# fact book of U.S. Agriculture

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# FACT BOOK OF U.S. AGRICULTURE

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# PREFACE

This edition of the *Fact Book of U.S. Agriculture* has been extensively reorganized and revised to reflect the structure of modern agriculture. The major subdivisions:

Section I. *Farm Production Supplies,* dealing with farm production goods and the industries and service organizations which produce the goods and services that farmers buy to produce food and fiber.

Section II. *The Farming Operation,* which is the farm business itself—combining land, labor, management, and capital to produce farm products.

Section III. *Food Marketing,* the system of transportation, processing, and merchandising—including consumer education, advertising, and other elements of marketing—that converts farm products into consumer products ready for use in homes, restaurants, and institutions here and overseas.

Section IV. *Agricultural Services,* dealing with agricultural research, meat and poultry inspection, the extension service, market news, education, forest management, regulatory activities, grading services, and credit and income support for farmers and others. These are activities of the U. S. Department of Agriculture and other government and private agencies which are important elements of modern agriculture.

Section V. *Improving the Rural Social Environment* pertains to the rural population. Improving the rural environment is a requisite to improving urban environment. Only by creating active, desirable smaller towns and rural regions, with space and facilities for a good life, can the population pressure on large cities and urban centers be relieved. Though the words "rural" and "urban" still imply a physical separation, they actually flow together and have increasingly common interest and concerns.

Many of the functions of modern agriculture were a part of the farming operation 50 years ago. Outside production supply goods for use on farms were much less important than today. Similarly, the marketing system was less complex than today. Farming itself is changing rapidly. Many new developments quickly find widespread use.

*The Fact Book of U.S. Agriculture* is intended as a desk reference for reporters, editorial writers, farm organization leaders, and agribusiness managers—a handy source book for all those who speak and write about agriculture. Although the U.S. Department of Agriculture has many specialized publications, this volume is USDA's only narrative summary of U.S. agriculture as a whole.

More detailed tabulations and charts will be found in *Agricultural Statistics* and in the *Handbook of Agricultural Charts,* both revised yearly (for sale at $2.75 and $0.65, respectively, by the Superintendent of

Documents, U.S. Government Printing Office, Washington, D. C. 20402). Other selected references are listed on page 80.

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March 1972

## TABLES

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# I. FARM PRODUCTION SUPPLIES

## 1. Inputs for Agriculture

The three basic "inputs" for agricultural production are land, labor, and capital.

Land is no longer the major production tool. The productivity of the land now depends upon the skill and knowledge with which capital is applied—the use of mechanical power and machinery, fertilizer, lime, better seed, pest control chemicals, and the technology applied to conserve and enhance the land while in productive use.

The total value in constant dollars of all resources used in agriculture—land, labor, machinery, and supplies—has increased 5 percent since 1955.

The composition of inputs, however, has changed drastically as farmers struggled to be more productive and more efficient. Farm labor inputs declined rapidly; farm real estate increased slightly. All other inputs, chiefly purchased, increased rapidly. Purchased inputs are more than 40 percent greater than in 1955; nonpurchased inputs declined nearly 25 percent. Table 1 on page 2 gives more details.

## 2. Land

The United States has nearly 2.3 billion acres of land. More than 63 percent (1,438 million acres) is nonfederally owned rural land and one-third (760 million acres) is federally owned. About 3 percent (61 million acres) is in urban and built-up areas.

Of the nonfederal rural land, 438 million acres is cropland, 482 million acres is grassland, and 462 million acres is forest land. Land used for farmsteads, farm roads, rural nonfarm residences, investment tracts, in coastal dunes, marshes, strip mines, and other miscellaneous uses amounts to 56 million acres.

The 1967 USDA National Inventory of Soil and Water Conservation Needs classified these rural lands in eight land capability classes that show the degree of soil limitation for growing field crops. Soil in classes I, II, and III is suitable for regular cultivation of most field crops and for a wide range of other uses. Class IV land is suited for occasional or limited cultivation. Classes V to VIII are generally not suitable for growing ordinary field crops.

Under the system of land capability classification, 631 million acres is in classes I, II, III, of which about 60 percent is currently in cropland. Most of the remaining 40 percent can be used when it is needed, but would require investment for improvement.

Table 1.—Index of farm inputs, 1950-70

| Year | Total inputs[1] | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | All | Non-purchased[2] | Purchased[3] | Farm labor | Farm real estate | Mechanical power and machinery | Fertilizer and liming materials | Feed, seed, and livestock purchases[4] | Taxes and interest | Miscel-laneous |
| | *1967=100* | *1967=100* | *1967=100* | *1967=100* | *1967=100* | *1967=100* | *1967=100* | *1967=100* | *1967=100* | *1967=100* |
| 1950 | 96 | 135 | 68 | 199 | 95 | 79 | 32 | 64 | 64 | 63 |
| 1951 | 99 | 138 | 71 | 200 | 96 | 84 | 36 | 68 | 64 | 67 |
| 1952 | 99 | 136 | 73 | 191 | 95 | 89 | 39 | 70 | 66 | 67 |
| 1953 | 98 | 135 | 73 | 184 | 96 | 90 | 42 | 70 | 69 | 65 |
| 1954 | 98 | 133 | 73 | 176 | 97 | 90 | 43 | 72 | 69 | 64 |
| 1955 | 98 | 132 | 74 | 170 | 97 | 91 | 45 | 73 | 72 | 69 |
| 1956 | 96 | 126 | 75 | 160 | 95 | 91 | 44 | 76 | 74 | 70 |
| 1957 | 94 | 121 | 75 | 149 | 95 | 90 | 46 | 75 | 73 | 69 |
| 1958 | 94 | 117 | 77 | 143 | 94 | 91 | 48 | 80 | 75 | 74 |
| 1959 | 95 | 116 | 81 | 139 | 94 | 92 | 54 | 84 | 79 | 79 |
| 1960 | 94 | 110 | 83 | 134 | 93 | 91 | 54 | 84 | 81 | 80 |
| 1961 | 94 | 108 | 83 | 129 | 93 | 90 | 58 | 87 | 84 | 82 |
| 1962 | 94 | 107 | 86 | 123 | 94 | 91 | 62 | 89 | 86 | 86 |
| 1963 | 95 | 104 | 89 | 120 | 96 | 92 | 70 | 89 | 88 | 84 |
| 1964 | 96 | 104 | 91 | 115 | 98 | 93 | 76 | 90 | 91 | 93 |
| 1965 | 97 | 103 | 92 | 109 | 99 | 96 | 80 | 91 | 92 | 94 |
| 1966 | 98 | 101 | 96 | 101 | 99 | 100 | 90 | 97 | 96 | 97 |
| 1967 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 1968 | 102 | 100 | 103 | 96 | 100 | 102 | 107 | 101 | 105 | 109 |
| 1969 | 102 | 100 | 104 | 94 | 101 | 103 | 110 | 104 | 108 | 101 |
| 1970[5] | 103 | 99 | 106 | 92 | 102 | 103 | 113 | 109 | 113 | 100 |

[1] Measured in constant dollars. [2] Includes operator and unpaid family labor, and operator-owned real estate, and other capital inputs. [3] Includes all inputs other than nonpurchased inputs. [4] Nonfarm portion of feed, seed, and livestock purchases. [5] Preliminary.

| Land capability | Acreage | Total cropland (1967)[1] |
|---|---|---|
| | *Million acres* | *Million acres* |
| Land suited for cultivation: | | |
| Classes I, II, III | 631 | 365 |
| Land suited for limited cultivation: | | |
| Class IV | 180 | 50 |
| Land not suited for cultivation: | | |
| Classes V to VIII | 627 | 23 |

[1] Includes cropland that was cultivated, idle, grazed, or in government programs.

### 3. Water

The amount of precipitation varies from nearly none in the Death Valley Desert in California to more than 100 inches per year in some areas—for example, the Olympian Mountains in Washington. However, in the 48 States of mainland U.S.A. precipitation averages 30 inches per year—a total of 4.8 billion acre-feet (an acre-foot is water 1 foot deep covering 1 acre). This amount does not vary significantly in total from year to year, but may vary greatly at any one location.

Two-thirds of all this water never reaches streams but percolates into the soil to sustain vast acreages of crops, pastures, rangeland, and forests. The other third finds its way into streams, where it can be used for navigation, recreation, power generation, or it can be diverted from streams (and pumped up from underground) for irrigation, domestic and industrial uses, and other purposes.

As long as the quality of the water is maintained, water that is withdrawn and then returned to streams may be used again. Only water that is used up (lost mainly by evaporation) so that it does not return to streams reduces the total usable water supply. Of the water so used up, 85 out of every 100 gallons is used for agriculture.

By the year 2000, farmers will withdraw about one-third more water than they did in 1965. The withdrawal of water by cities and industries which reuse most of their water will increase at an even faster rate. So by 2000, 85 percent of the water should be available for reuse, compared to 72 percent in 1965. In addition, increased efficiency will decrease net use of water per acre of irrigated land.

Management of the water resource is becoming increasingly important as use approaches available supply. Shortages can occur in any region of the United States in any year. Forest lands are important because they produce over 60 percent of the total water yield and are vital to maintenance of water quality.

In some western States, current use is already pressing heavily on available supplies. Cities and industries are using increasing amounts and thus

intensifying supply and treatment problems. Water pollution is today a major conservation problem in most regions.

In the future, the total supply of water will not increase. But more usable water may be made available by desalting ocean water, storing more in surface reservoirs, recharging underground aquifers, converting brushland to grass in lower rainfall areas, and manipulating vegetative cover, including forests, so as to capture and retain more snowfall.

#### 4. Farm Labor

The average number of domestic persons doing farmwork during 1970 was 4,523,000. Of these, 3,348,000 were farm operators and members of their families and 1,174,000 were hired workers. These workers contributed a total of 6.5 billion man-hours of labor for farmwork. The largest proportion, 3.2 billion man-hours, was used in crop production; 2.4 billion was used for producing livestock and livestock products, with the remainder going for overhead work (recordkeeping, marketing, purchasing, maintaining building and equipment, etc.).

Farm operators and family members accounted for about three-fourths of the annual average employment and man-days of work on America's farms during 1970. More than half of all farms do not hire any labor and most of the others do so mainly at peak work periods. Thus, on those farms that do employ labor, hired workers constitute a significant proportion of the work force, especially on the larger and more labor intensive farms.

In total, about 2.5 million people and 17,000 foreign nationals did some work on farms for cash wages in 1970. This represents a decrease of about 4 percent from the estimated 2.6 million hired farmworkers in 1969 and reflects further utilization of mechanization and other laborsaving technology. Casual workers (those who did less than 25 days of farm wage work) numbered 1.1 million, down about 100,000 from 1969. Noncasual workers, those who did 25 or more days of hired farmwork, numbered 1.4 million, about 72,000 less than in 1969.

The sharpest rate of reduction in any subgroup of hired farmworkers in recent years has occurred among migratory workers. From a high of 466,000 in 1965, the number of migrants declined to 257,000 in 1969 and dropped by another 24 percent to 196,000 in 1970. Thus, the displacement of migrants accounts for about 75 percent of the decline in the number of hired farm workers between 1969 and 1970.

As a group, hired farmworkers earned an average of about $11.10 a day in cash wages from their farm wage work in 1970. For 80 days of such work, the average number of days hired, they earned $887. These wage figures do not include the value of perquisites or fringe benefits furnished by the farm employer nor do the annual earnings include earnings from nonfarm sources. On an hourly basis, the 1970 per hour composite farm wage rates for the 48 conterminous States averaged $1.42 and ranged from a low of $0.99 per hour in South Carolina to $1.91 per hour in Washington.

## 5. Farm Expenses

Farmers spent $40.9 billion on production goods and services in 1970—about 70 cents out of every dollar of realized gross farm income. Here are some major items of farm production expenses:

Table 2.—Farm production expenses

| Major Items | 1960 | 1970 |
|---|---|---|
| | *Billion dollars* | *Billion dollars* |
| Purchased feed | 4.9 | 7.1 |
| Purchased livestock | 2.5 | 4.3 |
| Repair and operation | 4.0 | 5.1 |
| Depreciation | 4.2 | 6.9 |
| Fertilizer and lime | 1.2 | 2.1 |
| Short term interest | 0.7 | 2.1 |
| Long term interest | 0.6 | 1.7 |
| Property taxes | 1.5 | 3.0 |
| Hired labor | 2.9 | 3.4 |

The index of prices paid by farmers for production items, interest, taxes, and wage rates was 33 percent higher in 1970 than in 1960. This compares with a rise of 31 percent in the Consumer Price Index (CPI) and in CPI index of retail food prices.

Part of the increase in farm costs in recent years is due to payments for services that the farmer used to perform for himself. Farmers have become more specialized; many buy extra feed, others buy all their feed instead of growing it. Suppliers construct buildings, install fences, test soils, and even finance these services as well as sell the supplies. Farmers are also making greater use of credit to increase the size of their farming operations and to buy more equipment. Interest paid by farmers has increased sharply in recent years.

Farmers' real estate taxes have also increased sharply; so has the value of their property. However, taxes are a current overhead expense and property values are a long-term asset with future convertibility to cash. The increase in farm real estate values in 1970 was one of the smallest in recent years. Property taxes will likely continue to increase unless alternative revenue sources are found.

During the past decade, total farm production expenses increased from $26.4 billion in 1960 to $40.9 billion in 1970. Expenses for major overhead items—depreciation, taxes, and interest on farm mortgage debt—rose about 1¼ times as fast as current operating expenses. Hired labor cost increased only moderately as a decline in the number of hired farmworkers helped offset rapidly rising wage rates. Compared with 1960, interest charges per acre in 1970 were some 180 percent higher, tax charges per acre were about double, wage rates up about 70 percent, farm machinery prices up 40 percent, motor vehicles up around 35 percent, livestock and seed prices averaged 25 percent higher, and unit feed prices were up about 11 percent. Only fertilizer prices changed very little during the decade.

### 6. Agricultural Credit

American farmers are heavy users of credit. They borrow large amounts to buy and enlarge farms, make capital improvements, purchase equipment, and pay for such operating needs as fertilizer, seed, tractor fuel, and labor. The use of credit permits farmers to develop larger operations than can be financed by their own resources. Many of the heaviest users of credit have made the greatest gains in both equities and incomes.

Loans are frequently classed as either farm real estate loans or non-real estate loans.

Farm real estate loans are secured by a mortgage or other lien on the farm itself and are long term, running from 10 to 30 years or more. Money obtained from farm real estate loans (sometimes called farm mortagage loans) is used mainly to buy farms or farmland, finance buildings and other improvements, or to refinance debts, particularly shorter term debts.

Individuals, many of whom are sellers of farms, hold approximately two-fifths of the farm real estate debt. In recent years, credit has been used to finance four-fifths of all farm sales. Sellers provided the credit in about half of these cases. The bulk of the seller credit was in the form of land purchase contracts. Under these contracts, the title of the farm does not pass to the buyer until the payments reach a specified amount.

Federal land banks and life insurance companies are the largest institutional holders of farm mortgages, with outstanding balances on January 1971 of $7.1 billion and $5.6 billion, respectively. Commercial and savings banks held loans of $4.4 billion.

Non-real estate farm loans are all farm loans not secured by farm real estate. Some may be secured by chattel mortgages on personal property; and others are unsecured. Non-real estate loans are either short term which run for a year or less and are used mainly to pay for seasonal production and living expenses, or intermediate term with repayment periods of more than 1 year, frequently from 3 to 5 years. Intermediate-term loans are used to buy machinery, purchase dairy cows, and make other such capital investments that would be difficult to pay for in 1 year.

In 1971, about $12.3 billion of the non-real estate farm debt was owed to merchants, dealers, individuals, and other miscellaneous lenders and creditors. Commercial banks, which supply the most non-real estate credit to farmers, held outstanding loans of $11.1 billion. Production credit associations and the Farmers Home Administration held $5.3 billion and $0.8 billion, respectively. Outstanding price support loans obtained from the Commodity Credit Corporation amounted to $1.9 billion.

### 7. The Balance Sheet

Farm assets on January 1, 1971, totaled $318.9 billion while farm debt amounted to $61.2 billion, leaving equities of $257.7 billion. During 1970 farm assets rose 3 percent, debt increased 5 percent and equities grew 2.5 percent.

The increase in value of farm real estate slowed from the 5 percent annual pace of recent years to rise only 2.8 percent in 1970. Since real estate makes up about two-thirds of total farm asset value and about three-fourths of all assets used in farm production, the slower rate of gain of farmland greatly affected the increase of all farm assets. The value of physical farm assets other than real estate showed a substantial gain of 3.5 percent, pushed along mainly by increased value of livestock. Farmers' financial assets continued to rise about 3.9 percent for the year.

