggs totaled about 7 percent, milk (and cream) accounted for 12.8 percent, and sheep and wool for 2.3 percent of the livestock and livestock product receipts on all commercial farms. Hogs and pigs brought a larger proportion of the total than did cattle and calves in all regions except in the

Western Corn Belt. The largest percentage of livestock receipts accounted for by eggs was in the Northern Corn Belt; this was also the region where receipts from milk were relatively the greatest.

On Class I farms of both the cash-grain and livestock types, cattle accounted for a larger percentage of the total livestock sales than did hogs (table 77). This was the case also for Class VI farms of both types and for Class IV and Class V cash-grain farms. On Class I livestock farms cattle sales brought in 65 percent of the livestock receipts, while hogs brought in 28.8 percent. On

TABLE 76.—PERCENTAGE COMPOSITION OF VALUE OF SALES OF SPECIFIED LIVESTOCK AND LIVESTOCK PRODUCTS ON PRINCIPAL TYPES OF FARMS, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Livestock and livestock products sold							
	Total <sup>1</sup>	Cattle and calves	Hogs and pigs	Chickens	Chicken eggs	Milk	Sheep	Wool <sup>2</sup>
<b>Total Corn Belt:</b>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
All commercial farms.....	100.0	38.8	39.3	1.4	5.5	12.8	1.9	0.4
Cash-grain farms.....	100.0	34.0	34.5	1.9	10.1	16.9	1.9	0.6
Livestock farms <sup>3</sup> .....	100.0	46.0	43.3	0.5	3.1	4.6	2.1	0.3
<b>Eastern Corn Belt:</b>								
All commercial farms.....	100.0	23.8	43.8	3.2	6.7	20.3	1.7	0.5
Cash-grain farms.....	100.0	24.9	35.5	2.3	9.5	24.2	2.6	0.9
Livestock farms <sup>3</sup> .....	100.0	30.3	58.1	0.7	2.8	5.8	1.9	0.5
<b>Central Corn Belt:</b>								
All commercial farms.....	100.0	39.7	44.6	1.0	4.8	8.1	1.5	0.3
Cash-grain farms.....	100.0	36.0	35.9	1.8	9.6	14.3	1.8	0.6
Livestock farms <sup>3</sup> .....	100.0	44.2	47.0	0.5	2.8	3.8	1.5	0.2
<b>Northern Corn Belt:</b>								
All commercial farms.....	100.0	30.0	38.1	1.1	7.2	21.5	1.9	0.3
Cash-grain farms.....	100.0	27.7	34.0	1.9	14.2	19.9	1.8	0.6
Livestock farms <sup>3</sup> .....	100.0	38.9	43.1	0.6	4.6	9.9	2.6	0.3
<b>Western Corn Belt:</b>								
All commercial farms.....	100.0	54.1	31.6	0.8	4.0	7.0	2.2	0.3
Cash-grain farms.....	100.0	41.6	30.3	1.6	9.4	12.5	1.3	0.4
Livestock farms <sup>3</sup> .....	100.0	59.0	32.4	0.4	2.6	2.9	2.4	0.3
<b>Southern Corn Belt:</b>								
All commercial farms.....	100.0	36.0	39.7	1.7	6.0	13.7	2.3	0.6
Cash-grain farms.....	100.0	33.6	37.1	1.9	9.9	14.5	2.2	0.7
Livestock farms <sup>3</sup> .....	100.0	42.3	46.5	0.6	3.5	3.7	2.7	0.7

<sup>1</sup> Total of 7 livestock items listed in columns at right.  
<sup>2</sup> Value of wool shorn. Practically all of the wool shorn was sold.  
<sup>3</sup> Livestock other than dairy and poultry farms.

TABLE 77.—PERCENTAGE COMPOSITION OF TOTAL VALUE OF SALES OF SPECIFIED LIVESTOCK AND LIVESTOCK PRODUCTS ON COMMERCIAL FARMS, BY ECONOMIC CLASS, IN THE CORN BELT: 1954

Type and economic class of farm	Livestock and livestock products sold							
	Total <sup>1</sup>	Cattle and calves	Hogs and pigs	Chickens	Chicken eggs	Milk	Sheep	Wool <sup>2</sup>
<b>All commercial farms.....</b>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
All commercial farms.....	100.0	38.8	39.3	1.4	5.5	12.8	1.9	0.4
<b>Cash-grain farms:</b>								
<b>Total.....</b>	100.0	34.0	34.5	1.9	10.1	16.9	1.9	0.6
Class I.....	100.0	48.5	37.4	0.8	3.1	8.5	1.5	0.3
Class II.....	100.0	35.3	35.5	1.6	8.5	16.7	1.9	0.6
Class III.....	100.0	29.7	35.1	2.2	11.9	18.7	1.8	0.6
Class IV.....	100.0	30.6	28.8	2.7	15.1	19.4	2.4	0.9
Class V.....	100.0	30.1	26.3	3.7	17.7	17.7	3.3	1.3
Class VI.....	100.0	29.1	24.1	5.2	24.4	12.9	2.8	1.4
<b>Livestock farms:<sup>3</sup></b>								
<b>Total.....</b>	100.0	46.0	43.3	0.5	3.1	4.6	2.1	0.3
Class I.....	100.0	65.0	28.8	0.2	0.8	1.4	3.4	0.2
Class II.....	100.0	40.3	49.6	0.5	3.1	5.0	1.3	0.2
Class III.....	100.0	31.3	53.5	0.8	5.1	7.6	1.4	0.4
Class IV.....	100.0	32.3	50.0	1.1	6.1	7.7	2.1	0.7
Class V.....	100.0	36.5	44.2	1.3	7.0	6.4	3.5	1.1
Class VI.....	100.0	42.0	35.5	1.7	8.4	5.0	5.5	1.9

<sup>1</sup> Total of 7 livestock items listed in columns at right.  
<sup>2</sup> Value of wool shorn. Practically all of the wool shorn was sold.  
<sup>3</sup> Livestock other than dairy and poultry farms.

TABLE 78.—VALUE OF SALES OF SPECIFIED LIVESTOCK AND LIVESTOCK PRODUCTS ON COMMERCIAL FARMS IN THE CORN BELT: 1954

Type and economic class of farm	Livestock and livestock products sold (thousand dollars)							
	Total <sup>1</sup>	Cattle and calves	Hogs and pigs	Chickens	Chicken eggs	Milk	Sheep	Wool <sup>2</sup>
All commercial farms.....	4,308,838	1,669,981	1,692,387	62,439	236,152	552,161	80,477	15,242
Cash-grain farms:								
Total.....	494,651	168,332	170,719	9,379	50,206	83,468	9,505	3,044
Class I.....	49,480	23,992	18,506	380	1,513	4,182	747	160
II.....	205,102	72,430	72,809	3,239	17,399	34,236	3,851	1,137
III.....	168,866	50,226	59,266	3,664	20,052	31,541	3,068	1,050
IV.....	56,680	17,327	16,342	1,543	8,583	11,007	1,372	506
V.....	13,142	3,955	3,462	481	2,321	2,323	428	171
VI.....	1,381	402	333	72	337	178	39	19
Livestock farms: <sup>3</sup>								
Total.....	2,942,050	1,352,178	1,275,000	15,866	90,924	135,035	63,150	9,897
Class I.....	973,005	632,561	280,337	1,869	8,181	14,105	33,524	2,429
II.....	1,070,320	431,144	530,723	5,626	33,204	53,435	13,584	2,604
III.....	592,098	185,176	316,502	4,900	29,999	45,143	8,077	2,301
IV.....	224,529	72,598	112,326	2,374	13,599	17,262	4,819	1,549
V.....	68,584	25,023	30,312	872	4,804	4,408	2,403	762
VI.....	13,514	5,676	4,801	225	1,136	681	744	251

<sup>1</sup> Total of 7 livestock items listed in columns at right.<sup>2</sup> Value of wool shorn. Practically all of the wool shorn was sold.<sup>3</sup> Livestock other than dairy and poultry farms.

Class III livestock farms, cattle sales accounted for 31.3 percent, while hogs accounted for 53.5 percent. Receipts from milk sold were relatively more important among the livestock and livestock products sold on cash-grain farms than on livestock farms. The same was true for chickens and eggs.

The economic magnitude of the receipts from sales of livestock and livestock products on the different economic classes of farms is indicated by the total value of sales figures presented in table 78. The total value of livestock and livestock products sold on all commercial farms in the Corn Belt in 1954 was 4.3 billion dollars. Receipts from cattle sales and hog sales each totaled about 1.7 billion dollars. Sales from Class II and Class III farms accounted for more than half of the value of the total sales of livestock and livestock products by all economic classes of farms. The total sales from Class V and Class VI farms were a relatively very minor part of the total for all commercial farms.

Although dairy production is a major enterprise on relatively few farms in the Corn Belt, receipts from the sale of milk and cream are fairly important on many farms. The total value of milk and cream sold on all commercial farms in the Corn Belt in 1954 was approximately 552 million dollars (table 79). Whole milk accounted for three-fourths and cream accounted for one-fourth of this total. Whole milk made up the largest proportion of milk and cream sales in the Eastern Corn Belt (97 percent), and the smallest proportion in the Western Corn Belt (47.1 percent). On livestock farms in the Western Corn Belt, 79.4 percent of the total value of milk and cream sold was from cream. Most of the cream is sold on a butterfat basis to creameries and cream stations. Farms selling cream usually use the skim milk as feed for hogs or other livestock.