Farmers and other owners of farmland increased their indebtedness on farm real estate 4 percent in 1970 and owed $29.6 billion on January 1, 1971. The $1.2 billion gain was less than any annual rise since 1961. Use of farm operating credit continued brisk in 1970. Farm non-real estate debt rose $2.7 billion in 1970 and totaled $29.7 billion (excluding Commodity Credit Corporation loans) at the beginning of 1971. The 10 percent gain was more than double the farm real estate debt increase. In 1970 much short term credit was substituted for real estate credit, which was then relatively difficult to obtain.

The equities proprietors owned in farm properties increased $6.2 billion in 1970 to total $257.7 billion on January 1, 1971. The 2.5 percent gain was smaller in 1970 than in other recent years because of the less rapid gain in assets and sharper than usual increase in debts.

Assets and debts are not spread evenly among farmers. The lowest debt-to-asset ratio (15.2 percent) in 1969 was for farmers with gross sales of less than $2,500. In contrast, farmers with gross sales of $100,000 and over averaged debts amounting to 24 percent of assets. This indicates larger scale farmers find credit a useful tool in their operations. Of course, many farmers have no indebtedness at all.

The distribution of farm assets and debts also varied by geographic areas at the beginning of 1970. Farmers in the Corn Belt, on the whole, owned substantially more assets and owed more debt than farmers in other regions of the Nation, but they also owned the largest portion of total farm equity. The Northern and Southern Plains held about half as much farm assets and debts as the Corn Belt but were higher than other regions.

Trends in farmers' assets, debts, and equities over a period of years can be seen in Table 3.

Table 3.—Trends in farmers' assets, debts, and equities

| Item | January 1 | | | |
|---|---|---|---|---|
| | 1940 | 1950 | 1960 | 1970 |
| | *Billion dollars (current)* | | | |
| Assets | 52.9 | 132.5 | 203.1 | 309.6 |
| Liabilities | 10.0 | 12.4 | 24.8 | 58.1 |
| Equities | 42.9 | 120.1 | 178.3 | 251.5 |

Asset values rose a sharp 150 percent between 1940 and 1950, then slowed to a 53 percent rise for each of the next two decades. In contrast, farm debt rose 24 percent in the 1940's, doubled in the 1950's, and spurted ahead 134 percent between 1960 and 1970. Equity in farm property increased 180 percent in the 1940's, then slowed to a 48 percent growth rate in the 1950's and 47 percent over the 1960 decade.

Although rented land accounts for only about 35 percent of all land in farms in the United States, land rental is a significant factor in accounting for the changes occurring in the size of farm operations. Many of the larger farm operating units are a combination of owned and rented tracts. One operator may rent from several landlords. A major development in real estate rental is the increasing share of land rented by part-owners (those who own part and rent part of the land they farm) and the declining share rented by full tenants (those who own none of the land they farm).

Gross rental returns have averaged around 6 percent of the market value of the property for several years. However, net rents received by landlords have been diminishing because real estate taxes and other ownership costs have increased.

### 8. Farm Power

Farm output per man-hour has increased at a substantial rate in recent years. Power inputs equivalent to those directed by several men only a few years ago are now often directed by one man.

Tractor horsepower on U.S. farms totaled 212 million in 1971, more than double that in 1950. This was equivalent to 47 horsepower per farmworker, compared with a little less than 10 horsepower per farmworker in 1950.

The current value of motor vehicles and machinery on farms was estimated at $34.3 billion on January 1, 1970. Excluding nonfarm use of automobiles and motor trucks, $29.1 billion was for farm use. Expenditures for new machinery and motor vehicles were $5.2 billion in 1970 of which over $1.0 billion was for tractors.

Average horsepower per tractor is increasing yearly. In 1969 the average horsepower of tractors shipped for farm use was 70, the average wholesale price per horsepower was $71, and the average wholesale price per tractor was $4,976. By comparison, in 1950 the average horsepower was 29, the average price per horsepower was $37, and the average price per tractor was $1,073. Some of the increase in machinery prices has been due to improvements which make the machines more efficient.

Automobile purchases for farm business use amounted to $0.7 billion during 1970 and represented 40 percent of total farm auto purchases. Expenditures for motor trucks for farm use were $0.7 billion. Expenditures for other farm machinery and equipment, such as grain combines, cornpickers, and farmstead equipment amounted to $2.7 billion.

Tractors on farms depreciated in value about $1.0 billion in 1970, trucks by $0.7 billion and automobiles by $0.7 billion. Farmers spent approximately

$1.7 billion for petroleum fuel and oil to operate power machinery in 1970. In addition, another $2.7 billion was spent for repairs on motor vehicles and machinery.

### 9. Farm Machinery

Power, to be most useful, must be efficiently harnessed. Self-propelled machines (where power sources and machines are integral units) are so harnessed and have become increasingly important, especially in harvesting.

Outstanding is the self-propelled combine introduced in 1938. Many of these early machines were relatively small with a cutting width of only 7 feet. Large-scale models now cut up to 25 feet, and five to 10 of these machines sometimes operate in a fleet. In 1954, the corn head was introduced. This enabled a combine to pick and field shell corn in one operation. When corn was picked by hand, a good day's work for a man was 100 bushels. A combine equipped with an 8-row corn head can pick and field shell that much corn in 5 to 10 minutes.

Other self-propelled equipment is used in limited numbers to bale hay, pick corn and cotton, spray and dust crops, cut and windrow hay or grain, and harvest green forage. Some of these operations are specialized, whereas combines may be used over an entire season from wheat to corn harvest and often for custom work.

Machinery to be pulled by or mounted on a power unit is used extensively in tillage, planting, crop protection, and for transport of farm products. Where power is needed to operate machines, it is frequently supplied from the power take-off of the tractor. In earlier days, when tractors were smaller, extra power was frequently supplied by an engine mounted on the pulled machine.

Where machines are in use to harvest vegetables or fruits (usually for processing), labor savings are often outstanding. An example is the snap bean harvester. Information supplied by a large farming-freezing operation illustrates the great capacity of these machines. Before mechanization, about 800 workers were used—now a crew of 9 does their snap bean harvest.

Farmers use a wide variety of equipment around the farmstead. At the farmstead, operations are close enough together to enable automation in feed processing, feeding, watering, and collection of such products as eggs. Pipeline milking systems provide both mechanical milking, and transport of the product to a central cooling and storage system. Many farmers are equipped to dry such products as field shelled corn, which usually comes from the field with a moisture content too high for storage.

### 10. Livestock and Poultry Feed

Provision for feed and feeding of livestock and poultry is an important part of today's agricultural production. It involves not only the farms and ranches on which feed is produced or consumed, but also the largest of

agribusiness industries—the formula feed and grain processing industry. Only about 40 to 45 percent of feed grains fed are used on farms where grown. The rest moves through commercial channels.

Feed consumption increased more than 60 percent in the last 30 years to nearly 420 million tons. Of this amount, 47 percent came from concentrates (high energy feeds), 18 percent from harvested forages (high fiber feeds), and about 35 percent from pasture and range. Of the concentrates fed, about 50 percent is now handled or processed as commercial formula feed.

Technology for production of livestock and poultry advanced tremendously, particularly in the last 20 years. This included many innovations in feed formulation and handling. Progress in feed technology was possible because of accompanying developments in nutritional knowledge and genetic improvement in both livestock and poultry. Research has also been devoted to improved methods of housing livestock and to bulk formulation, mixing, transporting, and distribution of feeds. One result was to reduce labor needed on farms. This accomplishment has been associated with the development of very large poultry and livestock feeding enterprises.

Disease eradication and control are closely related to feed technology. Because of the development of precision metering and mixing equipment, many drugs, growth regulators, and so forth can be administered through the feed.

Increasing quantities of poultry and livestock production are coming from very large enterprises built to a large extent around feed manufacturing. Most of these enterprises have a feed mill at or near the feeding location. Some feed their own livestock, but many others also feed livestock belonging to

Table 4.—Feed consumed by livestock and poultry, feeding years 1940 and 1969[1]

| Feed material[2] | Feed consumption | | | |
|---|---|---|---|---|
| | 1940 total | Percentage of total | 1969 total[3] | Percentage of total |
| | *Thousand tons* | *Percent* | *Thousand tons* | *Percent* |
| Corn | 59,852 | 22 | 104,513 | 25 |
| Other feed grains | 26,271 | 10 | 40,009 | 10 |
| Byproduct feeds | 18,568 | 7 | 44,584 | 11 |
| Other concentrate feeds | 6,304 | 2 | 4,780 | 1 |
| Total concentrates | 110,995 | 41 | 193,886 | 47 |
| Hay | 37,899 | 14 | 51,997 | 12 |
| Other harvested roughages | 16,931 | 6 | 26,363 | 6 |
| Pasture | 105,833 | 39 | 146,074 | 35 |
| Total roughages | 160,663 | 59 | 224,434 | 54 |
| Total all feed | 271,658 | 100 | 418,320 | 100 |

[1] Excludes Alaska and Hawaii. [2] Measured in feed units (corn equivalents). [3] Preliminary.

other firms or individuals. Many mills have custom grind and mix services and prepare feeds according to specifications of feed purchasers.

### 11. Pesticides

Pesticides of some kind are used on about 85 percent of all farms, but farmers accounted for only slightly more than half of all pesticides used in the United States in 1966. Farmers used more than 90 percent of their pesticides on crops. Cotton and corn were the major crops receiving pesticides. Cotton accounted for 47 percent of the insecticides and corn for 41 percent of the herbicides.

Pesticides may become pollutants when they or their breakdown products remain in the environment, or when they reach some part of the environment other than the intended target. These materials vary in the amount of pollution they produce. The U.S. Department of Agriculture encourages the use of those means of effective pest control which provide the least potential hazard to human health, to livestock, to fish and wildlife, and to beneficial insects.

Department scientists conduct studies to find ways to control pests—insects, plant diseases, and weeds that threaten man's health and food supply. In cooperation with industrial, State, and other Federal staffs, USDA scientists do research to develop effective pest-control methods that will not pollute the environment. Many alternative controls are already being used by farmers and homeowners; others are being tested or are still in the laboratory stage.

Some of the general classes of alternative methods, how they work, and the pests they protect against are as follows:

*Predators, parasites,* and *pathogens* (disease-causing organisms) destroy insects and weeds by feeding on or infecting them. *Resistant varieties* of plants inhibit attack by insects, diseases, and nematodes (tiny worms). *Attractants* lure insects to traps or other devices where they can be killed or sterilized. *Genetic control* consists of releases of sexually sterile insects that mate with normal insects. *Bio-environmental controls* are cultural and mechanical practices against insects, nematodes, weeds, and diseases. *Hormone* and *daylength manipulation* disrupt insects' life cycles and limit the number of insects that survive.

Persistent pesticides are not utilized in Department pest control programs when an effective, nonresidual method of control is available. When persistent pesticides are necessary to combat pests, they are employed in minimal amounts, applied precisely to the infested area, and at minimal effective frequencies.

Nonchemical methods of pest control, biological or cultural, are recommended whenever such methods are available for the effective control or elimination of target pests. Integrated control systems utilizing both chemical and nonchemical techniques are used and recommended to promote maximum effectiveness and environmental safety.

## 12. Fertilizer

Commercial fertilizers enable farmers to maintain soil fertility, increase production, and reduce unit cost of crop production through substantially increased yields per acre and per man-hour. Consumption of the primary plant nutrients—nitrogen (N), phosphorous (P), and potassium (K)—in the United States rose more than 600 percent from 1945 to 1970, going from 2.7 million to 16 million tons. In the last 16 years, increased applications of fertilizer and other technological advances have enabled U. S. farms to increase production 30 percent on 15 percent less land. About a third of the increase in crop production per acre can be attributed to the increase in fertilizer.

Consumption of other plant nutrients—calcium, sulfur, and magnesium—has fluctuated. Many mixed fertilizers provide appreciable amounts of these essential secondary nutrients. However, for efficient cropping and soil conservation, most soils of the eastern half of the Nation require additional applications of calcium in the form of liming materials. Generally, most soils and crops require greater amounts of calcium than of any other plant nutrient. In the year ending June 1970, total liming materials applied directly to soils in the United States were estimated at 30 million tons or 15 million tons of calcium oxide equivalent.

Modern intensive farming tends to deplete the natural supply of micro-nutrients (trace elements such as copper, zinc, manganese, borax, iron, molybdenum, and cobalt) in soils. Therefore, the fertilizer industry formulates a variety of mixtures, each containing trace elements needed in a specific local area. Requirements for trace elements vary from one type of soil or one crop to another. For example, borax requirements may vary from 5 to 60 pounds per ton of primary nutrients depending on the crop and soil.

## II. THE FARMING OPERATION

### 13. Farming Regions

The 10 major farming regions in the United States differ in soils, slope of land, climate, distance to market, and in storage and marketing facilities. Together, they give a glimpse of the agricultural face of the Nation. Nearly everyone who has traveled widely in this country has a "feeling" for them.

*The Northeastern States*—from Maine to Maryland—and the *Lake States*—those bordering on the Great Lakes, from New York to Minnesota—are the Nation's principal milk producing areas. Climate and soil in these States are suited to raising grains and forage for cattle and for providing pasture land for grazing. Broiler farming is important in Maine and from New Jersey to Maryland.

*The Appalachian Region*—Virginia, West Virginia to North Carolina, Kentucky, and Tennessee—is the major tobacco producing region of the Nation. Peanuts, cattle, and dairy production are also important.

Farther south along the Atlantic coast is the *Southeast Region.* Beef and broilers are important livestock products. Vegetables, such as sweet potatoes, are grown in this area, along with peanuts. And, of course, there are the big citrus groves and winter vegetable production in Florida.

In the *Delta States*— Mississippi, Louisiana, and Arkansas—the principal cash crops are soybeans and cotton. Rice and sugarcane are also grown. With improved pastures, livestock production has gained in importance.

*The Corn Belt,* extending from Ohio to Nebraska, is a region with rich soil, good climate, and sufficient rainfall for excellent farming. Corn, beef cattle, and hogs are the major outputs of farms in the region. Other feed grains, soybeans, and wheat are also important.

Agriculture in the *Northern and Southern Plains,* which extend north and south from Canada to Mexico and from the Corn Belt into the Mountain States, is restricted by low rainfall and, in the northern part, by cold winters and short growing seasons. Nearly three-fifths of the Nation's winter and spring wheat is produced in the region. Other small grains, grain sorghum, hay, forage crops, and pastures form the basis for cattle and dairy production. Cotton is produced in the southern part.

*The Mountain States*—from Idaho and Montana to Mew Mexico and Arizona—provide a still different terrain. Vast areas of this region are suited to raising cattle and sheep. Wheat is important in the northern parts. Irrigation in the valleys provides water for such crops as hay, sugarbeets, potatoes, fruits, and vegetables.

*The Pacific Region* includes the three Pacific Coast States. Farmers in the northern area specialize in raising wheat and fruit; vegetables and fruit and

cotton are important in the southern part. Cattle are raised throughout the entire region.

### 14. Farms and Land in Farms*

The Nation had an estimated 2,876,000 operating farms during 1971, 2 percent less than in 1970. The preliminary estimate for 1972 indicates 2,831,000 farms will be in operation. This reduction would be similar to the percentage declines of the past few years.

Total land in farms, estimated at about 1,117 million acres for 1971, continues a slow steady decline but at a slower rate than farm numbers. For 1972, the preliminary estimate of land in farms is 1,114 million acres.

The past decade saw a 26 percent decline in number of farms while only a 4 percent drop was recorded in land in farms. These changes are associated with a 27 percent increase in the average size of farms. Small farms are continuing to be merged into larger units, thus the change in farm numbers. Urbanization and highway construction were the major causes of decline in land in farms.

### 15. Rise of U.S. Production

Farmers in the United States today produce two-thirds more per man-hour of work than in 1960 and over six times as much as in 1930. Although large acreages were held out of crop production between 1960 and 1970, total U.S. farm output increased as fast as U.S. population.

An annual increase in farm production has come to be taken for granted, but in the early decades of this century farm production was almost on a treadmill. Agricultural production in the United States remained virtually unchanged from 1910 to 1930; it rose an average of 1.4 percent annually in the 1930's; 2.0 percent in the 1940's; 2.1 percent in the 1950's; since 1960 it has had an average annual increase of 1.3 percent.

In 1930, only 10 persons were supplied farm products by one farmworker. A reduced farm labor force in 1969, using many more production inputs from the nonfarm economy, supplied food and other farm products to a larger domestic population. Through exports, farmers also supplied products to many consumers in foreign countries. In 1970, the total number of consumers per farmworker exceeded 47—an increase of 21 from 1960.

The population of the United States is expected to be about 228 million in 1980. The 1980 gross national product (value of all goods and services produced by the economy) is projected to increase in real terms by more than 50 percent. In 1980, domestic and export demand is expected to be about one-fifth more than in 1970. To meet this demand alone, U.S. agricultural production must increase at an average annual rate of slightly less than 2 percent.

All the evidence indicates that U.S. agriculture can maintain this rate of yearly increase in productivity—and attain even higher rates, if necessary—during the next 10 to 15 years.

*For a table giving major uses of land in the United States, see Appendix, page 70.

Table 5.—Number of farms and land in farms, by States, 1970-72

| State | Farms | | | Land in farms | | |
|---|---|---|---|---|---|---|
| | 1970 | 1971 | 1972[1] | 1970 | 1971 | 1972[1] |
| | *Number* | *Number* | *Number* | *1,000 acres* | *1,000 acres* | *1,000 acres* |
| Maine | 10,000 | 9,700 | 9,400 | 2,350 | 2,300 | 2,250 |
| N. H. | 3,600 | 3,500 | 3,400 | 730 | 720 | 710 |
| Vt. | 7,200 | 7,000 | 6,800 | 2,220 | 2,200 | 2,150 |
| Mass. | 6,300 | 6,100 | 5,900 | 730 | 710 | 690 |
| R. I. | 900 | 900 | 800 | 90 | 86 | 83 |
| Conn. | 4,700 | 4,500 | 4,300 | 600 | 580 | 560 |
| N. Y. | 58,000 | 57,000 | 56,00 | 11,700 | 11,500 | 11,400 |
| N. J. | 8,600 | 8,500 | 8,400 | 1,010 | 1,000 | 990 |
| Pa. | 74,000 | 73,000 | 71,000 | 10,600 | 10,550 | 10,450 |
| Ohio | 112,000 | 111,000 | 110,000 | 17,400 | 17,300 | 17,300 |
| Ind. | 98,000 | 98,000 | 98,000 | 17,600 | 17,600 | 17,600 |
| Ill. | 126,000 | 124,000 | 123,000 | 29,500 | 29,300 | 29,200 |
| Mich. | 86,000 | 84,000 | 83,000 | 13,100 | 13,000 | 12,900 |
| Wis. | 112,000 | 110,000 | 108,000 | 20,400 | 20,200 | 20,000 |
| Minn. | 125,000 | 122,000 | 119,000 | 32,100 | 32,000 | 31,800 |
| Iowa | 141,000 | 139,000 | 137,000 | 34,400 | 34,400 | 34,400 |
| Mo. | 143,000 | 141,000 | 139,000 | 33,200 | 33,000 | 32,900 |
| N. Dak. | 42,000 | 41,500 | 41,000 | 42,000 | 42,000 | 42,000 |
| S. Dak. | 46,500 | 45,500 | 44,500 | 45,500 | 45,500 | 45,500 |
| Nebr. | 73,000 | 72,000 | 71,000 | 48,100 | 48,100 | 48,100 |
| Kans. | 87,000 | 86,000 | 85,000 | 50,000 | 49,900 | 49,900 |
| Del. | 3,700 | 3,600 | 3,600 | 700 | 690 | 690 |
| Md. | 18,300 | 18,000 | 17,500 | 3,220 | 3,190 | 3,150 |
| Va. | 72,000 | 70,000 | 69,000 | 11,500 | 11,400 | 11,300 |
| W. Va. | 29,000 | 28,000 | 27,000 | 5,100 | 5,000 | 4,900 |
| N. C. | 158,000 | 154,000 | 151,000 | 16,000 | 15,900 | 15,800 |
| S. C. | 52,000 | 51,000 | 49,000 | 8,300 | 8,200 | 7,900 |
| Ga. | 77,000 | 76,000 | 75,000 | 17,300 | 17,000 | 16,800 |
| Fla. | 34,000 | 34,000 | 34,000 | 16,200 | 16,200 | 16,200 |
| Ky. | 123,000 | 122,000 | 121,000 | 16,800 | 16,800 | 16,700 |
| Tenn. | 127,000 | 125,000 | 123,000 | 15,500 | 15,400 | 15,300 |
| Ala. | 86,000 | 83,000 | 81,000 | 14,700 | 14,500 | 14,300 |
| Miss. | 95,000 | 93,000 | 91,000 | 17,500 | 17,400 | 17,300 |
| Ark. | 74,000 | 74,000 | 74,000 | 17,900 | 17,900 | 18,100 |
| La. | 53,000 | 53,000 | 51,000 | 12,200 | 12,200 | 12,200 |
| Okla. | 91,000 | 90,000 | 89,000 | 37,100 | 37,100 | 37,100 |
| Texas | 188,000 | 185,000 | 184,000 | 145,000 | 145,000 | 144,800 |
| Mont. | 26,400 | 25,800 | 25,400 | 67,100 | 67,000 | 66,900 |
| Idaho | 28,500 | 28,200 | 27,900 | 15,500 | 15,500 | 15,500 |
| Wyo. | 8,400 | 8,200 | 8,000 | 37,000 | 37,000 | 37,000 |
| Colo. | 30,500 | 30,000 | 29,500 | 39,000 | 39,000 | 39,000 |
| N. Mex. | 13,600 | 13,200 | 12,900 | 48,200 | 48,000 | 47,900 |
| Ariz. | 5,900 | 5,800 | 5,700 | 43,300 | 43,200 | 43,100 |
| Utah | 14,500 | 14,000 | 13,500 | 13,300 | 13,200 | 13,000 |
| Nev. | 2,100 | 2,000 | 2,000 | 9,000 | 9,000 | 9,000 |
| Wash. | 45,500 | 45,000 | 44,000 | 18,100 | 18,000 | 17,900 |
| Oreg. | 40,000 | 38,500 | 37,500 | 20,900 | 20,900 | 20,900 |
| Calif. | 58,000 | 57,000 | 56,000 | 36,800 | 36,600 | 36,400 |
| 48 States | 2,919,200 | 2,871,500 | 2,827,000 | 1,116,550 | 1,113,226 | 1,110,023 |
| Alaska[2] | 310 | 310 | 310 | 1,835 | 1,835 | 1,835 |
| Hawaii | 4,500 | 4,300 | 4,100 | 2,340 | 2,340 | 2,340 |
| U. S. | 2,924,010 | 2,876,110 | 2,831,410 | 1,120,725 | 1,117,401 | 1,114,198 |

[1] Preliminary. [2] Exclusive of grazing land leased from U.S. Government, Alaska farmland totals about 70,000 acres.

Table 6.—Agricultural Productivity

| Year | U.S. population (July 1) | Total farm output | Output per manhour | Persons supplied per farm-worker | Cropland harvested |
|---|---|---|---|---|---|
| | *Millions* | *1967=100* | *1967=100* | *Number* | *Million acres* |
| 1930 | [1] 123.1 | 52 | 17 | 10 | 360 |
| 1940 | [1] 132.1 | 60 | 21 | 11 | 331 |
| 1950 | 152.3 | 73 | 35 | 16 | 336 |
| 1955 | 165.9 | 82 | 47 | 20 | 333 |
| 1960 | 180.7 | 90 | 67 | 26 | 317 |
| 1965 | 194.6 | 97 | 91 | 37 | 292 |
| 1970 | 205.4 | 102 | 113 | 47 | 293 |

[1] Includes 48 States.

### 16. Farm Income*

Realized gross farm income in 1970 was a record, about $56.6 billion, up about $1.1 billion from the previous year. But, despite this sizeable gain in gross income, rising costs resulted in a drop in realized net farm income to $15.7 billion, down from the near-record $16.8 billion reached in 1969.

The record gross income for 1970 reflects an increase of some 2 percent in cash receipts from farm marketings. Direct government payments were down slightly, from $3.8 billion in 1969 to $3.7 billion in 1970.

The volume of farm products marketed in 1970 was up about the same as in 1969. Farmers received an average of 2 percent higher prices for their products in 1970 than in 1969. Livestock and livestock product prices averaged 1½ percent higher, while crop prices were up about 3 percent. Receipts from marketings of both livestock and products and crops were estimated higher than in 1969, with the combined total at $49.2 billion.

Ranked on the basis of total cash receipts from farm marketings in 1970, California was first with over $4 billion, Iowa second with about $4 billion, and Texas third with around $3 billion. The other seven States in the top 10 (by order of cash receipts from marketings) were Illinois, Minnesota, Nebraska, Kansas, Wisconsin, North Carolina, and Indiana. In 1970, the top 10 States accounted for half of the total cash receipts from farm marketings in the Nation, with the top five States accounting for nearly one-third. Compared with the top 10 States, all of which have over $1 billion in marketing receipts, States such as Rhode Island with around $20 million in cash receipts and Alaska with about $4 million in cash receipts are at the bottom.

### 17. Farms by Sales Classes

Nearly nine-tenths of all farm products going to market are produced on farms with gross sales of $10,000 or more. The upper income group of around 1 million farms make up most of the commercial agricultural economy of the United States. The operators of these farms do the buying

*For an explanation of farm income concepts—*realized* net, *total* net, etc.—see Appendix, page 84.

Table 7.—Cash receipts from farm marketings

| State | 1970 (preliminary) | | | | Total cash receipts for 1969 |
|---|---|---|---|---|---|
| | Total | Crops | Livestock and livestock products | Principal commodity in order of cash receipts | |
| | *Million dollars* | | | | *Million dollars* |
| Alabama | 742 | 207 | 535 | Broilers, cattle, eggs, hogs | 728 |
| Alaska | 4 | 1 | 3 | Dairy products, potatoes, eggs, cattle | 4 |
| Arizona | 647 | 274 | 373 | Cattle, cotton lint, dairy products, lettuce | 683 |
| Arkansas | 1,073 | 507 | 566 | Soybeans, broilers, cattle, cotton lint | 1,113 |
| California | 4,456 | 2,666 | 1,790 | Cattle, dairy products, grapes, eggs | 4,450 |
| Colorado | 1,182 | 260 | 922 | Cattle, wheat, dairy products, sheep, lambs | 1,012 |
| Connecticut | 167 | 64 | 103 | Dairy products, eggs, tobacco, greenhouse nursery | 167 |
| Delaware | 147 | 49 | 98 | Broilers, corn, soybeans, dairy products | 153 |
| Florida | 1,268 | 872 | 396 | Oranges, cattle, dairy products, grapefruit | 1,325 |
| Georgia | 1,145 | 434 | 711 | Broilers, eggs, peanuts, cattle | 1,152 |
| Hawaii | 211 | 170 | 41 | Sugarcane, pineapple, cattle, dairy products | 200 |
| Idaho | 664 | 360 | 304 | Cattle, potatoes, dairy products, wheat | 645 |
| Illinois | 2,700 | 1,401 | 1,299 | Corn, hogs, soybeans, cattle | 2,722 |
| Indiana | 1,553 | 715 | 838 | Hogs, corn, soybeans, cattle | 1,531 |
| Iowa | 3,930 | 1,073 | 2,857 | Cattle, hogs, corn, soybeans | 3,885 |
| Kansas | 1,774 | 551 | 1,223 | Cattle, wheat, hogs, sorghum grain | 1,729 |
| Kentucky | 922 | 408 | 514 | Tobacco, cattle, dairy products, hogs | 888 |
| Louisiana | 649 | 373 | 276 | Cattle, soybeans, rice, dairy products | 606 |
| Maine | 254 | 92 | 162 | Potatoes, eggs, broilers, dairy products | 246 |
| Maryland | 394 | 126 | 268 | Broilers, dairy products, corn, cattle | 386 |
| Massachusetts | 169 | 82 | 87 | Dairy products, greenhouse nursery, eggs, cranberries | 165 |
| Michigan | 895 | 413 | 482 | Dairy products, cattle, corn, hogs | 883 |
| Minnesota | 2,016 | 643 | 1,373 | Cattle, dairy products, hogs, corn | 1,983 |
| Mississippi | 912 | 399 | 513 | Cattle, cotton lint, soybeans, broilers | 855 |
| Missouri | 1,560 | 431 | 1,129 | Cattle, hogs, soybeans, dairy products | 1,508 |
| Montana | 559 | 193 | 366 | Cattle, wheat, barley, dairy products | 547 |
| Nebraska | 2,016 | 570 | 1,446 | Cattle, corn, hogs, wheat | 1,961 |
| Nevada | 81 | 15 | 66 | Cattle, dairy products, hay, sheep, lambs | 76 |
| New Hampshire | 54 | 13 | 41 | Dairy products, eggs, cattle, greenhouse nursery | 57 |
| New Jersey | 250 | 153 | 97 | Dairy products, greenhouse nursery, eggs, tomatoes | 250 |

Continued—

Table 7.—Cash receipts from farm marketings —Continued

| State | 1970 (preliminary) | | | | Total cash receipts for 1969 |
|---|---|---|---|---|---|
| | Total | Crops | Livestock and livestock products | Principal commodity in order of cash receipts | |
| | *Million dollars* | | | | *Million dollars* |
| New Mexico | 461 | 91 | 370 | Cattle, dairy products, cotton lint, hay | 395 |
| New York | 1,117 | 302 | 815 | Dairy products, cattle, eggs, greenhouse nursery | 1,092 |
| North Carolina | 1,544 | 919 | 625 | Tobacco, broilers, eggs, hogs | 1,425 |
| North Dakota | 681 | 417 | 264 | Wheat, cattle, dairy products, barley | 749 |
| Ohio | 1,323 | 555 | 768 | Dairy products, cattle, hogs, soybeans | 1,296 |
| Oklahoma | 1,058 | 234 | 824 | Cattle, wheat, dairy products, hogs | 941 |
| Oregon | 562 | 294 | 268 | Cattle, dairy products, wheat, greenhouse nursery | 558 |
| Pennsylvania | 1,040 | 263 | 777 | Dairy products, cattle, eggs, mushrooms | 996 |
| Rhode Island | 21 | 10 | 11 | Dairy products, greenhouse nursery, potatoes, eggs | 21 |
| South Carolina | 442 | 262 | 180 | Tobacco, soybeans, eggs, cattle | 412 |
| South Dakota | 1,012 | 200 | 812 | Cattle, hogs, dairy products, wheat | 976 |
| Tennessee | 707 | 269 | 438 | Cattle, dairy products, tobacco, soybeans | 667 |
| Texas | 3,137 | 1,191 | 1,946 | Cattle, sorghum grain, cotton lint, dairy products | 3,047 |
| Utah | 225 | 43 | 182 | Cattle, dairy products, turkeys, sheep, lambs | 208 |
| Vermont | 163 | 15 | 148 | Dairy products, cattle, eggs, forest products | 155 |
| Virginia | 596 | 262 | 334 | Dairy products, cattle, tobacco, peanuts | 576 |
| Washington | 792 | 501 | 291 | Wheat, dairy products, cattle, apples | 815 |
| West Virginia | 111 | 27 | 84 | Cattle, dairy products, apples, eggs | 105 |
| Wisconsin | 1,610 | 231 | 1,379 | Dairy products, cattle, hogs, corn | 1,542 |
| Wyoming | 235 | 35 | 200 | Cattle, sheep, lambs, sugarbeets, dairy products | 231 |
| United States | 49,231 | 19,636 | 29,595 | Cattle, dairy products, hogs, corn, soybeans | 48,117 |

and selling that turn the wheels of an enormous agricultural business and food and fiber marketing complex.

Farms in the highest class by value of farm sales—$40,000 or more yearly—represented 7.6 percent of total farm numbers in 1970. Their realized net income per farm averaged $25,664. In the aggregate they received

Table 8.—Farmers' 1970 incomes, average per farm

| Value of sales | Number of farms | Realized net farm income[1] | Off-farm income | Total income including nonmoney income from farm food and housing[1] |
|---|---|---|---|---|
| | *Thousands* | *Dollars* | *Dollars* | *Dollars* |
| All sales classes ..... | 2,924 | 5,374 | 5,833 | 11,207 |
| $40,000 and over .... | 223 | 25,664 | 5,803 | 31,467 |
| $20,000 to $39,999 .. | 374 | 9,962 | 3,503 | 13,465 |
| $10,000 to $19,999 .. | 513 | 6,208 | 3,452 | 9,660 |
| $ 5,000 to $ 9,999 .. | 390 | 3,492 | 4,984 | 8,476 |
| $ 2,500 to $ 4,999 .. | 260 | 2,049 | 5,465 | 7,514 |
| Less than $2,500 ..... | 1,184 | 1,059 | 7,954 | 9,013 |

[1]Includes government payments. Realized net farm income, used here, does not include inventory change.

36.4 percent of the total realized net farm income. Farms selling $20,000 to $39,999 worth of agricultural products in 1970—12.8 percent of all farms—received 23.7 percent of farm net income, or $9,962 per farm. Farms with sales of $10,000 to $19,999 made up 17.5 percent of all farms and, had a realized net farm income amounting to 20.3 percent of the total, an average per farm of $6,208.

These three top sales classes—an estimated 1,110,000 farms—accounted for $47.4 billion in cash receipts (including direct government payments) of the $52.9 billion total of all farms in 1970. The three top groups with annual sales over $10,000, comprising 37.9 percent of all farms, accounted for 89.5 percent of the cash receipts and 80.4 percent of realized net farm income.