TABLE 79.—VALUE OF WHOLE MILK AND CREAM SOLD ON PRINCIPAL TYPES OF COMMERCIAL FARMS IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Value (thousand dollars)			Percentage distribution of value		
	Total milk and cream sold	Whole milk sold	Cream sold	Total milk and cream sold	Whole milk sold	Cream sold
Total Corn Belt:						
All commercial farms.....	552,161	416,598	135,562	100.0	75.4	24.6
Cash-grain farms.....	83,468	60,102	23,366	100.0	72.0	28.0
Livestock farms <sup>1</sup> .....	135,035	70,039	64,996	100.0	51.9	48.1
Eastern Corn Belt:						
All commercial farms.....	153,098	148,435	4,663	100.0	97.0	3.0
Cash-grain farms.....	26,910	25,964	946	100.0	96.5	3.5
Livestock farms <sup>1</sup> .....	23,370	22,024	1,346	100.0	94.2	5.8
Central Corn Belt:						
All commercial farms.....	93,118	57,895	35,223	100.0	62.2	37.8
Cash-grain farms.....	22,849	16,429	6,419	100.0	71.9	28.1
Livestock farms <sup>1</sup> .....	31,574	12,990	18,584	100.0	41.1	58.9
Northern Corn Belt:						
All commercial farms.....	147,989	110,705	37,283	100.0	74.8	25.2
Cash-grain farms.....	12,562	7,747	4,815	100.0	61.7	38.3
Livestock farms <sup>1</sup> .....	39,788	23,334	16,454	100.0	58.6	41.4
Western Corn Belt:						
All commercial farms.....	81,148	38,201	42,947	100.0	47.1	52.9
Cash-grain farms.....	13,276	4,017	9,259	100.0	30.3	69.7
Livestock farms <sup>1</sup> .....	26,443	5,460	20,983	100.0	20.6	79.4
Southern Corn Belt:						
All commercial farms.....	76,809	61,362	15,447	100.0	79.9	20.1
Cash-grain farms.....	7,871	5,944	1,927	100.0	75.5	24.5
Livestock farms <sup>1</sup> .....	13,861	6,231	7,630	100.0	45.0	55.0

<sup>1</sup> Livestock other than dairy and poultry farms.

## GROSS SALES AND INCOME

In summarizing the data on value of farm products sold on the various types and economic classes of commercial farms in the Corn Belt, it is helpful to reduce the figures to a per farm basis. This has been done in tables 80, 81, and 82. In this form it is relatively easy to compare the gross incomes on the different kinds of farms and to see the proportion that each group of products contributes to the total gross income from products sold. It should be observed, however, that the gross income from farm products sold is not the same as the total gross farm income, because it does not include the value of farm products used in farm households.

It should be kept in mind that the figures in tables 80, 81, and 82 are averages for all the farms in each group and that the value of products sold on individual farms may, and does, vary considerably from these averages. For example, the average value of livestock and livestock products sold per farm on cash-grain farms is relatively low partly because many cash-grain farms sold little or no livestock or livestock products. Likewise, the average value of crops sold per livestock farm is relatively low partly because many livestock farms had little or no income from crops sold. The value of forest products per farm is very low largely because forest products were reported as sold on relatively few farms in 1954. Nevertheless, the average values provide a useful basis for comparison of receipts from products sold on the different groups of farms.

The average value of all farm products sold by commercial farms in the Corn Belt in 1954 was \$8,602 per farm (table 80). Crops sold accounted for an average of \$3,110 per farm, or 36.2 percent of the total. Livestock and livestock products sold averaged \$5,487 per farm, or 63.8 percent of the total.

The largest average gross incomes per farm were obtained by farms in the Central Corn Belt (\$11,531). The lowest average gross incomes per farm were in the Southern Corn Belt (\$5,496). Gross incomes on livestock farms averaged higher than those on cash-grain farms and those on all commercial farms in every region of the Corn Belt. Sales of crops made up the largest proportion of the total value of products sold on cash-grain farms in the Central Corn Belt (77.7 percent). Livestock sales were relatively most important on livestock farms in the Northern Corn Belt.

The average gross income from farm products sold on Class I cash-grain farms was \$34,428 (table 81). This was more than 4 times as great as the average for all cash-grain farms. Class III cash-grain farms, the largest group of cash-grain farms in terms of number of farms included, had an average gross income of \$7,312 from farm products sold. The total value of farm products sold on Class VI cash-grain farms was only slightly more than a tenth of that on the Class III cash-grain farms.

The largest average gross income from farm products sold by any group of farms in the Corn Belt was obtained by Class I livestock farms (\$17,410). Class III farms, the most numerous among the livestock farms, averaged \$7,387 for all farm products sold. Again, the Class VI farms sold only a little more than a tenth as much value of farm products as did Class III farms.

The gross sales on Classes IV, V, and VI cash-grain farms were almost identical to those on the corresponding classes of livestock farms. This came about largely, of course, because of the income criteria of classification. But the gross sales on Class I and Class II livestock farms were significantly larger than the gross sales on the corresponding classes of cash-grain farms.

TABLE 80.—AVERAGE VALUE OF FARM PRODUCTS SOLD, AND PERCENTAGE COMPOSITION, FOR PRINCIPAL TYPES OF FARMS IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Average value per farm (dollars)				Percentage composition of value			
	All farm products sold	All crops sold	Livestock and livestock products sold	Forest products sold	All farm products sold	All crops sold	Livestock and livestock products sold	Forest products sold
<b>Total Corn Belt:</b>								
All commercial farms.....	8,602	3,110	5,487	4	100.0	36.2	63.8	(Z)
Cash-grain farms.....	7,843	5,963	1,877	3	100.0	76.0	23.9	(Z)
Livestock farms <sup>1</sup> .....	10,402	1,374	9,025	3	100.0	13.2	86.8	(Z)
<b>Eastern Corn Belt:</b>								
All commercial farms.....	7,828	3,498	4,324	7	100.0	44.7	55.2	0.1
Cash-grain farms.....	7,203	5,568	1,631	4	100.0	77.3	22.6	0.1
Livestock farms <sup>1</sup> .....	9,610	1,763	7,841	6	100.0	18.3	81.6	0.1
<b>Central Corn Belt:</b>								
All commercial farms.....	11,531	4,599	6,929	2	100.0	39.9	60.1	(Z)
Cash-grain farms.....	10,475	8,140	2,333	2	100.0	77.7	22.3	(Z)
Livestock farms <sup>1</sup> .....	13,484	1,815	11,667	2	100.0	13.5	86.5	(Z)
<b>Northern Corn Belt:</b>								
All commercial farms.....	9,039	2,527	6,509	3	100.0	28.0	72.0	(Z)
Cash-grain farms.....	7,937	5,629	2,308	(Z)	100.0	70.9	29.1	(Z)
Livestock farms <sup>1</sup> .....	10,989	1,080	9,907	3	100.0	9.8	90.2	(Z)
<b>Western Corn Belt:</b>								
All commercial farms.....	9,068	2,797	6,270	1	100.0	30.8	69.1	(Z)
Cash-grain farms.....	7,221	5,414	1,806	1	100.0	75.0	25.0	(Z)
Livestock farms <sup>1</sup> .....	11,373	1,270	10,102	1	100.0	11.2	88.8	(Z)
<b>Southern Corn Belt:</b>								
All commercial farms.....	5,496	1,858	3,631	7	100.0	33.8	66.1	0.1
Cash-grain farms.....	5,301	3,962	1,333	6	100.0	74.7	25.1	0.1
Livestock farms <sup>1</sup> .....	6,271	949	5,317	4	100.0	15.1	84.8	0.1

Z Less than 0.50 or less than 0.05 percent.

<sup>1</sup> Livestock other than dairy and poultry farms.

TABLE 81.—AVERAGE VALUE OF FARM PRODUCTS SOLD, BY ECONOMIC CLASS OF FARM, IN THE CORN BELT: 1954

Type and economic class of farm	Average value per farm (dollars)			
	All farm products sold	All crops sold	Livestock and livestock products sold	Forest products sold
All commercial farms.....	8,602	3,110	5,487	4
Cash-grain farms:				
Total.....	7,843	5,963	1,877	3
Class I.....	34,428	26,753	7,662	14
II.....	14,209	10,884	3,321	3
III.....	7,312	5,430	1,880	2
IV.....	3,841	2,921	918	3
V.....	1,919	1,527	389	2
VI.....	796	655	141	1
Livestock farms: <sup>1</sup>				
Total.....	10,402	1,374	9,025	3
Class I.....	47,410	4,425	42,979	5
II.....	15,250	2,423	12,824	3
III.....	7,387	1,112	6,272	3
IV.....	3,844	480	3,361	3
V.....	1,911	188	1,721	3
VI.....	791	69	721	1

<sup>1</sup> Livestock other than dairy and poultry farms.

The proportion of receipts from crops and from livestock and livestock products sold showed relatively little variation from class to class among either the cash-grain farms or the livestock farms (table 82). The widest difference among classes of cash-grain farms was 8 percent, comparing Class III with Class VI. The widest

difference between livestock farms was 7 percent, comparing Class II with Class VI. These differences in source of income are relatively insignificant when compared with the differences in levels of income.

TABLE 82.—PERCENTAGE COMPOSITION OF VALUE OF FARM PRODUCTS SOLD ON COMMERCIAL FARMS IN THE CORN BELT: 1954

Type and economic class of farm	Total value of farm products sold	Value of all crops sold	Value of livestock and livestock products sold	Value of forest products sold
All commercial farms.....	Percent 100.0	Percent 36.2	Percent 63.8	Percent (Z)
Cash-grain farms:				
Total.....	100.0	76.0	23.9	(Z)
Class I.....	100.0	77.7	22.3	(Z)
II.....	100.0	76.6	23.4	(Z)
III.....	100.0	74.3	25.7	(Z)
IV.....	100.0	76.0	23.9	0.1
V.....	100.0	79.6	20.3	0.1
VI.....	100.0	82.3	17.7	0.1
Livestock farms: <sup>1</sup>				
Total.....	100.0	13.2	86.8	(Z)
Class I.....	100.0	9.3	90.7	(Z)
II.....	100.0	15.9	84.1	(Z)
III.....	100.0	15.0	84.8	(Z)
IV.....	100.0	12.5	87.4	0.1
V.....	100.0	9.8	90.0	0.1
VI.....	100.0	8.8	91.1	0.1

Z 0.05 percent or less.