The number of farms with at least $10,000 yearly sales gained 33 percent from 1960 to 1970. Farms grossing less than $10,000 declined by 42 percent.

The $5,000 to $9,999 sales group had cash receipts of $3.1 billion in 1970, which was 5.8 percent of the national figure. Net income was about $1.3 billion, or 8.2 percent. Per farm, they averaged $3,492. This group made up 12.7 percent of all farms.

Cash receipts for the $2,500 to $4,999 class (8.9 percent of all farms) were $1.1 billion (2.1 percent). Realized net incomes totaled $533 million, or 3.4 percent. The group averaged $2,049 per farm.

In 1970, the average net farm income of farms in the lowest sales class (under $2,500) was $1,059. On the average, these farms, 40.5 percent of the total number of farms, received nearly eight times as much off-farm income—$7,954. Many of the 1.2 million farms with under $2,500 yearly sales had substantial off-farm incomes. Some of these are part-time farms. Their operators depend upon nonfarm work for a substantial part of their

income, or they are retired or semi-retired and occupy farms primarily as residences. Others in this low income group are subsistence farms whose operators and families are underemployed and live below the poverty level of income.

These 1.2 million farms, 40.5 percent of the total number, received 8.0 percent of the $15.7 billion total realized net income from farming in the United States in 1970.

### 18. Family-Controlled Farming Operations

A family-controlled farm business is much like any other business in which an individual or several members of a family own a part or all of the assets and make most of the business decisions. Unlike the business organizations in which management is hired by stockholders, farm businesses are predominantly closely held; ownership and management are not separated.

The source of the labor used in a farm business may also be used to distinguish between those farms where the operator and his family provide more than half of the labor—family farms—and other farms where more than half of the labor is hired. Using the source of farm labor as a criterion, 95 percent of all farms hired less than 1.5 man-years of labor and can be classified as family farms. The remaining 5 percent of the farms are also predominantly family-controlled businesses, but the operator and family members perform only a small part of the total labor required. These farms are much larger than family farms; nearly two-fifths of the total value of all farm products sold in 1969 was produced on such farms.

Family businesses, whether engaged in farming or some other business activity, can be organized in three different ways. The most common is the sole proprietorship. In this form of business organization, an individual or married couple is responsible for operating the business. Of all tax returns reporting income from farming in 1968, 96 percent were sole proprietorships.

The partnership is the next most important form of business organization for farm businesses. About 3 percent of the farm tax returns are from such businesses. Typically, partnerships include a father and one or more sons or other close relatives. Each member of the partnership contributes some of the capital, shares in management, and in earnings or losses in proportion to his contribution. Farm businesses organized as partnerships tend to be larger than sole proprietorships because the resources of several individuals can be combined, and additional labor and management is provided by the partners.

The third form of business organization is the corporation, which has a legal identity apart from its shareholders. Any business can be incorporated under the laws of the State in which the organizers choose to file articles of incorporation. Because it is a separate legal "person," it can conduct business in the name of the firm, it provides limited liability to its shareholders, and it can continue to exist even though one or more shareholders may die. Shares in the business may be transferred by sale or gift, and a different set of tax laws apply than for sole proprietorships and partnerships.

According to tax returns, there were 20,000 corporations whose principal business was farming in 1968. One-third of these were taxed as partnerships (under special provision of the tax law), and hence had not more than 10 shareholders. Most of the remaining farm corporations are also family-controlled. Only about 100 have their stock widely held outside of the family or the original group of individuals who founded the businesses.

A special USDA survey of farm corporations in 1968 showed that they represented about 1 percent of all commercial farms in that year and accounted for 7 percent of the land in farms and 8 percent of gross sales of farm products. More than 80 percent were owned by one person or a family group. The largest number of corporations were found in California, Florida, and Montana.

### 19. Land Tenure

The four major land tenure forms are: (1) full owners—those who own all of the land they operate, (2) part-owners—those who own a part and rent a part, (3) full tenants—those who rent all of the land they operate, and (4) managers—those who operate a farm or farms owned by others and are paid a wage or salary for services rendered.

In 1964 (the latest data available) full owners owned and operated 319 million acres, or 29 percent of all land in farms. The owned portion of the land operated by part-owners totaled 284 million acres or 26 percent of total farmland. Thus, 55 percent of all land in farms was operated by its owners.

The number and proportion of farms operated by tenants in 1964 was the lowest since tenure data were first collected in 1880. Tenants operated 17.1 percent of all farms and 13 percent of the land in farms in 1964. Sharecroppers have been an important class of tenant farmers in the South, but their number has declined from 776,000 in 1930 to 121,000 in 1959. They were not identified as a group in the 1964 census, but there were probably no more than 40,000 at that date. This form of tenancy has been largely replaced by hired labor to operate highly mechanized cotton farms. Those that remain are found chiefly on tobacco farms. The number of manager-operated farms has always been small and totaled only 15,088 in 1964. However, the average size of manager farms was 4,146 acres and gross sales averaged $163,000. Many of these farms represent incorporated family businesses in which the manager is a major shareholder. Others are owned by corporations which hire a manager's services.

The details of rental arrangements vary greatly, but three basic types can be identified. Rental of land for a share of the crops grown is the most common, followed by cash rental, and livestock-share rental.

Under crop-share arrangements, the landlord typically pays for one-third or one-half of the seed, fertilizer, and certain other production expenses, and receives a corresponding share of the crops. He also pays the real estate taxes, maintains buildings, and pays for permanent improvements to the land.

Under cash rental, the renter pays a fixed dollar amount per acre or for the entire farm, pays for all operating expenses, and keeps all the crops and livestock he produces. The landlord pays the real estate taxes and keeps up the buildings.

Under livestock-share rental arrangements, the landlord and tenant each jointly own certain classes of livestock and machinery that are directly associated with the livestock enterprise and share operating expenses and net income.

### 20. Specialization

Constant advances in production technology and changes in market demands are the major forces leading to increased specialization in farm production. Even the traditional corn-livestock farms of the Midwest have felt the pressures to shift to either cash grain or to livestock. The general farm which produces a half-dozen main products is rapidly fading.

Specialization has developed to a greater degree in livestock production than in crop production. Whereas eggs, chickens, and turkeys were once sideline enterprises on millions of farms, these items are now produced by a relatively few farms raising nothing else. About two-thirds of the broilers in 1968, for example, were under the control of 46 firms that provided the baby chicks, contracted for growing them, provided feed and supervision, and processed the live birds for sale. The actual number of broiler growers would be in the thousands, of course, but about 95 percent of total broiler production now takes place through such contractual arrangements.

Egg production has likewise become concentrated in a relatively few large specialized operations. In 1964, only 5,550 farms had 10,000 or more laying hens, but this group produced 40 percent of all eggs. A significant number of new egg "factories," containing 100,000 to 1 million hens, have been constructed since 1964.

More than one-half (55 percent) of the production of fed beef now comes from specialized feedlots where young cattle weighing 500-700 pounds are fed until they reach about 1,000 pounds. In 1970, fewer than 700 such feedlots with a capacity of 4,000 head or more marketed 44 percent of the 24.9 million head of fed cattle sold. The rest of our national supply of fed beef comes from about 200,000 feedlots on typical farms where both the calves and feed are raised or the farmer purchases 50 to 100 head of feeder cattle to consume the grain he raises.

Fruits, such as citrus and apples, and vegetables for canning and freezing are produced chiefly by specialized farms on a substantial scale. In 1964, for example, one-half of the total acreage of orchards, groves, and vineyards was accounted for by 7,500 farms having 100 acres or more. The production of potatoes also has become a specialized operation, with about 6,500 farms producing about 80 percent of the total.

## 21. Contract Farming

A contract to produce and deliver a farm commodity is basically similar to the contractual arrangements that are widely used in the industrial world. One firm, in this case a farmer, agrees to plant, care for, and deliver the production from a given acreage of corn or peas to the canning plant. Or he agrees to care for a specified number of broilers, hens, or turkeys and turn over the birds or eggs to the processing or marketing firm.

The chief difference between contractual arrangements for farm products and for manufactured products is the greater involvement, and often control, of the contracting firm in the actual production. The contractor may specify the variety of seed to be used, the particular strain of broilers or laying hens, the kind of fertilizer or feed to be used, and other specific practices the producer must follow. The contractor may go even further and provide all the inputs needed and pay the producer a guaranteed minimum for his labor and use of his buildings and equipment.

Contracts involving farm products can range all the way from the above type of contract to one in which the farmer simply agrees in advance to sell a certain amount of a product to a particular buyer. The price may be determined in advance or it may be based upon a formula which takes into account the going market price at the time of delivery.

A high percentage of the production of broilers, eggs, turkeys, sugarbeets, fruits, and vegetables has long been involved in various kinds of contractual arrangements. In recent years, the technique has been applied to cattle feeding, hog production, and certain feed crops and forage. Commercial feedlots will feed out the calves raised by cattlemen; a feed manufacturer will make contracts with local farmers to produce feeder pigs or raise market hogs. Commercial feedlots often contract with nearby farmers to raise forage needed in the feedlot or to deliver feed grains on a regular schedule.

Each party to a contract is seeking some advantage in the arrangement. The producer often receives technical advice, financing for the production period, and is assured a market outlet for his products. The contractor hopes to get a product that better meets his requirements for processing and marketing, delivered on a schedule that will permit more efficient use of his plant and labor.

# III. FOOD MARKETING

## 22. Cost of Food Services and Distribution

The bill for marketing farm foods amounted to $68.5 billion in 1970. This figure covered all charges for transporting, processing, and distributing foods that originated on U.S. farms. It represented about two-thirds of the $101.6 billion consumers spent for these foods. The remaining third, $33.1 billion, represented the payment or gross return that farmers received.

The cost of marketing farm foods has increased considerably over the years, in part because of rising price levels but also because of the growing volume of food and service provided. In 1960, the cost of marketing farm foods amounted to $44.2 billion. In the past decade the cost of marketing rose $24.3 billion, or about 4.4 percent per year. In 1970, the marketing bill rose 8 percent, reflecting the inflationary pressures in the economy.

About half of the increase in the marketing bill since 1960 can be accounted for by added volume of food marketed that accompanied the growth in population. Rising costs of inputs, particularly labor, bought by marketing firms accounted for another third of the increase in the bill. These rising costs have been the principal factor affecting the rise in food prices.

The addition of food services per unit of product marketed increased the cost of food marketing by about one-sixth since 1960. Consumer services take many forms, including check cashing, adequate parking facilities, and so-called convenience foods with their built-in maid and chef services. Of significance also was the added cost of services provided in connection with more away-from-home eating. Operating costs in public eating places typically accounted for over half of the retail value of food served, reflecting in large part the cost of food preparation and serving.

The cost of labor is the biggest part of the total food marketing bill. Labor used by assemblers, manufacturers, wholesalers, retailers, and eating places cost $32 billion in 1970. This was 9 percent more than in 1969 and 17 percent more than in 1968. Labor costs have risen rapidly in recent years, largely from increases in wages and salaries. Improvements in output per man-hour or productivity slowed significantly in 1969-70 and offset a very small part of the rise in hourly earnings of food marketing employees. In contrast, over the past decade increases in output per man-hour have offset about half of the rising cost of labor.

Between 1959 and 1969, the number of workers in food processing and retail food stores remained about constant. But the number of workers climbed 28 percent in eating places and 16 percent in wholesaling and assembling. The total number of food marketing workers in 1969 was 12 percent greater than a decade earlier.

### 23. Food Prices and Expenditures

Food prices have risen about the same rate as other items in the cost-of-living index in the past decade. Prices of goods and services, excluding food, increased 36 percent between 1957-59 and 1970. Transportation was up 31 percent; housing, 36 percent; personal care, 31 percent; medical care, 65 percent. Food prices (including meals served in restaurants), rose 32 percent.

Total food expenditures in 1970 were $114 billion, an increase of about 8.9 percent from 1969. The average was $557 per capita, 6.7 percent above 1969. The increase was slightly exceeded by a rise in disposable personal income after income taxes so that 16.6 percent of total disposable income was spent for food in 1970, compared with 16.7 percent in 1969. The percentage of disposable personal income spent for food was 18.1 percent in 1965, 20 percent in 1960, 22.2 percent in 1950, and an average of 24.6 percent for 1947-49.

Consumers buy some foods which do not originate on U.S. farms. Expenditures for food originating on U.S. farms accounted for $101.6 billion, 14.8 percent of disposable personal income in 1970.

Since 1950, the percentage of income going to pay the marketing bill has declined 2.6 percentage points. The percentage of income going to farmers has declined even more—3.9 percentage points. In 1970, the percentage of personal income going to farmers was slightly less than in 1969, but the share going to pay the marketing bill was the same.

In general, 1 hour's work in a factory buys more food today than it did 10 or 20 years ago. Pay for 1 hour's factory labor would buy—

- 2.6 pounds of round steak in 1970; 2.1 pounds in 1960; 1.5 pounds in 1950, or
- 3.5 pounds of bacon in 1970; 3.5 pounds in 1960; 1.9 pounds in 1950, or
- 11.7 quarts of milk in 1970; 9.1 quarts in 1960; 7.5 quarts in 1950, or
- 3.9 dozen oranges in 1970; 3.0 dozen in 1960; 2.9 dozen in 1950.

### 24. The Market Basket

A "market basket" of U.S. farm-produced foods purchased annually by a typical household is used to measure month-to-month changes in retail food costs, returns to farmers, and marketing charges. Quantities and kinds of foods in the market basket are held constant for long periods of time, so that it is possible to measure price changes.

The retail cost of the market basket of farm foods averaged $1,225 in 1970, up about 4 percent from 1969 and 24 percent from 1960. Returns to farmers (farm value) for these foods averaged $480 in 1970, about the same as in 1969 but 25 percent greater than in 1960. The marketing spread or

margin—the difference between the retail cost and the farm value of market basket foods—averaged $745 in 1970, 7 percent more than in 1969. This was the largest yearly increase since 1951. The margin increased every year but one during the past decade and in 1970 was 23 percent higher than in 1960.

Marketing margins for most foods increased sharply in 1970. For example, the margin for pork increased 20 percent, beef increased 9 percent (on top of a 14 percent increase in 1969), eggs increased 11 percent, canned tomatoes increased 13 percent, and bread increased 6 percent.

Farmers received an average of 39 cents of the dollar consumers spent for food in 1970, 2 cents less than in 1969. In the past 10 years, the farmer's share ranged from 37 to 41 cents. The farmer's share depends both upon the prices he receives for his product and the costs of marketing it, the marketing margin. The farmer's share of the consumer's dollar is smaller for a highly processed product such as bread than for a relatively unprocessed product such as eggs. The wide variation of the farmer's share of the consumer's dollar among products is shown below:

From each dollar spent by the consumer, the farmer received—

| | 1960 | 1970 |
|---|---|---|
| | *Cents* | *Cents* |
| Beef, Choice grade | 65 | 62 |
| Butter | 73 | 72 |
| Eggs, grade A large | 66 | 62 |
| Cornflakes | 9 | 9 |
| Bread, white | 15 | 14 |
| Apples | 36 | 28 |
| Potatoes | 35 | 29 |
| Canned corn | 12 | 12 |
| Canned peaches | 16 | 17 |

### 25. Per Capita Food Consumption and Nutrition

The index of per capita food consumption was 6 percent higher in 1970 than in 1960, with most of the rise coming in the last 5 years. This price-weighted index combines the retail weight of foods available for consumption with retail price weights, which measure their importance in the marketplace. The substitution of higher priced foods for lower priced foods was an important factor in the rise in the index. Consumers used 1,448 pounds of food per capita in 1970, about the same as in 1960. During the mid-1960's, total poundage averaged slightly lower.

Meat, poultry, fats and oils, processed fruits and vegetables, and sugar were consumed in much larger quantities in 1970 than in 1960, while consumption of eggs, dairy products, fresh fruits and vegetables, and bakery and cereal products was lower. Per capita consumption of fish, coffee, and dry beans, peas, and nuts was about the same at the beginning and end of the decade. The meat, poultry, and fish groups continued as leading items in the consumer's food budget, but dairy products represented the largest physical quantity.

| Commodity | Quantities | | Relative Importance[1] | |
|---|---|---|---|---|
| | 1960 | 1970 | 1960 | 1970 |
| | *Pounds* | *Pounds* | *Percent* | *Percent* |
| Meat, poultry, fish | 194 | 229 | 30.8 | 33.8 |
| Eggs (shell basis) | 43 | 40 | 4.1 | 3.7 |
| Dairy products (in butter) | 384 | 355 | 18.5 | 16.4 |
| Fats and oils, excluding butter | 41 | 51 | 3.4 | 4.2 |
| Fruits and melons | 168 | 159 | 8.5 | 7.8 |
| Vegetables | 201 | 202 | 10.4 | 10.0 |
| Baby foods and soups | 12 | 14 | 1.2 | 1.2 |
| Potatoes and sweetpotatoes | 109 | 106 | 3.1 | 4.0 |
| Dry beans, peas, and nuts | 17 | 16 | 1.7 | 1.6 |
| Cereal products | 147 | 142 | 7.3 | 6.6 |
| Sugar and sweetners | 109 | 120 | 7.4 | 7.5 |
| Coffee, tea, and cocoa | 15 | 14 | 3.6 | 3.2 |
| Total | 1,440 | 1,448 | 100.0 | 100.0 |

[1] Percent of total cost in terms of 1957-59 prices.

These foods available for civilian consumption represented almost 3,300 calories per person per day in 1970, compared with 3,140 calories in 1960. Most of the increase came from an 8-percent rise in dietary fat. Higher fat content was accompanied by an increase in the proportion of polyunsaturated fats and a decline in the proportion of saturated fats. Protein and carbohydrate content, at 100 and 381 grams, respectively, also was higher in 1970. Other important changes in the nutritive value of food consumption during the 1960's included an 8 percent increase in niacin and a 6 percent gain in iron due primarily to increases in meat, poultry, and fish consumption, and a 4 percent drop in calcium due to decreases in dairy products.

### 26. Trade Blocs

Over the past decade regional economic organizations have had a significant impact on world trade in agricultural and industrial products. Regional economic organizations, depending upon the degree of centralization desired, are defined as free trade areas, customs unions, or common markets. Two or more countries which form a free trade area agree to eliminate tariffs on products which originate in their territories. Each member of the free trade area, however, maintains a tariff schedule for imports from nonmembers.

A free trade area becomes a customs union when the members agree to maintain a common external tariff on imports from nonmembers. A customs union that removes all internal barriers to permit the free flow of labor, capital, goods, services (even energy) becomes a common market.

The European Community (EC), composed of Belgium, France, West Germany, Italy, Luxembourg, and the Netherlands,* is an example of a common market. The European Community was established in 1958. By

*As of early 1972, the United Kingdom, Denmark, Ireland, and Norway had completed preparatory phases required for membership.

1968, tariffs between member countries had been eliminated. A common external tariff now applies to trade with outside countries. A common agricultural policy covering most farm commodities was formulated in an attempt to reconcile differences in national agricultural policies and agricultural price variations. The influence of the EC now extends far beyond the boundaries of the six original members. Greece and Turkey are now associate members. Eighteen African countries—former colonies and trust territories of France, Belgium, and Italy—have been granted special trade and aid benefits by the EC. Other associates are the remaining overseas territories of full members. The members of the East African Community—Kenya, Uganda, and Tanzania—signed an association agreement with the EC in 1968. Morocco, Tunisia, and other African countries have sought special preferences while other countries, such as Iran, Spain, Yugoslavia, and Lebanon, have signed trade agreements with the EC.

The European Free Trade Association (EFTA) was established in 1960. EFTA was originally formed as a "temporary" organization—a second best alternative to a wider European market. There were seven original members: Austria, Denmark, Norway, Portugal, Sweden, Switzerland, and the United Kingdom. Finland joined EFTA as an associate member in 1961; Iceland became a full member in 1970. The objectives of EFTA—to encourage economic cooperation and to facilitate trade among members—are similar to those of the European Community, but the institutional arrangements and regulations are much simpler. Members of EFTA achieved the objective of eliminating tariffs on industrial products originating in member countries 2 years ahead of schedule on December 31, 1967. Each member has retained tariffs against outside countries. Trade in agricultural products has been encouraged, often through agreements which give specific farm exports from one EFTA country preferential treatment or even duty-free entry in another member country.

In the Western Hemisphere, three major economic groupings have emerged: the Latin American Free Trade Association (LAFTA), established in 1960; the Central American Common Market (CACM), 1961; the Caribbean Free Trade Association (CARIFTA), 1968.

Members of LAFTA include Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Mexico, Paraguay, Peru, Uruguay, and Venezuela. Five members of LAFTA, the "Andean Group"—Bolivia, Chile, Colombia, Ecuador, Peru—are now attempting to establish a common market.

The Central American Common Market is struggling to make progress again after the hostility between El Salvador and Honduras, which is considering the implications of continued membership. Other members of CACM are Costa Rica, Guatemala, and Nicaragua. British Honduras is negotiating to become a full member of CARIFTA, which includes all former members of the West Indies Federation—Trinidad and Tobago, Antigua, Barbados, Dominica, Grenada, St. Christopher-Nevis-Anguilla, St. Lucia, Montserrat, St. Vincent, Jamaica, and Guyana.

A number of regional economic groups for trade and development, many overlapping, have been formed in Africa. Some of the more important organizations are the East African Community (Kenya, Tanzania, Uganda), with a common external tariff and virtual free trade between members; the Central African Customs and Economic Union (Cameroon, Central African Republic, Congo-Brazzaville, Gabon), which has a common external tariff with certain exceptions; the Afro-Malagasy-Mauritian Common Organization (Cameroon, Central African Republic, Chad, Congo-Brazzaville, Congo-Kinshasa, Dahomey, Gabon, Ivory Coast, Malagasy Republic, Mauritius, Niger, Rwanda, Senegal, Togo, Upper Volta).

Foreign trade of the USSR and the countries of Eastern Europe is handled by government monopolies. Economic matters of mutual interest for these governments, including foreign trade, are coordinated by the Council for Mutual Economic Assistance (CEMA or COMECON).

The regional groupings are subject to constant change as nations attempt to affiliate with the organizations which seem to serve their best interest and as the organizations attempt to achieve stability in the competitive world. For example, the United Kingdom, Norway, Denmark, and Ireland are seeking full membership in the EC and negotiations are now in progress. Should these negotiations prove successful, special arrangements will likely be sought by most of the remaining members of EFTA.

### 27. Foreign Trade—Exports

The United States is the world's leading exporter of agricultural products. In fiscal year 1970/1971 over one-sixth of the world's agricultural exports were shipped from the United States.

The Nation exported a record $7.8 billion of agricultural products in fiscal year 1970/71—15 percent above the previous fiscal year and 14 percent above the previous record of $6.8 billion in 1966/67. Crops from 1 of every 4 harvested acres were exported. The output of 72 million acres of U.S. cropland moved abroad.

The foreign market provided an outlet for over half of the rice, wheat, and soybeans produced, nearly two-fifths of the cattle hides, and over one-third of the tallow, tobacco, and cotton. It was also important for a number of minor products, taking, for example, one-fifth of the dry edible beans, lemons, nonfat dry milk, and many other items. Feed grain exports represented about one-fifth of the sales by U.S. farmers.

U. S. agricultural exports in 1970/71 required financing, inland transportation, storage, and ocean transportation for around 70 million long tons of cargo—enough to fill 1 million freight cars or about 3,500 cargo ships. In moving these exports, an average of 12 ships departed each day.

Ten States—Illinois, California, Iowa, Texas, North Carolina, Kansas, Indiana, Arkansas, Minnesota, and Nebraska—accounted for 60 percent of the Nation's $6,646 million worth of agricultural exports in fiscal year 1969/70. Illinois, with an estimated exported share of $650 million, was the Nation's

leading export State. California had $556 million, Iowa was third with $505 million, and Texas was fourth with $422 million of attributed exports. Illinois' main exports were feed grains, soybeans, soybean oil, wheat, and protein meal; California's principal exports were fruits and preparations, vegetables and preparations, cotton, and rice; Iowa's chief exports were soybeans, feed grains, protein meal, soybean oil, lard and tallow, meats, and hides; and Texas' main exports were feed grains, cotton, wheat, and rice.

The largest increases by States occurred in California and five North Central States—Illinois, Iowa, Indiana, Kansas, and Nebraska. Their value of exports in 1969/70 was from two to four times greater than the 1953/54 level.

In 1970/71 exports of oilseeds and products totaled a record $2.1 billion. Feed grains, and wheat and flour had a value of over $1 billion each. These three accounted for three-fifths of the total exports of farm products.

Of the $7.8 billion U.S. agricultural exports in 1970/71, a record $6.7 billion were commercial sales for dollars and about $1.1 billion moved under Public Law 480 (foreign currency sales, donations, and long-term supply and dollar credit sales) and Agency for International Development (AID) programs. Exports under government programs were about 14 percent of total agricultural exports in 1970/71.

Although U.S. agricultural exports go to over 150 countries around the world, 71 percent of the exports in 1970/71 went to 15 countries. The chief market area was Europe ($3.1 billion), which includes the European Community ($1.8 billion), the European Free Trade Association ($829 million), and Eastern Europe ($271 million). Asia followed Europe and included Japan ($1,216 million), India ($223 million), and Republic of Korea ($297 million). Other marketing areas and value of exports to them are: Canada ($778 million), Latin America ($728 million), Africa ($290 million), and Oceania ($59 million). Exports to Canada included shipments of $238 million worth of grains and soybeans for storage in Canada and for transshipment to foreign ports, mainly those in the European Community and the European Free Trade Association.

### 28. Foreign Trade—Imports

The United States was the world's second largest agricultural importing country in 1970. West Germany was the largest importer, taking imports valued at $6.4 billion, compared with U.S. imports of $5.8 billion. The United Kingdom was the third largest importer in 1970, with imports of $5.6 billion. Japan was the fourth largest importer of farm products ($4.2 billion); Italy was fifth with $3.4 billion; and France was sixth at $3.3 billion.

U.S. agricultural imports increased 4 percent in value to $5.8 billion during fiscal year 1970/71. Imports exceeded the previous high of $5.6 billion in 1969/70. Imports of supplementary (partially competitive) products totaled $3.7 billion, 7 percent above that of the previous year. Complementary (noncompetitive) items were $2.1 billion, the same as for 1969/70.

Imports of complementary products consisted mainly of tropical products such as coffee, crude natural rubber, cocoa beans, bananas, tea, spices, and cordage fiber. About 40 percent of the agricultural imports—including nearly all of the complementary imports—were free of duty in fiscal year 1970/71.

The United States imports agricultural commodities from more than 150 countries, but in fiscal year 1969/70, 78 percent came from 27 of these countries. They accounted for 80 percent of supplementary imports and 72 percent of the complementary items. Many of our agricultural suppliers were newly developing countries with predominantly agricultural economies. Imports from Brazil totaled $527 million in 1969/70. Mexico was tied with Brazil. Australia and the Philippines ranked third and fourth, with $395 million and $293 million, respectively.

### 29. Balance of Payments

A statement of economic transactions involving the exchange of goods, services, gold, and capital claims between a country and foreign countries is called a "balance of payments."

People in the United States pay other countries for imported goods and for services. Other outlays are made to foreign countries for economic and military assistance, for investments, private remittances, pensions, and other transfers of funds. The United States receives funds from other countries, mainly in payment for exports and services, mutual defense, investment, and repayments on U.S. Government loans. When the outflow of dollars is greater than the inflow of dollars for basic transactions, a deficit occurs.

The balance of payments position of a country can be improved by measures to increase receipts and reduce the volume of payments. Among other measures to improve the U. S. position, the United States is trying to increase exports of agricultural and industrial products. Agricultural exports give the United States substantial balance of payments help. From 1960 through 1970, commercial exports of U. S. farm products brought over $50.6 billion back to the United States. In 1970 alone, commercial farm exports equaled $6 billion. Features of Public Law 480 program (Food for Peace) and other government programs enabled the United States to earn dollars or avoid dollar outlays amounting to $2.9 billion over the 11-year period. These features saved the United States $377 million in 1970. The aggregate contribution of agricultural exports to the U.S. balance of payments for 1960 through 1970 was $53.6 billion. The contribution in 1970 was $6.4 billion.

"Balance of trade" is the difference in value between a country's merchandise exports and imports in a specified period. The balance of trade is called favorable when exports exceed imports and unfavorable when the reverse occurs. The United States has had a favorable balance of trade almost every year since 1874. U. S. domestic exports of agricultural products in calendar 1970 exceeded agricultural imports by $1.5 billion.

## IV. AGRICULTURAL SERVICES

### 30. Agricultural Research

Research has given farmers more control over nature, increased production, and reduced crop risks. Research has led to the development of high-yield seeds, crop varieties that resist drought and diseases, better fertilizers, more effective pest control methods, and effective control of animal diseases. Thousands of scientists in dozens of disciplines are involved. Funds are supplied by Federal, State, and private sources.

The responsibility for much of the public segment of the agricultural research and development program lies with the research agencies of the U. S. Department of Agriculture and with the land-grant college system of State agricultural experiment stations (SAES). The interrelated and cooperative programs of USDA and SAES cover research at over 500 locations in all 50 States and in Puerto Rico, with expenditures totaling in excess of $400 million in 1968.

New research techniques and findings point to ways to control pests. These include the development of new less persistent biodegradable chemicals and the use of natural biological control methods to replace some of the long-lasting chemical control agents which are causing concern to many of the Nation's ecologists, conservationists, and others.

The extensive use of improved chemical fertilizers has increased farm production, but a large part of the fertilizer used is not recovered in the form of crops. Present production practices use only a small fraction of the sun's energy; the use of water is far from fully efficient. Still better seeds and higher yielding disease-resistant varieties of plants and breeds of livestock can yet be produced.

It now takes 10 pounds of feed to make a pound of beef (on the hoof). Beef production costs could be reduced by research leading to improved weaning weights; better feed efficiency; reduced time in feedlots; greater utilization of nonprotein nitrogen; reduced losses in harvesting, storing, and feeding of forages; and better utilization of roughages and crop byproducts.

The number of dollars spent or saved gives only one indication of the value of research. No dollar value can be assigned to the worldwide usefulness and worth of scientific research related to agriculture. The added years of human life made possible by proper nutrition, for example, have no price. At the same time, if the growing world population is to have enough to eat, research must ultimately point the way.

### 31. Forest Management

About 19 percent of the 510 million acres of commercial forest land in

the United States is in the National Forest System. Other Federal, State, and local holdings make up 9 percent. Landholdings of forest industries, farm holdings, and miscellaneous private ownership account for 72 percent. Almost 60 percent of the Nation's commercial forest land is in farm holdings and miscellaneous private ownerships. Forest industry holdings total 12 percent.

About 60 percent of the Nation's annual softwood sawtimber harvest comes from private ownership: 33 percent from private industry lands and 27 percent from farm and miscellaneous ownership. Another 9.4 percent of sawtimber removals is made from other public lands. The remaining 31 percent is the product of the national forests.

Sawtimber harvest from national forests reached a peak of 12.1 billion board feet in fiscal year 1966 and 1968. In fiscal year 1970 the harvest was 11.5 billion board feet; in 1971 it was 10.3 billion board feet.

The 187-million-acre National Forest System, including the national grasslands, is under the management and direction of USDA's Forest Service. It also has the responsibility of carrying on forestry research and offering technical assistance and cooperation in the protection, renewal, and development of State and private forests, and in manufacturing and marketing forest products. Each year more than 120,000 owners of small woodlands receive technical help from the Forest Service through cooperating State Foresters. More than 800 million tree seedlings are distributed for planting on over a million acres of Federal, State, and private lands. In addition, more than 225,000 acres are direct-seeded. Organized forest fire protection, in cooperation with State and private forest owners, has been extended to 521 of the 566 million acres of the non-Federal forest and related lands needing protection in the United States.

Consumption of industrial timber products, except fuelwood, totaled 12.1 billion cubic feet in 1970. Per capita consumption of such timber products was 59 cubic feet. The demand for timber is projected to increase by about 2.3 times by the year 2000.

### 32. Farm Credit Administration

The Farm Credit Administration is an independent government agency that supervises the Cooperative Farm Credit System which obtains its loan funds by selling securities to investors. The Farm Credit System is completely owned and controlled by its users–farmers and their cooperatives. Their net worth in the system is now over $2 billion. The system is made up of 12 Federal land banks and more than 600 local Federal land bank associations, nearly 450 local production credit associations, and 13 banks for cooperatives from which farmers' marketing, purchasing, and business service cooperatives obtain loans.

The Farm Credit System provides more than 20 percent of the credit used by farmers and their cooperatives. Borrowers from other lending institutions

benefit from its operations because other lenders tend to follow the lead of the system in setting the terms of loans.

Owner-members of the system now borrow more than $12 billion a year from the Cooperative Farm Credit System. They currently are using almost $15 billion of credit in outstanding loans from the system.

The Farm Credit Administration operates under a 13-man, part-time policymaking Federal Farm Credit Board. Twelve members of the board are appointed for 6-year staggered terms by the President of the United States. The 13th member is appointed by the Secretary of Agriculture and acts as his representative.

### 33. Credit Through Federal Agencies

USDA's Farmers Home Administration (FHA) provides a supplementary source of credit for farmers and others in rural areas who are unable to obtain financing through conventional lenders. The FHA was created to make loans of higher risk than are considered justifiable by other lending agencies. When an FHA borrower becomes eligible for credit from an independent lender, he is expected to refinance his FHA loan.