<sup>1</sup> Livestock other than dairy and poultry farms.

## SPECIFIED EXPENSES

In the 1954 Census of Agriculture information was obtained on expenditures for machine hire, hired labor, feed for livestock and poultry, gasoline and other petroleum fuel and oil, commercial fertilizer and fertilizing material, and lime and liming material. These items account for a major share of the cash expenses on most farms (5). It is estimated that, in general, the specified expenses account for approximately two-thirds of all the farm expenses on Corn Belt farms, exclusive of land rent, interest on capital investment, and depreciation of buildings, machinery, and equipment.

Every farm did not have expenditures for each of the items covered by the Census inquiry. The proportion of commercial farms reporting specified expenditures by region and type of farm in the Corn Belt is shown in table 83.

About 70 percent of all the commercial farms reported expenditures for machine hire. This item included customwork such as tractor hire, combining, threshing, silo filling, baling, plowing, and spraying. Farms reporting machine hire were relatively most numerous in the Northern Corn Belt (75.3 percent), and relatively least numerous in the Eastern Corn Belt (65.1 percent).

Expenditures for hired labor were reported on 51.8 percent of the commercial farms in the Corn Belt. Almost half the farms used no hired help. The Central Corn Belt had the largest percentage of farms using hired labor (55.5 percent), and the Southern Corn Belt had the smallest proportion (47 percent). Hired labor was used by a larger proportion of the livestock farms than of the cash-grain farms in every region.

Expenditures for feed for livestock and poultry were reported on 89.2 percent of the commercial farms. This was a larger proportion of the farms than those reporting any other specified expense except for gasoline and oil. Items included under feed expenditures were grain, hay, mill feeds, concentrates and roughages purchased, and payments for grinding and mixing feed. The largest percentage of farms reporting expenditures for feed was in the Northern Corn Belt (91.6 percent), and the smallest percentage was in the Eastern Corn Belt (85.2 percent). A considerably larger proportion of livestock farmers than of cash-grain farmers reported expenditures for feed. For example, in the Eastern Corn Belt, 94.7 percent of the livestock farmers and 73.6 percent of the cash-grain farmers reported this expense.

Expenditures for gasoline and other petroleum fuel and oil for the farm business were reported by 92.2 percent of the commercial farms. The highest proportions of farms reporting this item were in the Northern, Western, and Central Corn Belt. This item was reported somewhat more frequently on cash-grain farms than on livestock farms in every region, reflecting the generally more complete degree of mechanization on the cash-grain farms. Farmers who did not report expenditures for gasoline and oil apparently were mainly those who use horse and mule power exclusively and those who hired tractors or custom operators to do all their field work.

Commercial fertilizer or fertilizing materials were bought by about two-thirds of all the commercial farms in the Corn Belt in 1954. The highest percentage of farms reporting expenditures for fertilizer was in the Eastern Corn Belt (88.1 percent), and the smallest percentage was among farms in the Western Corn Belt (50.2 percent). In the Eastern, Southern, and Central Corn Belt, the proportion of cash-grain farms reporting expenditures for fertilizer was larger than the proportion of livestock farms reporting fertilizer expenditures, but the opposite was true in the other two regions.

Expenditures for lime and liming material were reported by about a fifth of the commercial farms. Lime expenditures were reported relatively most frequently among farmers in the Southern and Eastern Corn Belt, and relatively least frequently among farmers in the Western Corn Belt. The percentage of farms reporting expenditures for lime generally varied considerably more between regions than between types of farms within regions.

TABLE 83.—PERCENT OF COMMERCIAL FARMS REPORTING SPECIFIED EXPENDITURES, BY TYPE OF FARM, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Specified farm expenditures					
	Machine hire	Hired labor	Feed	Gasoline and oil	Commercial fertilizer	Lime and liming material
<b>Total Corn Belt:</b>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>	<i>Percent</i>
All commercial farms	69.7	51.8	89.2	92.2	66.5	19.0
Cash-grain farms	69.7	49.8	78.4	95.1	68.8	17.8
Livestock farms <sup>1</sup>	70.3	56.0	95.7	91.8	65.4	20.9
<b>Eastern Corn Belt:</b>						
All commercial farms	65.1	51.1	85.2	89.3	88.1	26.1
Cash-grain farms	66.1	47.8	73.6	93.2	92.7	24.4
Livestock farms <sup>1</sup>	64.8	56.0	94.7	88.1	86.9	31.6
<b>Central Corn Belt:</b>						
All commercial farms	70.3	55.5	90.1	94.1	61.3	20.1
Cash-grain farms	71.7	54.1	81.7	95.7	64.4	20.1
Livestock farms <sup>1</sup>	69.5	58.9	96.8	94.2	61.2	22.2
<b>Northern Corn Belt:</b>						
All commercial farms	75.3	52.9	91.6	95.7	63.9	13.9
Cash-grain farms	74.2	49.4	79.7	97.0	54.3	6.5
Livestock farms <sup>1</sup>	74.9	58.1	96.3	95.8	71.6	18.7
<b>Western Corn Belt:</b>						
All commercial farms	72.6	52.7	90.1	94.3	50.2	7.7
Cash-grain farms	74.2	51.4	79.8	96.8	49.3	6.4
Livestock farms <sup>1</sup>	72.3	55.9	95.8	93.8	52.5	8.7
<b>Southern Corn Belt:</b>						
All commercial farms	67.0	47.0	90.0	88.4	68.8	26.8
Cash-grain farms	63.0	43.5	78.2	93.7	74.4	27.0
Livestock farms <sup>1</sup>	69.7	52.1	94.7	87.2	67.2	28.7

<sup>1</sup> Livestock other than dairy and poultry farms.

Machine hire was reported somewhat more frequently among Class II and Class III farms than among the higher and lower economic classes of farms (table 84). Hired labor was reported relatively most frequently among the higher economic classes, ranging among the cash-grain farms, for example, from 88.8 percent of the Class I farms down to 18.2 percent of the Class VI farms. Expenditures for feed also were generally reported relatively more frequently among the upper economic classes of farms, but the range in frequency of farms reporting was greater among cash-grain farms than among livestock farms. Even among the Class VI livestock farms, 87.5 percent reported expenditures for feed. Gasoline and oil purchases were reported by nearly all Classes I, II, and III farms and by 60 to 75 percent of Class VI farms.

Commercial fertilizer and lime also were reported relatively more frequently by the upper economic classes of farms. Among cash-grain farms, for example, the range from Class I to Class VI farms in percentage of farms reporting expenditures for fertilizer was from 88.4 percent down to 48 percent. For lime on livestock farms, the percentage of farms reporting ranged from 30.9 percent of the Class I farms down to 9.7 percent of the Class VI farms.

TABLE 84.—PERCENT OF COMMERCIAL FARMS REPORTING SPECIFIED EXPENDITURES, IN THE CORN BELT: 1954

Type and economic class of farm	Specified farm expenditures					
	Machine hire	Hired labor	Feed	Gasoline and oil	Commercial fertilizer	Lime and liming material
All commercial farms.....	Percent 69.7	Percent 51.8	Percent 89.2	Percent 92.2	Percent 66.5	Percent 19.0
Cash-grain farms:						
Total.....	69.7	49.8	78.4	95.1	68.8	17.8
Class I.....	67.0	88.8	84.1	97.5	88.4	34.7
II.....	70.7	68.8	86.3	97.8	80.9	23.8
III.....	71.1	52.0	83.7	97.4	69.0	17.0
IV.....	69.7	39.6	74.4	95.2	62.2	14.8
V.....	68.2	29.5	63.3	89.6	60.8	13.9
VI.....	58.9	18.2	54.8	74.6	48.0	9.7
Livestock farms: <sup>1</sup>						
Total.....	70.3	56.0	95.7	91.8	65.4	20.9
Class I.....	70.6	87.0	98.3	98.0	84.9	30.9
II.....	73.0	70.8	97.7	97.5	80.2	25.9
III.....	74.1	57.4	96.9	96.8	69.0	21.4
IV.....	71.8	47.6	95.2	91.8	56.8	17.6
V.....	64.2	34.7	91.8	79.7	45.6	14.2
VI.....	45.6	21.6	87.5	59.9	31.0	9.7

<sup>1</sup> Livestock other than dairy and poultry farms.

Feed was the largest item of expenditure per commercial farm reporting (table 85). This was true for all commercial farms and for practically every economic class of cash-grain and livestock farms. Among the 89.2 percent of the commercial farms buying feed, the average expenditure for feed in 1954 was \$1,510. On cash-grain farms, this expenditure averaged \$2,134 on Class I farms, \$1,120 on Class II farms, \$696 on Class III farms, and \$193 on Class VI farms. On livestock farms the average expenditure for feed, by the 95.7 percent of the farmers who reported this expenditure, was \$2,117. On Class I livestock farms the average amount spent for feed was \$9,458. From this rather tidy sum, the average expenditures ranged downward to \$2,855 on Class II farms, and to \$293 on Class VI farms. A large part of the expenditure for feed by farmers in the Corn Belt is for oil meal, such as soybean meal or linseed meal, and for commercially mixed feeds, such as pig starter and poultry laying mash.