Farm ownership loans are designed to help family farmers buy farms or land or enlarge farms; construct or repair buildings; improve land; develop water, forestry and fish farming resources; establish recreation and nonfarm enterprises to supplement income; and refinance debts. Farm ownership loans may be made in amounts up to $100,000 for periods as long as 40 years. The interest rate is 5 percent.

Operating loans are extended primarily to help farmers make needed adjustments and adopt improved farming practices. Funds are advanced for the purchase of equipment, livestock, feed, seed, and fertilizer; for other farm and home operating needs; to refinance chattel debts; to carry out forestry purposes; and to develop income-producing recreational enterprises. The total indebtedness for operating loans is limited to $35,000 for one borrower. Loans are to be repaid over a period not exceeding 7 years. Interest rates are set each year by the U. S. Treasury.

Emergency loans are available to assist farmers affected by natural disaster in designated emergency areas to continue farming. A rural homeowner whose house has been damaged or destroyed by natural disaster may also be eligible for a loan. Interest rates cannot exceed 6 percent.

Rural housing loans are made to farmers and other rural residents of communities not larger than 10,000 in population. These loans may be used to buy existing residences or build new houses and to acquire building sites. Maximum term is 33 years. Interest rates are determined by current government borrowing except that low-income families may qualify for rates as low as 1 percent. Other housing loan programs finance construction of rural rental housing and housing for domestic farm laborers.

Loans are made to public bodies and private nonprofit corporations for rural development projects including irrigation, drainage, and other soil and

water construction facilities, grazing association lands, community recreation facilities, and water and waste disposal systems. Loans are amortized up to 40 years at 5 percent interest. Indebtedness cannot exceed $4 million.

Resource conservation and development loans are made in designated areas. These loans cannot exceed $250,000, and are amortized up to 30 years. Watershed loans are made in designated areas. They cannot exceed $5 million and are amortized up to 50 years. The interest rate on these loans is determined by the Secretary of the Treasury at the beginning of the fiscal year.

Planning grants are made for the development of comprehensive water and sewer plans in rural areas and development grants may be made to pay up to 50 percent of the cost of constructing water and sewer systems.

USDA's Rural Electrification Administration (REA), operating under the Rural Electrification Act of 1936, has made loans of $7.7 billion to about 1,000 rural electric systems. These systems are providing electric service to an estimated 20 million rural people through 6.5 million meters on 1.7 million miles of line in 2,600 of our Nation's 3,100 counties. Most REA borrowers are nonprofit cooperatives. These local systems are repaying their government loans, with interest, on schedule or ahead of schedule. They are adding more than 200,000 consumers to their lines each year.

REA also makes loans to improve and extend telephone service in rural areas, under authority of a 1949 amendment to the Act. More than $1.9 billion in loans have been approved to 629 commercial companies and 238 cooperatives to provide modern dial service for over 2.3 million subscribers.

The Commodity Credit Corporation (CCC) is an important source of credit for many farmers. A CCC nonrecourse loan, with the farmer's stored crop as security, enables him to meet current operating and family living expenses without having to sell into harvest-laden markets at prices below the year's average.

Farmers may also obtain loans to install grain-drying and farm storage facilities that permit them to hold their grain for more orderly marketing. From the start of the program in 1949 to September 1971, such storage and facility loans totaled $547 million and financed more than 1½ billion bushels of farm storage capacity.

### 34. Farmer Cooperatives

At least five out of six farmers use cooperatives for one or more reasons—to market their farm products, handle their farm supplies, and provide themselves with related services.

Farmers have large investments in their cooperatives. The 1971 Balance Sheet of Farming shows farmers' equity in these farmer-owned businesses amounted to $8 billion at the beginning of 1971—up 5 percent from the previous year.

They had invested in their marketing and purchasing cooperatives alone $3.7 billion, more than three times the investment in 1950, and up 2 percent

from that invested in 1970. Investments in rural electric cooperatives, the Federal land bank system, production credit associations, and mutual irrigation, fire insurance and telephone companies accounted for the rest.

The Farmer Cooperative Service makes a survey each year to measure the business activity of farmers through cooperatives

Latest statistics available for 1969/70 show that a total of 7,719 cooperatives did a business of about $19 billion (excluding intracooperative business), 9 percent more than they did the previous year. These cooperatives had total memberships of nearly 6.4 million in 1969/70—with considerable duplication in this figure because many farmers belong to more than one cooperative.

California led all States in total co-op volume, with $2 billion in cooperative business. Minnesota was second with $1.3 billion, and Iowa third with $1.3 billion.

Minnesota led all States in number of cooperatives and memberships—with 938 cooperatives and 562,815 memberships. Wisconsin was second in number of cooperatives with 560, and Texas was third with 501. Wisconsin was second in number of memberships with 419,845, and Indiana was third with 419,800.

Dairy products led in volume of cooperative marketing business—with more than $5.1 billion for the 1969/70 fiscal year. Grain was second with nearly $2.9 billion, livestock and livestock products third with $2.2 billion, and fruits and vegetables fourth with $1.8 billion.

Farmers market their goods as raw products and, to varying degrees, as processed and packaged products.

Farmers obtain nearly every kind of farm supply through their cooperative businesses. FCS figures for 1969/70 show 6,209 cooperatives handled supplies totaling nearly $3.8 billion, an increase of 5.2 percent from the previous year.

FCS estimates indicate that farmers purchase from their cooperatives about 18 percent of the total farm supplies all farmers in this country use. This breaks down to 33 percent of their fertilizer and lime, 28 percent of their petroleum products, 19 percent of their seed, 17 percent of their feed, and varying percentages for other miscellaneous supplies. Farmers obtain special on-farm services through cooperatives that save them time and labor—services such as soil testing and fertilizer and pesticide application.

### 35. Matching Funds

USDA's Matching Fund Program provides incentive to farmers on a local level to improve their marketing methods. In 1970, 44 State departments of agriculture matched State funds with Federal to finance local efforts to find better ways to market agricultural products. Over $3.5 million in Federal and State funds financed 143 projects for improving product quality; expanding a commodity's market; improving production efficiency; developing better marketing information channels; and improving the organizational structure of the marketing process.

### 36. Market Regulatory Laws

USDA administers and enforces a number of regulatory laws that help make marketing more orderly and efficient. The Perishable Agricultural Commodities Act encourages fair trading practices in marketing fruits and vegetables. It prohibits unfair and fraudulent business practices and sets penalties for violations. It provides for collecting damages from any buyer or seller who fails to live up to his contract obligations. By cutting the risks of marketing highly perishable foods, it speeds their reliable delivery to consumers.

The Federal Seed Act complements the seed laws of 50 States by requiring that all agricultural and vegetable seeds sold interstate be truthfully labeled. It prohibits false advertising and prohibits imports of low quality seed.

The Plant Variety Protection Act extends patent-type protection to developers of plants which reproduce sexually, that is, through seeds. Developers of new varieties of such plants as soybeans, cotton, and corn apply to USDA for certificates of protection. USDA examiners determine if the variety actually is novel and entitled to protection. The holder of the certificate can use the courts to protect his "invention" from exploitation by others.

The Agricultural Fair Practices Act enables a farmer to file a confidential complaint with USDA if a processor refuses to deal with him because he is a member of a producer's bargaining or marketing association. This statute makes it unlawful for handlers to coerce, intimidate, or discriminate against producers because they belong to such an association.

Safe storage plays an important part in the orderly marketing of farm commodities, because immediate sale is not always possible or advantageous. Under the U.S. Warehouse Act, USDA operates a voluntary warehouse licensing system and a program of periodic inspections of licensed warehouses and their contents to help prevent deterioration and loss of stored products. USDA also examines those warehouses that store goods on which Commodity Credit Corporation loans have been made.

An efficient and economical transportation system is essential to assure a fair and open market and distribution system for farm products. Transportation costs, which take a big share of the consumer's food dollar, are of particular importance to farmers, both in marketing their products and in getting the supplies they need. The transportation bill is roughly $10 billion annually and is paid in varying proportions by producers and consumers. The goal of USDA activities in this area is to help farmers get the transportation services they need at reasonable rates through informal negotiation with individual carriers or groups of carriers, or through participation in formal rate-making proceedings.

### 37. Marketing Orders

A Federal marketing order gives farmers a means of solving a wide range of marketing problems through unified action.

It is a flexible tool. It can be tailored to the needs of those using it. It is a legal tool. It has the force of law, with government (USDA) assuring an appropriate balance between the interests of agriculture and the general public.

Each partner—producers and government—has a unique role. Producers initiate orders and participate in administering them when the orders so provide. USDA furnishes guidance and sees that the orders are properly administered and enforced.

Marketing order authority is broad and varied, but the basic purpose is to improve returns to producers through orderly marketing.

*Milk:* Federal milk marketing orders establish minimum prices, based upon supply and demand conditions, at which milk handlers or dealers may buy milk from dairy farmers. The order must be approved by at least two-thirds of the dairymen supplying milk to a regional market. A three-fourths favorable vote is required under some circumstances. Public hearings are held on proposed changes.

Operating at the first level of trade—where milk leaves the farm and enters the marketing system—Federal orders lay the foundation for building more stable marketing conditions. They contain a built-in flexibility needed to cope with market changes. To those living in Federal milk marketing areas, this helps assure a steady supply of fresh milk. Most of the Nation's major population centers are within a marketing order area.

*Fruits, vegetables,* and *specialty crops:* Growers of certain fruits, vegetables, and specialty crops (olives, hops, some nut crops are examples) use marketing agreement and order programs* to bring greater stability and orderliness to marketing. There were 49 such programs in mid-1971, covering about $2 billion in crops grown in 37 States.

As in the case of milk marketing orders, orders for fruit and vegetable growers are issued by the Secretary of Agriculture only after a public hearing where producers, marketers, and consumers may be heard, and after approval by the producers by vote. After an order has been issued, the growers and handlers administer it through a committee made up of industry members. Their work is financed by industry assessments.

Most of the programs have quality regulations which keep inferior grades and less desirable sizes of a commodity off the market. Many have quantity regulations which prevent gluts and shortages by keeping the commodity moving in orderly fashion throughout the marketing season. Some programs also have marketing research and development authority, setting up projects to find new market outlets, to improve marketing, and to advertise and to promote consumption.

*Cotton:* Producers of cotton use a research and promotion order to expand markets for cotton and its products and to improve cotton's competitive position in world markets. Producers pay a per bale assessment to finance advertising and promotional projects, as well as research on production, processing, and marketing problems, and on developing and

*See Glossary for definition, page 75.

improving cotton products. The order is administered by a cotton board composed of producers selected by the Secretary of Agriculture from nominations made by cotton producer organizations.

### 38. Production Adjustments

The Agricultural Act of 1970 shifted the emphasis of USDA farm programs, giving farmers more freedom to manage their own businesses efficiently and to take better advantage of marketing opportunities.

This shift toward greater freedom in management decision-making opens new avenues for farmers to improve their incomes. While U. S. consumers continue to be American farmers' best customers, the greatest potential for market expansion lies overseas. The United States has 206 million consumers who are increasing their consumption of farm products by about 1½ percent a year. Overseas, about 2 billion people are increasing consumption by more than 2 percent a year.

Since crop production has risen 25 percent in the last decade—and is still on its way up—market expansion is crucial in improving farmers' incomes.

Japan is an outstanding example of market development. The average Japanese consumer's income has tripled since the 1950's. He now eats four times as much meat, milk, and eggs. From 1960 to July 1971, feed grain exports to Japan doubled to 6.5 million metric tons. In this same period, soybean exports more than doubled to a total of more than 100 million bushels a year. There is still a great potential in the Japanese market, since Japan's per capita consumption of meat, poultry, and vegetable oil is still far below that of Western countries.

Last year export markets provided outlets for the production from one-fourth of harvested crop acres. Holding and expanding the U.S. share in world markets is a promising path to better farm incomes.

The Agricultural Act of 1970 sets a new course for farm programs toward a more market-oriented agriculture. By giving farmers more management options, it increases their range of marketing opportunities. The Act is designed to help producers find and develop new markets, compete vigorously to hold existing markets, maintain competitive pricing, and keep high quality supplies available to buyers. It provides farmers more freedom and responsibility to decide which crops they can grow most efficiently and to adjust their production to meet projected demands. This market-oriented policy encourages farmers to rely more heavily on markets for their income and less on management decisions.

The essential difference between the 1971 set-aside programs and previous farm programs for wheat, feed grains, and cotton is that rigid acreage limitations have been lifted. As a result, farmers are shifting their cropping patterns to get greater efficiency and higher net returns.

The Act continues to protect farmers' incomes—and prevent costly surpluses—through commodity loans at world market levels, through direct income payments, and through land diversion under the set-aside. The Act

applies to wheat, cotton and feed grain crops for 1971, 1972, and 1973. These programs are administered by the Agricultural Stabilization and Conservation Service.

The "set-aside" plan introduced by the Agricultural Act of 1970 replaced the crop-by-crop acreage restriction of earlier programs for shifting land from unneeded crops to conserving practices. The set-aside is designed to let farmers use their land, equipment, and special abilities in more efficient ways for market-oriented production and maximum profit.

Acreage allotments and bases formerly controlled how much of which crops a farmer could grow. Under the new plan, a participating farmer "sets aside" from crop use his share of the national land diversion requirement. His remaining cropland is available for his chosen use, except for certain "quota" crops not affected by the Agricultural Act of 1970 (rice, peanuts, most kinds of tobacco, and extra long staple (ELS) cotton).

Allotments continue to be established according to the farm's production history and related factors. But for wheat, upland cotton, and feed grains, allotments no longer restrict planting, serving only as bases to measure payments earned by the producer. In total, more than 3 million farm allotments are determined yearly.

The producer who joins with others in the attempt to match U.S. output with market demand earns set-aside payments. However, the 1970 Act specifies that no such payment can exceed $55,000 per producer per program crop yearly.

For the "quota" crops, earlier legislation continues to provide for marketing quotas. The Secretary of Agriculture must proclaim these quotas, when supply prospects exceed specified levels. If approved by two-thirds or more of the producers voting in a referendum, the quotas become mandatory for all. When quotas are in effect, production from acreage exceeding the farm's allotment is subject to penalties if marketed.

Proportional shares, which have the effect of allotments, may apply to producers under the Sugar Act.

Producers of crops under marketing quotas are eligible for commodity loans (in which the stored crop is the security for the loan), as are participants in the new wheat, upland cotton, and feed grain programs.

Together the crops to which annual production adjustment programs may apply account for 40 percent of farmers' crop income and 56 percent of U.S. harvested crop acres.

### 39. Conservation Practices Through REAP

The Rural Environmental Assistance Program (REAP) has helped farmers establish more of the permanent conservation practices which they would generally be unlikely to carry out without cost-sharing aid.

REAP emphasizes a broad attack on the environmental problems created by the Nation's farming operations, and permits Federal cost-sharing of various beneficial conservation practices with farmers.

Emphasis is placed on those practices contributing the most to the improvement of conditions for both the general public and farmers. Major considerations in authorizing cost-sharing of any practice are the resulting public benefits such as pollution abatement, enduring soil and water conservation, recreation, wildlife, and open space, as well as the degree of permanency achieved and the enhancement of the environment for all. The previous program, known as the Agricultural Conservation Program (ACP), was restructured to make possible these broader benefits.

### 40. Commodity Loan Programs

Assistance to farmers is provided through commodity loans, payments, or other means for food grains (wheat, rice, and rye); feed grains (corn, grain sorghum, barley, and oats); oil crops (soybeans, peanuts, cottonseed, and flaxseed); wool and mohair; and for cotton, milk, sugar, tobacco, dry edible beans, honey, tung nuts, and crude pine gum.

The loan programs are financed by the Commodity Credit Corporation (CCC) and administered by the Agricultural Stabilization and Conservation Service (ASCS).

Commodity program assistance for wheat, rice, feed grains, cotton, sugar, peanuts, and tobacco is conditioned upon participation in production adjustment programs.

The assistance to farmers is provided at preannounced levels set by statutory formulas. Methods include loans on crops held in storage by farmers, market purchases in times of excess supply, and supplemental payments to wool and sugar producers. Wheat is supported through domestic marketing certificates which, for the farm's share of the domestic wheat food market, have a value equal to the gap between the parity price of wheat on July 1 (first day of the marketing year) and the average price received by farmers during the first 5 months (July-November) of that marketing year.

Sugar Act payments are directed toward maintaining some domestic sugar output. Little or no sugar would be produced by U.S. growers at world prices. Payments are financed by a tax on sugar processed in the United States.

National Wool Act payments are geared to encourage quality as well as a continuing domestic source of wool. Wool tariff receipts finance the payments.

Milk prices are supported mainly by buying excess market supplies of dairy products from processors.