TABLE 85.—AVERAGE EXPENDITURE PER COMMERCIAL FARM REPORTING EACH SPECIFIED EXPENSE IN THE CORN BELT: 1954

Type and economic class of farm	Specified farm expenditures (dollars)					
	Machine hire	Hired labor	Feed	Gasoline and oil	Commercial fertilizer	Lime and liming materials
All commercial farms.....	242	575	1,510	525	489	165
Cash-grain farms:						
Total.....	251	475	725	574	552	188
Class I.....	575	2,474	2,134	1,712	2,192	427
II.....	325	663	1,120	868	840	233
III.....	253	289	696	570	465	175
IV.....	208	195	416	381	308	133
V.....	159	144	279	240	211	103
VI.....	109	95	193	157	134	88
Livestock farms: <sup>1</sup>						
Total.....	250	609	2,117	526	498	168
Class I.....	456	2,166	9,458	1,175	1,286	325
II.....	301	680	2,855	688	616	195
III.....	245	334	1,490	490	390	144
IV.....	202	237	893	353	273	111
V.....	154	164	529	230	199	100
VI.....	108	120	293	153	147	92

<sup>1</sup> Livestock other than dairy and poultry farms.

Hired labor was the second largest expenditure per farm reporting. Only about half the farms used hired labor, but on farms where it was used, it was generally a substantial expense. Hired labor was used to the largest extent on the larger farms. On Class I cash-grain farms, the average wage bill per farm reporting was \$2,474, and on Class I livestock farms it was \$2,166. On Class II and smaller farms, however, the average expenditure for hired labor was one of the smallest expenditure items reported.

Gasoline and oil constituted the third largest item of expenditure per farm reporting. This item averaged \$574 on cash-grain farms and \$526 on livestock farms. The range in size of the gasoline and oil bill per farm reporting among cash-grain farms was from \$157 on Class VI farms up to \$1,712 on Class I farms. Class for class, the average expenditure for gas and oil was smaller on livestock farms than on cash-grain farms.

The average expenditure for commercial fertilizer per farm reporting ranged from \$2,192 down to \$134 on the economic classes of cash-grain farms, and from \$1,286 down to \$147 on the economic classes of livestock farms. Expenditures for lime and liming material averaged smaller than any other specified expenses reported. The range on cash-grain farms was from \$427 on Class I farms to \$88 on Class VI farms.

The average bill for machine hire among the 69.7 percent of the farmers who reported this item was \$242. The size of this expenditure ran slightly lower on the livestock farms than it did on the corresponding classes of cash-grain farms.

The total amount of the 6 specified expenses on all commercial farms in the Corn Belt in 1954 was 2.1 billion dollars (table 86). About half of this was spent by livestock farmers, and about a fourth by cash-grain farmers. More than half of the expenditures among both cash-grain and livestock farms were made by the Class II and Class III farms. Expenditures for feed reached almost 1.1 billion dollars, or approximately half of the total specified expenditures. On cash-grain farms, the expenditure for feed was only slightly greater than the expenditure for gasoline and oil, but on livestock farms the expenditure for feed was relatively much greater. On all economic classes of farms except Class I, the total expense for commercial fertilizer was greater than the total expense for hired labor.

TABLE 86.—TOTAL SPECIFIED EXPENDITURES ON COMMERCIAL FARMS IN THE CORN BELT: 1954

Type and economic class of farm	Specified farm expenditures (thousand dollars)						
	Total	Machine hire	Hired labor	Feed	Gasoline and oil	Commercial fertilizer	Lime and liming material
All commercial farms.....	2,115,745	134,543	237,679	1,073,633	385,652	259,213	25,026
Cash-grain farms:							
Total.....	513,060	46,254	62,471	150,381	144,570	100,521	8,862
Class I.....	52,824	2,505	14,264	11,659	10,851	12,582	963
II.....	200,643	14,250	28,272	59,937	52,645	42,111	3,428
III.....	163,906	16,196	13,531	52,505	50,068	28,928	2,678
IV.....	68,643	8,986	4,785	19,232	22,524	11,895	1,222
V.....	23,289	3,682	1,447	5,995	7,313	4,366	486
VI.....	3,755	636	173	1,054	1,168	640	85
Livestock farms: <sup>1</sup>							
Total.....	1,106,354	57,446	111,498	661,732	157,793	100,420	11,464
Class I.....	314,408	7,321	42,812	211,059	26,144	24,801	2,281
II.....	393,190	18,342	40,249	233,017	56,054	41,301	4,227
III.....	244,907	17,168	18,120	136,464	44,804	25,443	2,908
IV.....	107,655	9,721	7,551	56,946	21,739	10,388	1,310
V.....	37,167	3,964	2,279	19,408	7,322	3,625	569
VI.....	9,027	930	488	4,848	1,731	862	169

<sup>1</sup> Livestock other than dairy and poultry farms.

The relative importance or magnitude of different items among the specified expenses was not the same on all economic classes of farms. Among cash-grain farms, the item accounting for the largest percentage of the total specified expenses was hired labor on Class I farms, feed on Class II and Class III farms, and gasoline and oil on Classes IV, V, and VI farms (table 87). Among livestock farms, feed accounted for the largest percentage of the specified expenditures on all economic classes of farms. Expenditures for machine hire and for fuel were larger percentages of the total on the lower economic classes than on the higher economic classes of farms, while expenditures for hired labor were larger percentages of the total on the higher economic classes.

TABLE 87.—PERCENTAGE COMPOSITION OF TOTAL SPECIFIED EXPENDITURES ON COMMERCIAL FARMS, BY ECONOMIC CLASS, IN THE CORN BELT: 1954

Type and economic class of farm	Percentage composition of specified farm expenditures						
	Total	Ma- chine hire	Hired labor	Feed	Gas- line and oil	Com- mer- cial fer- tilizer	Lime and liming mater- ial
All commercial farms.....	100.0	6.4	11.2	50.7	18.2	12.3	1.2
Cash-grain farms:							
Total.....	100.0	9.0	12.2	29.3	28.2	19.6	1.7
Class I.....	100.0	4.7	27.0	22.1	20.5	23.8	1.8
II.....	100.0	7.1	14.1	29.9	26.2	21.0	1.7
III.....	100.0	9.9	8.3	32.0	30.5	17.6	1.6
IV.....	100.0	13.1	7.0	28.0	32.8	17.3	1.8
V.....	100.0	15.8	6.2	25.7	31.4	18.7	2.1
VI.....	100.0	16.9	4.6	28.1	31.1	17.0	2.3
Livestock farms: <sup>1</sup>							
Total.....	100.0	5.2	10.1	59.8	14.3	9.6	1.0
Class I.....	100.0	2.3	13.6	67.1	8.3	7.9	0.7
II.....	100.0	4.7	10.2	59.3	14.3	10.5	1.1
III.....	100.0	7.0	7.4	55.7	18.3	10.4	1.2
IV.....	100.0	9.0	7.0	52.9	20.2	9.6	1.2
V.....	100.0	10.7	6.1	52.2	19.7	9.8	1.5
VI.....	100.0	10.3	5.4	53.7	19.2	9.5	1.9

<sup>1</sup> Livestock other than dairy and poultry farms.

The total specified expenditures per commercial farm in 1954 are shown by economic class of farm for each region of the Corn Belt in table 88. The average for all commercial farms was \$2,654. The largest average expenditure per commercial farm for the specified items was in the Central Corn Belt (\$3,230). The Western Corn Belt ranked second with an average total expenditure per farm of \$2,703. The largest average expenditure for any group of farms was \$16,324 on Class I farms in the Southern Corn Belt. Average expenditures on Class II and Class III farms, which are rather typical of much of the Corn Belt, were between \$1,700 and \$3,800 for cash-grain farms in the various regions, and between \$2,300 and \$5,400 for livestock farms.

TABLE 88.—AVERAGE OF TOTAL SPECIFIED EXPENDITURES PER COMMERCIAL FARM IN THE CORN BELT AND COMPONENT REGIONS: 1954

Type and economic class of farm	Corn Belt, total	Eastern Corn Belt	Central Corn Belt	North- ern Corn Belt	Western Corn Belt	South- ern Corn Belt
	Dollars	Dollars	Dollars	Dollars	Dollars	Dollars
All commercial farms.....	2,654	2,582	3,230	2,597	2,703	2,101
Cash-grain farms:						
Total.....	1,939	1,927	2,372	1,881	1,696	1,621
Class I.....	8,132	9,407	7,608	7,339	7,559	9,284
II.....	3,236	3,489	3,136	3,097	3,051	3,711
III.....	1,819	1,935	1,754	1,749	1,705	2,051
IV.....	1,106	1,098	1,053	1,076	1,047	1,261
V.....	686	654	647	612	666	775
VI.....	378	326	392	348	341	436
Livestock farms: <sup>1</sup>						
Total.....	3,387	3,412	4,125	3,161	3,593	2,484
Class I.....	13,846	13,647	12,238	11,347	16,177	16,324
II.....	4,706	5,068	4,006	4,143	4,638	5,365
III.....	2,591	2,766	2,623	2,352	2,503	2,759
IV.....	1,607	1,647	1,683	1,516	1,588	1,602
V.....	929	892	923	890	943	948
VI.....	478	478	461	456	516	466

<sup>1</sup> Livestock other than dairy and poultry farms.

Information was not obtained in the 1954 Census on expenditures for livestock and poultry purchased. This expense item is relatively important on many Corn Belt farms, especially on those farms where feeder cattle and feeder sheep are sizable enterprises. Information obtained on this item in the 1950 Census showed that it was somewhat larger than the expenditures for feed purchased in the Corn Belt as a whole. The distribution of expenditures for livestock and poultry bought on farms in the United States in 1949 is shown in figure 36. The concentration of expenditures for livestock purchases was relatively heavy in the Corn Belt, and especially in parts of the Western and Central Corn Belt.

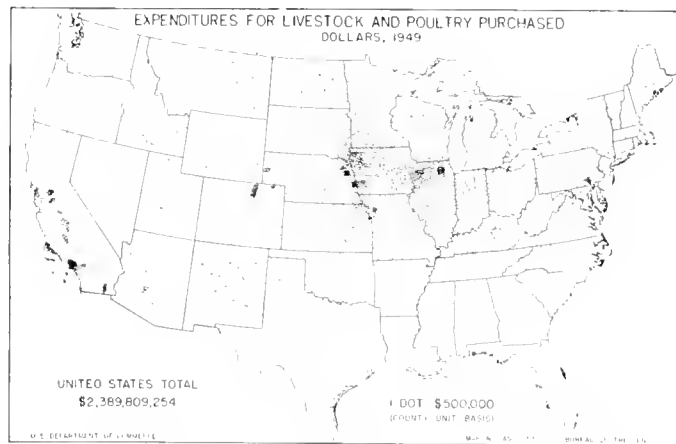


FIGURE 36.



## INVESTMENT COST

Total capital investment on Corn Belt farms has been discussed above. It has been noted, for example, that the average value of investment on all commercial farms in the Corn Belt in 1954 was about \$44,000 and that the range in average value of investment among economic classes of farms was from about \$10,000 up to almost \$200,000 (table 31).

Capital is not available without cost. The cost of capital may be in the form of interest charges on money borrowed, interest payments on a mortgage or on indebtedness for machinery or equipment, or it may be an interest rate determined by the alternative opportunities of investment.

Estimated interest charges for capital investment per commercial farm, by major category of investment, and by type of farm in the different regions in the Corn Belt are given in table 89. These interest charges have been computed by using an interest rate of 5 percent for the investment in land and buildings, and an interest rate of 7 percent for the investment in machinery, equipment, and livestock. Because of the large investment frequently found on Corn Belt farms it is interesting to note the estimated charges, at prevailing interest rates, represented by these capital investments.

The relatively large interest charge for investment in land and buildings indicates the cost of land ownership and helps to explain

TABLE 89.—ESTIMATED INTEREST CHARGE FOR CAPITAL INVESTMENT PER COMMERCIAL FARM, BY MAJOR CATEGORIES OF INVESTMENT, BY TYPE OF FARM, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Total capital investment	Land and buildings <sup>1</sup>	Machinery and equipment <sup>2</sup>	Livestock <sup>3</sup>
<b>Total Corn Belt:</b>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>
All commercial farms.....	2,416	1,677	419	320
Cash-grain farms.....	2,614	1,997	448	169
Livestock farms <sup>3</sup> .....	2,615	1,688	442	485
<b>Eastern Corn Belt:</b>				
All commercial farms.....	2,218	1,586	414	218
Cash-grain farms.....	2,288	1,735	433	120
Livestock farms <sup>3</sup> .....	2,556	1,736	447	373
<b>Central Corn Belt:</b>				
All commercial farms.....	3,402	2,546	469	387
Cash-grain farms.....	3,810	3,105	503	202
Livestock farms <sup>3</sup> .....	3,380	2,281	512	587
<b>Northern Corn Belt:</b>				
All commercial farms.....	2,275	1,443	448	384
Cash-grain farms.....	2,235	1,579	464	192
Livestock farms <sup>3</sup> .....	2,567	1,531	482	554
<b>Western Corn Belt:</b>				
All commercial farms.....	2,477	1,667	424	386
Cash-grain farms.....	2,370	1,736	438	196
Livestock farms <sup>3</sup> .....	2,759	1,758	448	583
<b>Southern Corn Belt:</b>				
All commercial farms.....	1,611	1,026	346	239
Cash-grain farms.....	1,747	1,223	385	139
Livestock farms <sup>3</sup> .....	1,721	1,050	337	334

<sup>1</sup> Interest charge at 5 percent.

<sup>2</sup> Interest charge at 7 percent.

<sup>3</sup> Livestock other than dairy and poultry farms.

the high proportion of farmers who are part owners or tenants in the relatively high-priced land areas of the Corn Belt. To a tenant, the actual cost of investment in land is not in the form of a direct payment of interest, but it is a cost included in rents paid in the long run by tenants and part owners to their landlords.

The estimated interest charge for total capital investment averaged \$2,416 per commercial farm in the Corn Belt in 1954. It was highest (averaging \$3,810 per farm) on cash-grain farms in the Central Corn Belt. It was relatively the lowest on commercial farms in the Southern Corn Belt, where it averaged \$1,611 per farm. The estimated interest charge for investment in land and buildings averaged \$1,677 for all commercial farms in the Corn Belt, while the average interest on investment in machinery and equipment was \$419 and the average interest on investment in livestock averaged \$320 per commercial farm.

The estimated average charges for interest on the various economic classes of cash-grain and livestock farms in the Corn Belt are shown in table 90. Interest on the total investment was highest on Economic Class I cash-grain farms, averaging \$9,011 per farm. On Economic Class I livestock farms it was \$6,711. Total interest, as well as the interest charge in each category of investment, is progressively lower as we go from Economic Class I farms to Economic Class VI farms. The interest on investment in land and buildings was \$7,495 per farm on Class I cash-grain farms, but only \$442 on Class VI cash-grain farms. The estimated interest charge on machinery and equipment averaged \$1,052 on Class I cash-grain farms, but only \$168 on Class VI cash-grain farms. On livestock farms, the average interest charge for investment in livestock per farm ranged from \$1,395 on Economic Class I farms down to \$109 on Class VI farms.

TABLE 90.—ESTIMATED INTEREST CHARGE FOR CAPITAL INVESTMENT PER FARM, BY MAJOR CATEGORIES OF INVESTMENT, BY TYPE AND ECONOMIC CLASS OF FARM, IN THE CORN BELT: 1954

Type and economic class of farm	Total capital investment	Land and buildings <sup>1</sup>	Machinery and equipment <sup>2</sup>	Livestock <sup>3</sup>
	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>
All commercial farms.....	2,416	1,677	419	320
<b>Cash-grain farms:</b>				
Total.....	2,614	1,997	448	169
Class I.....	9,011	7,495	1,052	464
II.....	4,322	3,430	631	261
III.....	2,512	1,879	454	179
IV.....	1,575	1,121	343	111
V.....	1,005	688	256	61
VI.....	646	442	168	36
<b>Livestock farms: <sup>3</sup></b>				
Total.....	2,615	1,688	442	485
Class I.....	6,711	4,422	894	1,395
II.....	3,738	2,482	594	662
III.....	2,396	1,522	434	440
IV.....	1,610	985	322	303
V.....	1,041	628	228	185
VI.....	649	396	144	108

<sup>1</sup> Interest charge at 5 percent.

<sup>2</sup> Interest charge at 7 percent.

<sup>3</sup> Livestock other than dairy and poultry farms.

## INDICATORS OF FARM EFFICIENCY

Efficiency of farm operations is reflected in the returns or output obtained in relation to the quantity or value of inputs used. Farming inputs may be grouped under the broad categories of land, labor, operating capital, and management. Operating capital includes investments in machinery, equipment, and livestock, and current expenditures for items such as gasoline and oil, machine hire, seed, feed, and fertilizer. Investment in land and buildings is also a capital input, but because of the basic role of land in agriculture and its spatial as well as productivity aspects, it is helpful in some phases of an analysis of farming to consider the land resources in terms of acreage as well as in terms of capital investment. Likewise, it is helpful in an examination of farming efficiency to make some analysis of output in relation to physical units of labor as well as in relation to the value of labor services (5).

One of the best measures of average resource productivity and efficiency is the relationship of total production to all resources used in farming. An overall output-input measure of that kind for the different types and economic classes of farms in the Corn Belt would require data on items in addition to those for which information was available in the present study. On the output side, data on value of farm products used in farm households would be necessary in addition to the value of all farm products sold. On the input side, data on various expenditures and costs in addition to those reported in the Census would be necessary. However, the available data do make possible a number of comparisons of the intensity of resource use on the different types and economic classes of farms and the computation of some measures that indicate the relative efficiency of production on different economic classes of farms. Data providing some comparisons of resource use and some indications of relative efficiency for farms in the Corn Belt are presented in the following tables.

## PRODUCTION PER UNIT OF LAND

The percentage of land in high return crops is a measure of intensity of cropping and it often is useful in explaining differences in economic returns of individual farms or groups of farms. In the Corn Belt the two most widely grown high return crops are corn and soybeans. The percentages of cropland occupied by each of these crops on farms in different regions of the Corn Belt in 1954 are shown in table 91. Groups of farms having a relatively high percentage of cropland in both of these crops are generally those showing the highest value of farm products sold per acre of cropland. The percentage of harvested cropland used for corn and soybeans is shown for each economic class of cash-grain and livestock farms in table 92. On cash-grain farms there was no consistent relationship between economic class and percent of cropland in corn. On livestock farms, however, Class I farms had the highest percentage of cropland in corn and the proportion of cropland in corn declined consistently from Class I to Class VI farms. The percentage of cropland in soybeans was highest on Class I farms and consistently less on each of the lower economic classes of farms. This was true on livestock farms as well as on cash-grain farms.