Loans on eligible storable commodities are made to producers through ASCS county offices. Loans on tobacco, peanuts, and naval stores are made to the cooperative associations acting for individual producers.

The loans are "nonrecourse." If market prices rise above the loan level, the producer can pay off his loan, with interest, and sell his crop on the market. If prices fall below the loan level, he can turn the commodity over to CCC in full discharge of the loan.

Loans generally are available during several months following harvest. When a "reseal" program is announced, farmers may also continue their loans on certain grains beyond the first season, thereby earning payments for on-farm storage during the extended reseal period.

The extent to which farmers use the loan program to promote orderly marketing in periods when bountiful harvests tend to depress prices is illustrated by quantities of some principal crops placed under loan or kept under reseal as shown in the following table. The status is shown as of December 31, 1971; all quantities are in thousands of bushels.

| Commodity | 1971 crop | | Total held under loan—unredeemed 1971 plus all under reseal | |
|---|---|---|---|---|
| | Amount placed under loan | Percentage of crop | Amount | Percentage of 1967-71 average crop |
| Wheat | 359,327 | 21.9 | 359,497 | 23.7 |
| Corn | 585,918 | 10.6 | 586,095 | 12.5 |
| Barley | 75,286 | 16.3 | 75,330 | 18.0 |
| Sorghum | 11,072 | 1.2 | 11,076 | 1.4 |
| Soybeans | 140,421 | 12.0 | 140,421 | 12.8 |

In 1971, direct government payments to farmers were about $3.1 billion. The principal payments are grouped below according to principal purposes.

| Production incentives: | *Millions* |
|---|---|
| Sugar | 84 |
| Wool | 69 |
| Total | 153 |
| Acreage set-aside: | |
| Feed grain | 1,054 |
| Cotton | 820 |
| Wheat | 878 |
| Total | 2,752 |

| Conservation and long-term land retirement programs: | *Millions* |
|---|---|
| Rural Environmental Assistance Program and associated conservation aids | 149 |
| Great Plains conservation | 11 |
| Cropland adjustment | 67 |
| Total | 227 |

### 41. Commodity Disposal

In periods of heavy supply and low prices, CCC-owned stocks may build up through takeover of unredeemed nonrecourse loans and through market purchases. These stocks may later be released into the market when supplies are short and prices rise to cover the government's purchase and handling costs. Some of these commodities are also channeled into domestic and foreign food aid programs.

Many outlets are used in moving CCC commodities into use. Some are sold in the United States for dollars. Some are sold for export, either as commercial transactions or under various government programs. Substantial quantities of food commodities are donated to school lunch programs, Veterans Administration and Armed Forces hospitals, needy Indians, and through welfare organizations to other needy persons in the United States and abroad.

During the 1966-70 period, about $8 billion worth of commodities were moved into use through these methods.

| | Food aid | Trade channels | Total |
|---|---|---|---|
| | *Thousand dollars* | *Thousand dollars* | *Thousand dollars* |
| Domestic | 1,149,396 | 3,874,609 | 5,024,005 |
| Foreign | 700,333 | 2,255,460 | 2,955,793 |
| Total | 1,849,729 | 6,130,069 | 7,979,798 |

### 42. Export Services

Of the record U. S. agricultural exports of $7.8 billion in fiscal 1971, more than $1 billion was made possible by the Public Law 480 program (sometimes called Food for Peace). This program is authorized by the Agricultural Trade Development and Assistance Act of 1954.

The program is aimed broadly at helping less developed countries meet immediate food shortage problems, while helping them to become self-sustaining in the future. USDA does this by financing sale of agricultural exports to such countries on extended credit terms and, in some cases, by making donations to meet emergencies or feed the needy. Wheat, rice, and vegetable oils are the main commodities exported; other items include feed grains and cotton.

Public Law 480 strongly emphasizes the principle of "self-help." This means that food aid from the United States must be accompanied by a major effort on the part of recipient countries to provide more of their own food from their own resources and through their own efforts. The program also provides for assistance to countries that decide to undertake family planning programs.

The Department also has several export programs in the commercial trade area. A total of $1.2 billion in commercial exports was financed during fiscal 1971 under two of these programs—CCC Export Credit and barter.

CCC Credit is a short-term commercial credit program, under which credit may be extended for up to 3 years for export of specified commodities. Barter is a payment arrangement through which exports of eligible commodities are used to pay for supplies which government agencies would otherwise purchase for dollars abroad. This helps the U.S. balance of payments.

The Department also promotes commercial export trade by conducting a market development program abroad in cooperation with agricultural export trade associations representing U.S. commodities. This is financed largely with currencies generated by the sale of commodities supplied under the P.L. 480 program.

Exports of a few commodities are assisted by payments made directly to exporters to enable them to sell at competitive prices in world markets. In fiscal 1970, such payments were made on wheat and flour, rice, and tobacco.

### 43. Purchase Programs

USDA's purchase programs make it possible to use rather than store abundant farm commodities. Last year alone, the USDA bought more than a billion pounds of foods to donate to schools, needy families, public institutions, and disaster victims.

Part of the funds for these purchases come from the "Section 32" program which utilizes a law (Public Law 320) allotting 30 percent of all customs receipts to improving the marketing of agricultural products. Additional funds are provided under the Child Nutrition Act to help provide foods for nutritious school lunches. Other foods are provided to these programs, under authority of section 416 of the Agricultural Act of 1949, from the food stocks acquired under the Commodity Credit Corporation's operations.

### 44. Food Assistance Programs

The domestic food programs, administered by USDA's Food and Nutrition Service, are divided broadly into two categories: child nutrition food services and food assistance to families.

Federal contributions in cash and foods to the child nutrition programs in fiscal year 1971 totaled more than $1.1 billion and will benefit more than 25 million children—many of them from needy families—through school lunches, school breakfasts, and year-round and summer special food services in nonschool situations such as day-care centers and recreation programs.

*The National School Lunch Program* encourages schools to serve nutritious and moderately priced lunches. Participating schools agree to serve a lunch which meets one-third to one-half of the daily needs of growing children. It must include a protein-rich food, a generous serving of fruits and vegetables, bread and butter (or fortified margarine), and a half-pint of milk.

Normally, more than three-fourths of the food consumed is purchased locally by schools. The remainder is supplied by the Department of Agriculture. Schools also receive cash reimbursement for each lunch served that meets the Department's nutritional standards.

*School Breakfast Program*—Federal help in cash and donated foods covers most of the food costs. Local communities meet other costs. Children can get

breakfast at a nominal price of 10 to 15 cents. More than 70 percent of the breakfasts are served free to needy children.

*The Special Milk Program* helps schools and other nonprofit child-care institutions make more fluid milk available to more children. The program provides Federal payments for each half-pint of milk served to children at a reduced price. In 1972 this aid will amount to $104.2 million and will stimulate the consumption of more than 3 billion half-pints of milk.

*The Special Food Service Program for Children* provides cash and foods to help food services for preschool children in day-care centers, settlement houses, and other nonprofit institutions, as well as needy school-age children in summer recreation activities. In July 1971 more than 1 million children in summer programs and 151,250 in year-round institutions were participating.

Some 14.0 million people in needy families benefited from USDA food stamps or donated foods at the end of July 1971, compared with 10.7 million in July 1970.

*The Food Stamp Program* increases the consumption of food among low-income families. Under this program, the families exchange the amount of money they would normally be expected to spend for food for coupons of a higher monetary value. The coupons are used to purchase food at prevailing prices at any authorized retail food store. In July 1971 the program was operating in 2,050 areas in 45 States and the District of Columbia. About 10.5 million people were participating.

*The Commodity Distribution Program* is a system under which foods acquired under price support, surplus removal, and special purchase programs are distributed directly to schools, institutions, and needy persons through State governmental agencies. Under this program, foods are donated to State distributing agencies (State governmental departments under agreement with the Department of Agriculture), which in turn distribute the food to eligible outlets and persons. In fiscal 1971 more than 2.4 billion pounds of food worth $570.4 million were distributed. In July 1971 a total of 3.5 million people in family units received this food help.

### 45. USDA Grading Programs

Both buyer and seller in any trade system should have the right to know the quality of what is being sold. By providing uniform terms of quality, USDA grades for food and farm products help protect this right. The buyer has the right to expect a particular quality from USDA Choice beef, USDA grade A eggs, or any other USDA graded product he buys. Likewise, the seller has the right to expect a price for his product commensurate with its quality.

A voluntary grading service is provided by USDA's Consumer and Marketing Service, often in cooperation with State departments of agriculture. A fee is charged for the service. Last year, USDA or cooperating graders helped specify the quality of 65 percent of the total production of beef in the United States; 50 percent of the total fresh fruits and vegetables; 28 percent of shell eggs; 77 percent of the poultry; 71 percent of the butter;

45 percent of the nonfat dry milk; and 40 percent of the canned fruits and vegetables. USDA standards were applied to an even higher percentage of frozen fruits and vegetables (80 percent); cotton (97 percent); tobacco (96 percent); and rice (91 percent).

USDA grades are continually appraised by experts so that they remain realistic. Each year about one-tenth of USDA's more than 500 grade standards for food and farm products are revised to keep the standards up to date with current marketing trends. In addition, new standards are developed as the need arises.

The number of grades for a particular product depends on its variability. While it takes eight grades to encompass the possible degrees of beef quality, only three are needed for turkey.

Grading is more often utilized at the wholesale level than at the consumer level; foods that consumers are most likely to find carrying USDA grade shields are beef, lamb, chicken, turkey, butter, and eggs.

### 46. Meat and Poultry Inspection

All meat and poultry sold across State lines is subject to Federal inspection by USDA meat inspectors, as is meat and poultry sold within the borders of those States that have not developed their own inspection programs for intrastate plants. USDA provides financial and technical aid to States that operate inspection systems for intrastate plants.

In calendar year 1970, USDA inspectors examined more than 118 million meat animals and 3 billion birds and, during later processing, more than 15 billion pounds of processed poultry products and more than 52 billion pounds of processed meat products. Meat and poultry that is unwholesome, adulterated, or mislabeled is kept out of the food supply.

A team of compliance officers maintains a constant vigilance in marketing channels for uninspected meat and poultry, counterfeit inspection stamps and inaccurate labels, and contamination or spoilage of products after they leave the plants.

Each foreign plant that ships meat or poultry to the United States must be certified by USDA, as must the inspection system in the foreign country where the plant is located. U.S. inspectors must visit the plants at least once a year to check on the adequacy of foreign inspection. At U.S. ports of entry, USDA inspectors examine shipments, as an additional safeguard, to see that imported products meet U.S. standards of wholesomeness and proper labeling.

Standards and labeling requirements are important phases of the insepction system. In fiscal 1970 USDA labeling specialists examined for accuracy and completeness more than 107,000 label designs submitted by processors for advance approval.

USDA labeling rules and standards for meat and poultry food products limit the fat content of hot dogs to 30 percent, for example, and provide that corned beef hash must contain at least 35 percent fresh beef, and that the

ingredient statement on products must list the ingredients in order of weight, with the heaviest first.

USDA also gives special attention to monitoring meat and poultry for possible drug, pesticide, and chemical residues. In 1970, Federal inspectors condemned 4.5 million pounds of meat and poultry containing illegal residues.

Improper handling of meat and poultry may result in human health hazards. USDA conducts a public information campaign to alert consumers to this fact. And, should such a hazard arise, a special USDA unit works with local, State, and Federal public health agencies to speed identification of the cause.

### 47. Plentiful Foods Program

USDA's Plentiful Foods Program alerts retailers and consumers to foods which are in unusually abundant supply. This makes it easier for the producer to sell perishable foods which are plentiful. It encourages the retailer to stock larger quantities of the product when it is abundant and likely to be reasonably priced. It often helps the consumer find good buys at the supermarket.

Execution of the program is simple. Each month a committee of USDA specialists analyzes the farm situation and announces a list of plentiful foods for the upcoming month. The list is distributed to retailers, wholesalers, and food page editors of newspapers and magazines.

### 48. Market News

The Federal-State Market News Service reports prices, supply, and demand for most agricultural commodities. The information is provided voluntarily by members of the industry.

Last year, 377 Federal and State market news reporters gathered information from 212 offices located in terminal markets and production areas. About 345,000 individual market news reports were released using all types of media.

The reports were distributed over USDA's nationwide leased teletype system and released to the public through newspapers, radio and television stations, trade publications, and the mails. In addition, farmers have the day's market news at their fingertips since USDA uses automatic telephone answering devices throughout the country. These enable the farmer to dial a number and get an up-to-the-minute recording of market news.

Rapid dissemination of market information keeps farmers informed of current prices so they can decide how, when, and where to best market their product. It keeps shippers informed so they won't ship perishable products to markets already oversupplied. It also lets wholesalers and retailers know where supplies are plentiful and what qualities are available.

### 49. Regulation of Packers and Stockyards

The Packers and Stockyards Act is a fair trade practices law regulating the livestock, poultry, and meat industries. Specifically included are livestock markets (terminal or auction), livestock market agencies, livestock dealers, meat packers and processors, and poultry dealers and processors. The law prohibits unfair, deceptive, discriminatory, and monopolistic trade practices in these regulated industries.

The Packers and Stockyards Act seeks to maintain fair and open competition in the marketing of livestock, poultry, and meat to assure that true market value is received. Livestock markets, buying stations, dealers, packers, and poultry dealers subject to the Act must maintain accurate scales and weigh livestock, poultry, and meats accurately.

Market owners, agencies, and dealers must keep complete and accurate records that disclose the true nature of all transactions. True written accounts of each transaction must be furnished to customers.

Stockyard owners and operators are required to provide reasonable services and facilities at reasonable and nondiscriminatory rates for the use of those selling livestock. Any change in rates must be approved by the Packers and Stockyards Act.

The agency also offers several programs intended to provide a measure of financial protection for livestock producers. These include prompt payment, custodial account, solvency and bonding requirements, and reparations.

### 50. Commodity Exchange Authority

The Commodity Exchange Authority administers the Commodity Exchange Act of 1922, as amended, which provides for regulation of trading and pricing on designated commodity exchanges.

The Commodity Exchange Authority currently supervises trading in futures contracts for 35 commodities: wheat, cotton, rice, corn, oats, barley, rye, flaxseed, grain sorghums, mill feeds, butter, eggs, onions, Irish potatoes, wool, wool tops, fats and oils (including lard, tallow, cottonseed oil, peanut oil, soybean oil, and all other fats and oils), cottonseed meal, cottonseed, peanuts, soybeans, soybean meal, livestock (including live beef cattle, choice steers, live feeder cattle, and live hogs), livestock products (including frozen pork bellies, frozen boneless beef, frozen skinned hams, and hides), and frozen concentrated orange juice. There has been no futures trading recently in 12 of these commodities—namely, barley, cottonseed, cottonseed meal, flaxseed, lard, mill feeds, onions, peanuts, peanut oil, rice, tallow, and feeder cattle.

The agency supervises trading by the direct surveillance of traders' operations based on required daily reports from large traders and commodity brokerage firms, by analysis of price movements in cash commodities and future transactions, and by other procedures. The agency conducts investigations of complaints and apparent violations of the Act, and presents

evidence in administrative proceedings and Federal court cases dealing with prosecutions of persons and firms accused of violating the Act. The agency releases periodic statistical reports on futures trading and the composition of the markets in regulated commodities, and issues other reports on market surveys and studies of futures market conditions.

# V. IMPROVING THE RURAL SOCIAL ENVIRONMENT

## 51. Standard Metropolitan Statistical Areas

The designation, Standard Metropolitan Statistical Areas (SMSA), is increasingly being used in legislation and policy statements.

The terms nonmetropolitan (that is, non-SMSA) and rural, although sometimes used interchangeably, are not synonymous. Except in New England, SMSA's include the county in which a city of 50,000 or more is located and adjacent counties that are economically and socially integrated (that is, 15 percent or more of the work force commute) with the county of the central city. In New England, SMSA's consist of towns and cities rather than counties. *Rural* pertains to residents of communities of 2,500 or less or the open countryside.

The 1960 census indicated SMSA's contain about one-fourth of rural population and non-SMSA's contain about one-fifth of the urban population. There are now 243 SMSA's that include some 453 counties and 16 independent cities.

## 52. Rural Population

The United States today is largely an urban nation. Farm and nonfarm rural people make up about one-fourth of our total population. This fraction has remained fairly steady for the past two decades. Farm people make up less than 5 percent of the U.S. population, and large numbers of them are continuing to leave the farm.

Rural Population[1]

| | Total | Farm | Nonfarm |
|---|---|---|---|
| | *Millions* | *Millions* | *Millions* |
| 1920 | 51.6 | 32.0 | 19.6 |
| 1940 | 57.2 | 30.5 | 26.7 |
| 1960 | 54.0 | 15.6 | 38.4 |
| 1970 | 53.9 | 9.7 | 44.2 |

[1] Rural population, as defined by the Bureau of the Census, includes all people living in the open country and in towns of less than 2,500 inhabitants.