The number of cattle and calves and of hogs and pigs per 100 acres of land in farms indicate the relative intensity of production of these livestock (tables 91 and 92). In the Corn Belt as a whole, livestock farms had more than twice as many cattle and more

than 4 times as many hogs per 100 acres as did cash-grain farms. The average number of cattle and calves per 100 acres on livestock farms was highest in the Central and Northern Corn Belt (22 head and 21 head, respectively), and lowest in the Southern Corn Belt (14 head). The Central Corn Belt had the largest number of hogs and pigs per 100 acres of farmland on both cash-grain and livestock farms as well as on all commercial farms. Livestock farms in the Central Corn Belt had an average of 56 hogs and pigs per 100 acres of farmland compared with 21 on livestock farms in the Southern Corn Belt. The number of head of livestock per 100 acres of farmland was strongly correlated with economic class of farm on the livestock farms. Economic Class I livestock farms had an average of 28 cattle and calves per 100 acres, while Class VI livestock farms had only 12. The average number of hogs and pigs per 100 acres was 42 on Class I livestock farms and 11 on Class VI livestock farms. On cash-grain farms, all economic classes of farms had much fewer livestock per 100 acres than did livestock farms, and the differences between classes were less conspicuous.

The number of hogs and pigs per 100 acres of cropland on livestock farms ranged from 60 on Economic Class I farms down to 48 on Class III farms, and 25 on Class VI farms. On cash-grain farms, the Classes I, II, and III farms had 11 or 12 hogs and pigs per 100 acres of cropland, while the Class IV farms had 8, and the Class VI farms had only 4.

TABLE 91.—PRODUCTION OF CORN, SOYBEANS, CATTLE, AND HOGS IN RELATION TO ACREAGE OF FARMLAND, BY TYPE OF FARM, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Percent of total acres of cropland harvested		Head of livestock per 100 acres of all land in farms		Number of hogs and pigs per 100 acres of cropland
	Corn harvested for grain	Soybeans harvested for beans	All cattle and calves	All hogs and pigs	
<b>Total Corn Belt:</b>					
All commercial farms.....	37.7	11.3	13	22	30
Cash-grain farms.....	38.7	18.3	8	8	11
Livestock farms <sup>1</sup> .....	39.0	5.7	18	34	51
<b>Eastern Corn Belt:</b>					
All commercial farms.....	38.5	16.0	12	23	30
Cash-grain farms.....	39.1	23.4	6	9	11
Livestock farms <sup>1</sup> .....	41.1	9.5	16	48	62
<b>Central Corn Belt:</b>					
All commercial farms.....	43.6	15.7	15	33	41
Cash-grain farms.....	43.1	23.8	8	12	14
Livestock farms <sup>1</sup> .....	44.9	7.2	22	56	71
<b>Northern Corn Belt:</b>					
All commercial farms.....	33.2	9.8	15	27	36
Cash-grain farms.....	32.1	17.8	7	10	12
Livestock farms <sup>1</sup> .....	36.5	4.9	21	42	58
<b>Western Corn Belt:</b>					
All commercial farms.....	40.2	2.7	14	16	23
Cash-grain farms.....	41.3	4.3	8	5	7
Livestock farms <sup>1</sup> .....	40.1	1.7	18	23	33
<b>Southern Corn Belt:</b>					
All commercial farms.....	27.7	16.9	12	14	23
Cash-grain farms.....	29.9	27.5	7	6	9
Livestock farms <sup>1</sup> .....	28.7	9.9	14	21	38

<sup>1</sup> Livestock other than dairy and poultry farms.

TABLE 92.—PRODUCTION OF CORN, SOYBEANS, CATTLE, AND HOGS IN RELATION TO ACREAGE OF FARMLAND, BY TYPE AND ECONOMIC CLASS OF FARM, IN THE CORN BELT: 1954

Type and economic class of farm	Percent of total acres of cropland harvested		Head of livestock per 100 acres of all land in farms		Number of hogs and pigs per 100 acres of cropland
	Corn harvested for grain	Soybeans harvested for beans	All cattle and calves	All hogs and pigs	
All commercial farms.....	37.7	11.3	13	22	30
Cash-grain farms:					
Total.....	38.7	18.3	8	8	11
Class I.....	40.5	24.3	8	9	11
II.....	39.3	20.8	8	10	12
III.....	38.0	16.8	8	9	11
IV.....	37.9	14.7	7	6	8
V.....	39.1	15.2	6	4	6
VI.....	42.2	12.9	5	3	4
Livestock farms: <sup>1</sup>					
Total.....	39.0	5.7	18	34	51
Class I.....	41.1	7.0	28	42	60
II.....	40.1	6.9	18	41	57
III.....	38.3	5.0	16	32	48
IV.....	36.6	3.9	15	25	41
V.....	35.9	3.1	14	18	34
VI.....	36.1	2.4	12	11	25

<sup>1</sup> Livestock other than dairy and poultry farms.

### CAPITAL INPUTS AND PRODUCT OUTPUT PER ACRE

Data on specified resource inputs and value of farm products sold in relation to land acreage are shown in tables 93 and 94. The highest value of all farm products sold per acre of land was found on farms in the Central and Eastern Corn Belt. These were also the regions where capital investment per acre and total speci-

fied expenses per acre were relatively high. The relatively high value of land and buildings per acre contributed to the relatively high value of total investment per acre on farms in the Central and Eastern Corn Belt, but the investment in machinery and equipment per acre of cropland and the number of tractors in relation to crop acres in these regions were also relatively high. Farms in the Southern Corn Belt had the relatively smallest investment in land and buildings, machinery, and livestock per acre, and they also had the lowest average value of farm products sold per acre of any region in the Corn Belt.

Total capital investment per acre of all land in farms ranged from an average of \$277 on Class I cash-grain farms down to \$142 on Class VI cash-grain farms. Among livestock farms also, total capital investment per acre was only half as great on Class VI farms as on Class I farms, with investment per acre on the other economic classes ranging between these extremes. Total specified expenses per acre likewise were highest on the upper economic classes of farms, ranging on livestock farms, for example, from \$29 on Class I farms down to \$5 on Class VI farms. It has been pointed out above that crop yields were highest on the upper economic classes and lowest on the lower economic classes of farms (table 59).

The investment in machinery and equipment per acre of cropland was lower on the upper economic classes than on the lower economic classes of farms. This comes about because the larger farms had more acres of cropland on which to use their machines so that the acreage per machine was larger. For example, Class I cash-grain farms had an average of 144 acres of cropland per tractor, while Class VI cash-grain farms had 65. In other words, the overhead cost of a set of farm machinery is greater on a per acre basis on small farms than on large farms.

TABLE 93.—SPECIFIED RESOURCE INPUTS AND VALUE OF FARM PRODUCTS SOLD IN RELATION TO LAND ACREAGE, BY TYPE OF FARM, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Capital investment per acre of all land in farms (dollars)		Total specified expenses per acre of all land in farms <sup>2</sup> (dollars)	Acres of cropland per tractor	Investment in machinery and equipment per acre of cropland (dollars)	Value of all crops sold per acre of cropland (dollars)	Value of farm products sold per acre of all land in farms (dollars)	
	Total <sup>1</sup>	Livestock, machinery, and equipment					Livestock and livestock products	All farm products
Total Corn Belt:								
All commercial farms.....	206	49	12	92	39	20	26	40
Cash-grain farms.....	216	39	9	101	36	33	8	35
Livestock farms <sup>3</sup> .....	204	57	15	91	41	9	39	45
Eastern Corn Belt:								
All commercial farms.....	265	59	17	72	49	29	28	51
Cash-grain farms.....	250	46	11	79	45	40	10	42
Livestock farms <sup>3</sup> .....	285	72	21	73	51	14	48	59
Central Corn Belt:								
All commercial farms.....	318	62	16	85	41	28	35	58
Cash-grain farms.....	333	47	11	94	38	43	11	48
Livestock farms <sup>3</sup> .....	311	80	21	80	47	12	59	68
Northern Corn Belt:								
All commercial farms.....	198	58	13	87	41	16	32	44
Cash-grain farms.....	178	41	8	103	35	29	10	34
Livestock farms <sup>3</sup> .....	217	71	15	83	45	7	47	52
Western Corn Belt:								
All commercial farms.....	157	40	9	116	32	15	22	32
Cash-grain farms.....	148	31	6	134	28	24	6	24
Livestock farms <sup>3</sup> .....	163	47	12	110	34	7	33	37
Southern Corn Belt:								
All commercial farms.....	134	39	10	98	38	14	17	25
Cash-grain farms.....	137	32	7	107	33	24	6	23
Livestock farms <sup>3</sup> .....	132	41	11	99	38	7	23	27

<sup>1</sup> Value of total investment in land, buildings, livestock, machinery, and equipment.

<sup>2</sup> Total of expenditures for machine hire, hired labor, feed bought, gasoline and other petroleum fuel and oil, commercial fertilizer and fertilizing material, and lime and liming material.

<sup>3</sup> Livestock other than dairy and poultry farms.

The value of crops sold per acre of cropland and the value of all farm products sold per acre of all land ranged from highest on Class I farms to lowest on Class VI farms. On livestock farms, the average value of all farm products sold per acre of all land was \$100 on Class I farms, \$32 on Class III farms, and \$8 on Class VI farms.

value of farm products sold per acre of land in farms was \$40. The average for all farms in the United States was \$21.28 (fig. 37). In a number of smaller regions in different parts of the United States, the average value of farm products sold per acre of farmland was equal to or above that of the Central and Eastern Corn Belt. But most of the area of the United States was below the Corn Belt average. Parts of the Southern and Western Corn Belt were about equal to or below the United States average.

For all commercial farms in the Corn Belt in 1954 the average

TABLE 94.—SPECIFIED RESOURCE INPUTS AND VALUE OF FARM PRODUCTS SOLD IN RELATION TO LAND ACREAGE, BY TYPE AND ECONOMIC CLASS OF FARM, IN THE CORN BELT: 1954

Type and economic class of farm	Capital investment per acre of all land in farms (dollars)		Total specified expenses per acre of all land in farms <sup>2</sup> (dollars)	Acres of cropland per tractor	Investment in machinery and equipment per acre of cropland (dollars)	Value of all crops sold per acre of cropland (dollars)	Value of farm products sold per acre of all land in farms (dollars)	
	Total <sup>1</sup>	Livestock, machinery, and equipment					Livestock and livestock products	All farm products
All commercial farms.....	206	49	12	92	39	20	26	40
Cash-grain farms:								
Total.....	216	39	9	101	36	33	8	35
Class I.....	277	35	13	144	29	51	12	56
II.....	252	40	10	114	33	40	10	44
III.....	202	39	8	101	36	30	8	32
IV.....	173	39	7	86	40	24	6	23
V.....	162	40	6	68	47	20	3	17
VI.....	142	35	5	65	47	13	2	10
Livestock farms: <sup>3</sup>								
Total.....	204	57	15	91	41	9	39	45
Class I.....	257	69	29	113	39	13	91	100
II.....	235	62	16	96	41	12	45	53
III.....	188	55	11	88	41	7	28	32
IV.....	158	49	9	81	42	4	19	21
V.....	143	46	7	68	48	3	13	15
VI.....	123	38	5	70	50	2	8	8

<sup>1</sup> Value of total investment in land, buildings, livestock, machinery, and equipment.  
<sup>2</sup> Total of expenditures for machine hire, hired labor, feed bought, gasoline and other petroleum fuel and oil, commercial fertilizer and fertilizing material, and lime and liming material.

<sup>3</sup> Livestock other than dairy and poultry farms.

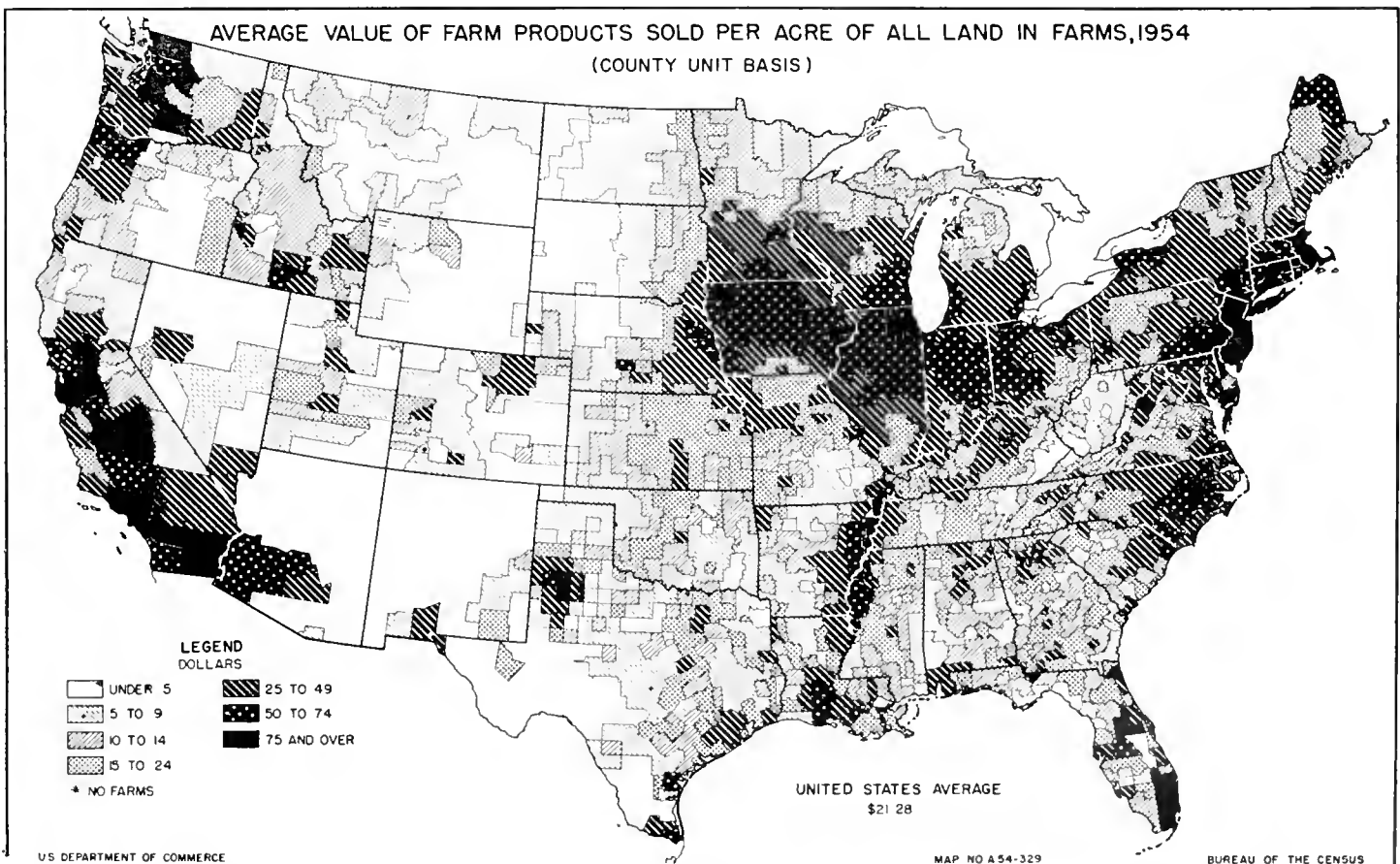


FIGURE 37.

## PRODUCTION PER UNIT OF LABOR

Labor productivity is an important measure of efficiency in farming (5). Even on farms that are highly mechanized, labor represents a large proportion of the total inputs. The level of farm income is mainly a function of the value of products produced per worker. The productivity of labor, generally, is increased as the quantity of other resources used per worker is increased.

Quantities of specified resources used per man-equivalent of labor on cash-grain and livestock farms in the Corn Belt are shown in table 95 along with the value of farm products sold per man-equivalent. The average acreage of all land per man-equivalent of labor on all commercial farms in the Corn Belt in 1954 was 171 acres. Land acreage per man-equivalent averaged largest on cash-grain farms in the Western Corn Belt (240 acres), and smallest on livestock farms in the Eastern Corn Belt (140 acres). The acreage of land per man-equivalent was larger on cash-grain farms than on livestock farms in every region.

TABLE 95.—SPECIFIED RESOURCES USED AND VALUE OF FARM PRODUCTS SOLD, PER MAN-EQUIVALENT OF LABOR, BY TYPE OF FARM, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Resources per man-equivalent of labor						Value of all farm products sold per man-equivalent of labor
	All land	Crop-land harvested	Capital investment		Total specified expenses <sup>2</sup>	Tractors	
			Total <sup>1</sup>	Livestock, machinery, and equipment			
<b>Total Corn Belt:</b>	<i>Acres</i>	<i>Acres</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Number</i>	<i>Dollars</i>
All commercial farms.....	171	105	35,217	8,429	2,120	1.33	6,870
Cash-grain farms.....	195	138	41,996	7,587	1,670	1.53	6,756
Livestock farms <sup>3</sup> .....	179	98	36,454	10,271	2,627	1.31	8,070
<b>Eastern Corn Belt:</b>							
All commercial farms.....	136	89	35,952	7,968	2,279	1.47	6,408
Cash-grain farms.....	165	118	41,270	7,646	1,867	1.68	6,981
Livestock farms <sup>3</sup> .....	140	85	39,985	10,091	2,938	1.47	8,275
<b>Central Corn Belt:</b>							
All commercial farms.....	154	113	48,782	9,447	2,496	1.49	8,909
Cash-grain farms.....	179	143	59,681	8,331	1,961	1.66	8,662
Livestock farms <sup>3</sup> .....	145	98	45,129	11,534	3,036	1.44	9,923
<b>Northern Corn Belt:</b>							
All commercial farms.....	147	98	29,052	8,481	1,851	1.28	6,443
Cash-grain farms.....	181	139	32,188	7,371	1,478	1.45	6,236
Livestock farms <sup>3</sup> .....	148	94	31,985	10,423	2,236	1.29	7,738
<b>Western Corn Belt:</b>							
All commercial farms.....	219	126	34,406	8,864	2,070	1.26	6,946
Cash-grain farms.....	240	156	35,568	7,352	1,377	1.35	5,868
Livestock farms <sup>3</sup> .....	226	118	36,879	10,666	2,679	1.26	8,479
<b>Southern Corn Belt:</b>							
All commercial farms.....	184	89	24,612	7,115	1,791	1.14	4,685
Cash-grain farms.....	208	127	28,520	6,679	1,447	1.37	4,733
Livestock farms.....	198	82	26,167	8,202	2,125	1.11	5,365

<sup>1</sup> Value of total investment in land, buildings, livestock, machinery, and equipment.

<sup>2</sup> Total expenditures for machine hire, hired labor, feed bought, gasoline and other petroleum fuel and oil, commercial fertilizer and fertilizing material, and lime and liming material.

<sup>3</sup> Livestock other than dairy and poultry farms.

For all commercial farms in the Corn Belt in 1954, total capital investment per man-equivalent of labor averaged \$35,217, of which about a fourth was investment in livestock, machinery, and equipment. Total specified expenses per man-equivalent averaged \$2,120, but ranged from an average of \$3,036 on livestock farms in the Central Corn Belt down to \$1,377 on cash-grain farms in the Western Corn Belt. Value of all farm products sold per man-equivalent of labor averaged \$6,870 for all commercial farms.

Livestock farms in the Central Corn Belt obtained the greatest value of all farm products sold per man-equivalent of labor (\$9,923). This group of farms also had the largest investment in livestock, machinery, and equipment per man-equivalent and the greatest current inputs in terms of total specified expenses per man-equivalent. Cash-grain farms in the Central Corn Belt obtained an average of \$8,662 in value of farm products sold per man-equivalent of labor. This was a greater amount than that obtained by the cash-grain farms in any other region. Cash-grain farms in the Central Corn Belt had the largest total capital investment per man-equivalent among all groups of farms and the largest amount of total specified expenses per man-equivalent among the cash-grain farms in all regions. Cash-grain farms in the Southern Corn Belt averaged lowest among the cash-grain farms in all regions as to the value of farm products sold per man-equivalent, and were also lowest among the cash-grain farms in value of total investment and in value of investment in livestock, machinery, and equipment. Cash-grain farms in the Southern Corn Belt were among the lowest groups in total specified expenses per man-equivalent of labor. Livestock farms in the Southern Corn Belt ranked lowest among the livestock farms in all regions as to value of farm products sold per man-equivalent and as to total capital investment, investment in livestock, machinery and equipment, and total specified expenses per man-equivalent of labor.

Value of farm products sold per man-equivalent of labor is strongly correlated with economic class of farm (table 96). Economic Class I farms among both the cash-grain and livestock types ranked much higher than any other economic class in terms of value of farm products sold per man-equivalent. Likewise, Class II farms ranked substantially above Class III farms, Class III farms ranked above Class IV farms, and so on down to Class VI farms, where the value of farm products sold per man-equivalent was the lowest of all.

TABLE 96.—SPECIFIED RESOURCES USED AND VALUE OF FARM PRODUCTS SOLD, PER MAN-EQUIVALENT OF LABOR, BY TYPE AND ECONOMIC CLASS OF FARM, IN THE CORN BELT: 1954

Type and economic class of farm	Resources per man-equivalent of labor						Value of all farm products sold per man-equivalent of labor
	All land	Crop-land harvested	Capital investment		Total specified expenses <sup>2</sup>	Tractors	
			Total <sup>1</sup>	Livestock, machinery, and equipment			
<b>All commercial farms.....</b>	<i>Acres</i>	<i>Acres</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Number</i>	<i>Dollars</i>
All commercial farms.....	171	105	35,217	8,429	2,120	1.33	6,870
<b>Cash-grain farms:</b>							
Total.....	195	138	41,996	7,587	1,670	1.53	6,756
Class I.....	261	202	72,132	9,103	3,419	1.54	14,475
II.....	224	170	56,621	8,876	2,252	1.64	9,889
III.....	193	137	39,132	7,584	1,527	1.52	6,139
IV.....	169	110	29,321	6,577	1,123	1.45	3,897
V.....	148	85	23,924	5,923	897	1.50	2,509
VI.....	101	48	14,327	3,560	460	0.96	970
<b>Livestock farms:<sup>3</sup></b>							
Total.....	179	98	36,454	10,271	2,627	1.31	8,070
Class I.....	211	125	54,168	14,624	6,192	1.31	21,201
II.....	194	118	45,426	12,061	3,163	1.45	10,250
III.....	178	99	33,452	9,731	2,018	1.34	5,755
IV.....	163	78	25,787	8,049	1,448	1.21	3,462
V.....	150	57	21,494	6,864	1,082	1.15	2,226
VI.....	111	31	13,645	4,264	566	0.70	937

<sup>1</sup> Value of total investment in land, buildings, livestock, machinery, and equipment.

<sup>2</sup> Total expenditures for machine hire, hired labor, feed bought, gasoline and other petroleum fuel and oil, commercial fertilizer and fertilizing material, and lime and liming material.

<sup>3</sup> Livestock other than dairy and poultry farms.

Not only did the upper economic classes of farms have the greatest value of sales per man-equivalent of labor; they also had the largest capital investment and the largest amounts of total specified expenses per man-equivalent of labor. For example, in the case of livestock farms, Class I farms obtained an average of \$21,201 value of farm products sold per man-equivalent of labor, while the total capital investment on these farms averaged \$54,168, and the total specified expenses averaged \$6,192 per man-equivalent. At the other extreme, Class VI livestock farms averaged only \$937 in value of farm products sold per man-equivalent. The average total investment on Class VI livestock farms was only \$13,645, and the average total specified expenses was only \$566 per man-equivalent of labor.

The acreage of land per man-equivalent worker was greater on the upper than on the lower economic classes of farms. The ratio of tractors to men was greater also on the upper economic classes of farms with the exception of Class I farms where the ratio was smaller than on the Class II farms.

### PRODUCTION PER UNIT OF CAPITAL

Value of all farm products sold in relation to amount of capital invested or used in the farm business is another useful indicator of efficiency. Data on value of farm products sold per thousand dollars of total investment and per dollar of specified expenses are shown for Corn Belt farms in tables 97 and 98.

The value of all farm products sold per thousand dollars of total investment on all commercial farms in the Corn Belt in 1954 was \$195. The average for cash-grain farms was \$161, and the average for livestock farms was \$221. Livestock farms had a

TABLE 97.—VALUE OF FARM PRODUCTS SOLD PER THOUSAND DOLLARS CAPITAL INVESTMENT AND PER DOLLAR OF SPECIFIED EXPENSES, BY TYPE OF FARM, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Value of all farm products sold	
	Per thousand dollars of total investment <sup>1</sup>	Per dollar of 6 specified expenses <sup>2</sup>
	<i>Dollars</i>	<i>Dollars</i>
Total Corn Belt:		
All commercial farms.....	195	3.24
Cash-grain farms.....	161	4.04
Livestock farms <sup>3</sup> .....	221	3.07
Eastern Corn Belt:		
All commercial farms.....	192	3.03
Cash-grain farms.....	169	3.74
Livestock farms <sup>3</sup> .....	207	2.82
Central Corn Belt:		
All commercial farms.....	183	3.57
Cash-grain farms.....	145	4.42
Livestock farms <sup>3</sup> .....	220	3.27
Northern Corn Belt:		
All commercial farms.....	222	3.48
Cash-grain farms.....	194	4.22
Livestock farms <sup>3</sup> .....	242	3.48
Western Corn Belt:		
All commercial farms.....	202	3.35
Cash-grain farms.....	165	4.26
Livestock farms <sup>3</sup> .....	230	3.17
Southern Corn Belt:		
All commercial farms.....	190	2.62
Cash-grain farms.....	166	3.27
Livestock farms <sup>3</sup> .....	205	2.52

<sup>1</sup> Per thousand dollars of investment in land and buildings, machinery and equipment, and livestock.

<sup>2</sup> Per dollar of expenditures for machine hire, hired labor, feed, gasoline and other petroleum fuel and oil, commercial fertilizer and fertilizing material, and lime and liming material.

<sup>3</sup> Livestock other than dairy and poultry farms.

greater value of sales per thousand dollars of investment than did cash-grain farms in every region of the Corn Belt. The highest value of sales per thousand dollars of investment was on livestock farms in the Northern Corn Belt (\$242), and the lowest was on cash-grain farms in the Central Corn Belt (\$145). Cash-grain farms in the Northern Corn Belt showed up relatively higher in returns to total capital investment than they did in returns per man-equivalent of labor.

The average value of farm products sold per dollar of 6 specified expenses was \$4.04 for all cash-grain farms and \$3.07 for all livestock farms in the Corn Belt. Value of sales per dollar of the specified current expense inputs was above the Corn Belt average on both cash-grain and livestock farms in the Central, Western, and Northern Corn Belt. The value of sales per thousand dollars of total investment on cash-grain farms in the Central Corn Belt was relatively low, but the return per dollar of current expense inputs was relatively high. All groups of farms in the Southern and Eastern Corn Belt were below the corresponding group averages for the total Corn Belt in value of products sold per dollar of specified expenses.

The value of all farm products sold per thousand dollars of total investment is consistently greater on the higher economic classes of farms. This is also true for the value of products sold per dollar of specified expenses (table 98). In terms of the latter ratio, the differences between the higher and lower economic classes of farms are somewhat greater than they would have been if expenditures for livestock purchased had been included among the specified expenses. On cash-grain farms, the value of products sold per thousand dollars of total investment ranged from a high of \$201 on Class I farms to a low of \$68 on Class VI farms. On livestock farms the range was from \$391 on Class I farms to \$69 on Class VI farms. Value of sales per dollar of specified expenses was only half as large on Class VI cash-grain farms as on Class I cash-grain farms (\$2.11 compared with \$4.23). On livestock farms, the range was from \$3.42 on Class I farms to \$1.66 on Class VI farms.

TABLE 98.—VALUE OF FARM PRODUCTS SOLD PER THOUSAND DOLLARS OF CAPITAL INVESTMENT AND PER DOLLAR OF SPECIFIED EXPENSES, BY TYPE AND ECONOMIC CLASS OF FARM, IN THE CORN BELT: 1954

Type and economic class of farm	Value of all farm products sold	
	Per thousand dollars of total investment <sup>1</sup>	Per dollar of 6 specified expenses <sup>2</sup>
	<i>Dollars</i>	<i>Dollars</i>
All commercial farms.....	195	3.24
Cash-grain farms:		
Total.....	161	4.04
Class I.....	201	4.23
II.....	175	4.39
III.....	157	4.02
IV.....	133	3.47
V.....	105	2.86
VI.....	68	2.11
Livestock farms: <sup>3</sup>		
Total.....	221	3.07
Class I.....	391	3.42
II.....	226	3.24
III.....	172	2.85
IV.....	134	2.39
V.....	104	2.06
VI.....	69	1.66

<sup>1</sup> Per thousand dollars of investment in land and buildings, machinery and equipment, and livestock.

<sup>2</sup> Per dollar of expenditures for machine hire, hired labor, feed, gasoline and other petroleum fuel and oil, commercial fertilizer and fertilizing material, and lime and liming material.

<sup>3</sup> Livestock other than dairy and poultry farms.

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