Many small farms simply do not offer enough economic opportunity today, especially for young people. As older farmers pass on, their sons and

grandsons are likely to combine the old place with others to make a large enough unit to be economically attractive, or they are likely to seek part-time or full-time opportunities off the farm.

Nonfarm residents made up 47 percent of the rural population in 1940, 71 percent in 1960, and nonfarm residents are expected to make up 86 percent of the rural population in 1980.

The first U.S. census showing the country had become predominantly urban was in 1920, when the urban population numbered 54.2 million as compared with 51.6 million rural (49 percent). However, in absolute terms the rural population grew from 3.7 million in 1790 to 53.9 million in 1970, using the current definition. Today little more than a fourth of the U. S. population lives in rural areas and less than 20 percent of these 54 million rural residents live on farms and earn at least part of their livelihood from agriculture.

Since World War II, the urban population has grown by about 20 percent or more in each decade, while the overall rural population has remained nearly stationary. From the 1940 level of 30.2 million, the farm population declined to 15.6 million in 1960 (about 50 percent) and to an estimated 9.7 million farm residents in 1970.

On the other hand, the rural nonfarm population, most of whom have little or no connection with agriculture, shifted from 31.2 million in 1950 to 38.4 million (71 percent of the rural population) in 1960.

In the 1960's the rural nonfarm population rose to about 44.2 million and thus had a rate of gain (about 15 percent) somewhat greater than that of the Nation's total population.

### 53. Age and Race

The net migration from the farms has produced many problems of both urban and rural adjustment in recent years. More than a fifth of the urban adult population consists of persons of rural childhood origin. But in many rural areas, the population of childbearing age has been so depleted by outmigration that the average age of the population is considerably above the national average. This is especially true in the central part of the Nation, both North and South.

In 1960, of the 20.5 million Negro and other minority groups in the United States, only 28 percent were rural residents. The figure is not thought to be much above 20 percent now. Except for the American Indians, most Negroes and other minority groups now live in urban areas. In particular, the presence of these groups on farms has been rapidly changing. Between 1960 and 1970, the number of Negroes and other minority races on farms dropped by 64 percent, compared with a loss of 23 percent in the white farm population. The former widespread employment of Negroes in cotton farming as sharecroppers has nearly ended.

### 54. Employment

The rural and other nonmetropolitan areas of the United States gained nearly 5 million nonfarm wage and salary jobs--27 percent of the total additions--in the 1960's. At a growth rate of 3.5 percent per year, this was slightly higher than the 3.2 percent annual increase in wage and salary jobs in the metro areas.

Private nonfarm wage and salary jobs in the goods-producing sector of the nonmetropolitan areas grew at a rate of 3.2 percent annually over the 10-year span--more than 2.5 times faster than the 1.2 percent gain in metropolitan areas. Much of the gain in nonmetro jobs came from the million and a quarter manufacturing workers added, an expansion representing 45 percent of the total (metro and nonmetro) additions to manufacturing employment during the past decade.

Average annual employment in agriculture (farm operators, hired workers, and unpaid family help) fell by 37 percent between 1960 and 1970 (from 7,057,000 to 4,522,000), while total employment of the U. S. civilian labor force increased by about 19 percent.

Information on other significant facets of rural manpower utilization, during the 1960-1970 decade will not be available until data from the 1970 Decennial Census of Population are published.

In 1960, about 51 percent of the rural population 14 years old and over was in the labor force, compared with 57 percent for the urban population. The difference was due principally to the fact that fewer rural than urban women worked for pay.

### 55. Rural Income

Rural family income is below that of urban dwellers, but is substantially higher than that of farm families. The median income of rural families in 1959 was 77 percent of the median income of all U.S. families, and only 71 percent of the median income of urban families. For farm families, median family income was only 57 percent of the U. S. median family income and 53 percent of the urban in 1959.

Income data for rural people as presented above will not be available until statistics on income in 1969 from the 1970 decennial census are published. The most recent data available are therefore presented here on a farm-nonfarm and metropolitan-nonmetropolitan (SMSA-nonSMSA) basis.

The U.S. median income of all families from Current Population Reports in 1969 was about $9,400 compared with about $5,400 in 1959, representing a 5.6 percent growth rate annually. In the same period, U. S. median farm family income increased from $2,799 in 1959 to $6,385 in 1969, growing at an annual rate of 8.6 percent. Progress obviously is being made toward closing the wide income differential that exists between the farm and nonfarm population. (Nonfarm population includes all persons living in urban areas and rural persons not on farms.)

The proportion of families with income under $3,000 in 1969 was greater in the farm population than in other segments of the total population. In the farm population about 20 percent of the families had income of less than $3,000, in comparison with 9 percent for all families with income.

Among nonmetropolitan people as a whole—that is, rural and small city—the average annual earnings of men with year-round employment were more than 20 percent below those of metropolitan men in 1968. The nonmetro men averaged $6,246 compared with $7,998 for the metro men. A similar difference is found in the earnings of metro and nonmetro women workers.

Differences in family median income exist between metropolitan and nonmetropolitan areas. The median family income of the 33 million families of metropolitan areas was $10,261 in 1969, compared with $7,982 for the 18 million families of the nonmetropolitan areas.

The proportion of families with income less than $3,000 in 1969 was greater in nonmetro than in metro areas. In the nonmetro areas, about 14 percent of the families had incomes under $3,000, as compared with 7 percent in metropolitan areas.

### 56. Housing

Housing in rural areas is generally less adequate than urban housing. In 1970, about 2.6 million of the 4.4 million occupied substandard housing units in the United States (about three-fifths) were located outside Standard Metropolitan Statistical Areas (SMSA's). But less than 31 percent of the total occupied housing was located there. Even so, there has been a marked improvement in rural housing since 1960. The number of occupied substandard units outside SMSA's decreased about 49 percent.

Substandard quality of rural housing is strongly correlated with low family income. It is estimated that about two-thirds of the substandard units in rural areas were occupied by families earning less than $3,000 a year. Most of the other substandard units are occupied by families earning $3,000 to $6,000 a year.

Among the most serious rural problems is the persistently poor condition of the homes occupied by the Negro population. In 1970, about one-half of their housing was substandard; they occupied about 30 percent of the substandard units located outside SMSA's, but they resided in only 6.5 percent of the total units there.

### 57. Local Governments

In 1967, there were more than 60,000 units of local government outside Standard Metropolitan Statistical Areas (SMSA's) in the United States, compared with fewer urban (21,000) inside SMSA's.

Number of local governments in nonmetropolitan areas, 1967

| Type of government | Number |
|---|---|
| Counties | 2,645 |
| Municipalities | 13,071 |
| School districts | 16,764 |
| Townships | 13,850 |
| Special districts | 14,215 |
| Total | 60,545 |

Although many people argue that some rural counties could provide services at lower costs if they would get together with their neighbors, the number of U.S. counties has not changed appreciably in many years, nor have numbers of townships and municipalities. School districts, however, are being consolidated rapidly. The number of school districts outside SMSA's fell from 29,000 in 1962 to only about 17,000 in 1967.

Special districts engage in a variety of activities from conservation to fire protection; their numbers are increasing. In the aggregate, nonmetropolitan local governments spent $18 billion in 1967, 27 percent of total expenditures by all local governments. Education, with about half the local budget, ranked first in importance. Highways, health and hospitals, and public welfare followed.

Expenditures of Nonmetropolitan Local Governments, 1967

| Function | Expenditures |
|---|---|
| | *Million dollars* |
| Education | 8,957 |
| Highways | 1,757 |
| Public welfare | 780 |
| Hospitals | 789 |
| Health | 110 |
| Police and fire protection | 658 |
| Sewers | 326 |
| Parks, recreation and natural resources | 266 |
| Other | 4,191 |
| Total | 17,834 |

Roughly, one-third of the revenues to support these expenditures in 1967 came from Federal and State grants-in-aid and shared taxes. About one-third came from taxes; the property tax alone accounted for more than 90 percent of the taxes. The remainder came from charges for various services and miscellaneous revenues. Revenues and expenditures of nonmetropolitan local governments have nearly doubled in the last 10 years.

### 58. Differential Tax Assessment

Urban growth has led to steadily increasing land values around cities and steadily increasing tax assessments on farms located there. In an attempt to provide relief, legislatures in a number of States have provided for differential

assessment of farmland. These laws have taken three general forms. Under the simplest preferential assessment, any land which meets the minimum requirements for being used in agriculture is assessed at its value for agriculture even though it may be worth several times that amount for residential or business uses. The second variant, deferred taxation, provides for assessment on the same basis as preferential assessment, but the assessor also records the full value of the land as he would have assessed it had the deferred tax law not been on the books. If the land changes to nonagricultural use, taxes are collected on the difference in assessed values for the last 3 or 5 years, depending on the State. The third variation, in active use in Hawaii and California, calls for binding contracts between the landowner and the State or local government, under which the landowner agrees to keep his land in agricultural use and the State agrees to assess the property on that basis. The landowner typically must give 5 years' notice of his intention to change land use, and taxes are increased during those 5 years. This arrangement avoids the charge often levelled at preferential assessment, that the public is giving up tax revenue without being sure it is obtaining anything in return.

### 59. Community Facilities and Services

Community facilities and services are often less satisfactory in rural areas than in urban areas. In many instances, these are qualitative judgments. Even so, there are certain objective measures which may indicate the quality of living. Those relating to water and sewer and medical facilities provide two good examples.

Adequate water and sewer systems are considered a prerequisite for maintaining a healthy society. In 1968, about 33,000 communities lacked a public water system and 43,000 lacked a public sewer system. Almost all of these communities were in rural America. Data are not available to indicate how many of these communities have adequate private wells and septic tanks, but these sources often are inadequate.

Medical services in rural areas are generally less adequate than those in urban areas. The number of hospital beds per 100,000 persons was 370 in nonmetropolitan areas in 1969 as compared with 401 in metropolitan areas. In addition to the lack of facilities, there were only about one-half as many physicians per 100,000 persons in nonmetropolitan as in metropolitan areas. Yet one of the better measures of the status of health of a society—the infant mortality rates—showed infant mortality in 1967 was only about 9 percent higher in nonmetropolitan than in metropolitan areas.

### 60. The Quality of Rural Education

The level of educational attainment is lower among rural persons than urban dwellers. In 1969, the median number of years of schooling completed by persons over 25 years of age was 9.9 years for farmers and 11.6 years for

nonfarmers living in nonmetropolitan areas. In metropolitan areas, the median was 12.2 years.

Differences in the level of educational attainment of rural and urban young people have narrowed in recent years. In 1969, the median years of schooling for persons 25 to 29 years of age was 12.4 in nonmetropolitan areas and 12.6 in metropolitan areas. But educational differences for certain groups are still sharp. Only about one-half of the black women who were 25 to 29 years of age and living in nonmetropolitan areas had completed more than 11 years of schooling in 1969. In comparison, black women in this same age grouping who were living in metropolitan areas completed 1.5 more years of schooling.

These differences could result from migration of the better educated, but test results also show lower levels of attainment by students in school. For example, in 1965, national tests showed the reading, verbal ability, and mathematic comprehension of the nonmetropolitan students in the 12th grade were about one grade level below their metropolitan counterparts.

Part of the difference in the quality of education between urban and rural areas is related to levels of educational expenditures. In fiscal year 1966-67, per pupil operating expenditures in nonmetropolitan areas were about 15 percent lower than in metropolitan areas. Outlays for capital improvements showed even greater disparity, being 20 percent lower. Some of these differences are due to lower incomes and lower tax bases in rural than in urban areas. Tax levies often take a larger percentage of residents' incomes in rural than in urban areas.

### 61. Interlocal and Regional Cooperation

Cooperation between units of government has been suggested as a desirable means of providing services not otherwise available. For rural areas, it seems especially useful for overcoming difficulties caused by small and scattered populations, inadequate financial resources, and areas that are too small for administrative efficiency.

If a community wants to attract new residents and new business, it may find it beneficial to cooperate with other towns to furnish the services it cannot provide by itself. One of the most common forms of cooperation is sharing of fire departments and emergency police protection. But nearly every local government function may be carried out by some form of agreement among communities, including sharing educational or library facilities, building an airport, or simply exchanging information.

Rural communities work together in a variety of cooperative ways to upgrade services. Mutual aid is one way. That simply means coming to one another's assistance when the occasion arises. Mutual aid is often used for fire and police protection. A second approach is for one community to sell a particular service to another community. Still another cooperative method is to cooperate through joint action. Large projects, such as building and operating a hospital or an airport, can be done by joint action, sometimes

involving establishment of a new authority, joint committee, or governing board. Various methods of dividing costs are worked out for such projects.

In a national effort to promote development of the human and economic resources of rural areas, many counties in the United States are finding it beneficial to join hands in forming multicounty planning districts. These districts vary in size from two or three counties to as many as 10 or 12.

More than 30 States have officially designated multicounty planning and development districts, and others are expected to follow suit. In addition, there are many multicounty districts operating to serve special purposes, as in the case of Resource Conservation and Development (RC&D) districts.

The Departments of Agriculture and Housing and Urban Development (HUD) have actively promoted the formation of the nonmetropolitan district programs. For example, during fiscal 1969 and 1970, USDA's Farmers Home Administration made grants of $2,343,000 to 38 multicounty area agencies for areawide water and waste disposal planning in rural areas. The HUD grants for comprehensive planning by nonmetropolitan planning districts, economic development districts, and local development districts increased from $1,220,000 in 1969 to $2,608,999 in 1970—a 2-year total of nearly $4 million.

### 62. Recreation

Recreation is an increasingly important use of rural lands. About 170 million recreation visits occurred on national forests in 1970. Use, as measured on a selected sample from the nearly 12,000 developed Forest Service recreation sites with a capacity to handle 1.3 million persons at one time, has increased 6 percent annually in recent years. Other recreation uses on other parts of the forests have increased proportionately. Other public resource managing agencies—both Federal and State—report comparable growth in use of their recreation facilities.

Recreation use of private lands demonstrates a parallel development. Thousands of farm families and other rural owners each year convert part or all of their lands to recreation uses, either for pleasure or profit. The demand for second home sites on private lands continues the trend for converting suitable rural lands to recreation uses. More than 2,500 landowners and operators established or expanded commercial recreation enterprises with assistance from USDA's Soil Conservation Service (SCS) in fiscal 1970. Nearly 30,000 other private noncommercial recreation facilities and 600 public ones also were established or expanded with SCS help. Many others across the country, both public and private, were developed or expanded without this aid.

While second homes and other developments such as commercial resort complexes, golf courses, and swimming pools provide visual signs of recreation use, the bulk of outdoor recreation by most Americans still involves the simple, inexpensive, and extensive enjoyment of nature in the countryside. Picnicking, hiking, driving and walking for pleasure, camping, and just being outdoors with nature are the kinds of recreation people experience most frequently on rural lands.

# APPENDIX

SUMMARIES OF STATE AGRICULTURE

GLOSSARY

SELECTED REFERENCES

Table 9.—Summaries of State agriculture

| State | 1971 | | | | | 1970 | |
|---|---|---|---|---|---|---|---|
| | Farms | Land in farms | Percentage of land area in farms | Average size per farm | Value of land and buildings per farm | Gross income per farm | Realized net income per farm |
| | *Number* | *Thousand acres* | *Percent* | *Acres* | *Dollars* | *Dollars* | *Dollars* |
| Alabama | 84,000 | 14,500 | 46.7 | 173 | 39,700 | 10,585 | 3,510 |
| Alaska | 310 | 1,835 | .5 | 5,919 | --- | 16,603 | 1,484 |
| Arizona | 5,800 | 43,200 | 55.8 | 7,448 | 418,700 | 122,389 | 26,803 |
| Arkansas | 74,000 | 17,900 | 49.6 | 242 | 70,100 | 16,693 | 4,864 |
| California | 56,000 | 36,600 | 36.9 | 654 | 393,800 | 82,076 | 16,321 |
| Colorado | 30,000 | 39,000 | 57.6 | 1,300 | 124,400 | 42,381 | 5,745 |
| Connecticut | 4,600 | 600 | 23.1 | 130 | 115,400 | 38,406 | 10,184 |
| Delaware | 3,600 | 690 | 56.5 | 192 | 103,700 | 42,497 | 12,446 |
| Florida | 34,000 | 16,200 | 44.5 | 476 | 179,000 | 39,458 | 13,042 |
| Georgia | 76,000 | 17,000 | 48.0 | 224 | 59,900 | 17,286 | 5,451 |
| Hawaii | 4,300 | 2,340 | 56.2 | 544 | --- | 51,544 | 18,604 |
| Idaho | 28,200 | 15,500 | 28.9 | 550 | 105,900 | 26,321 | 7,738 |
| Illinois | 124,000 | 29,300 | 83.8 | 236 | 122,300 | 23,856 | 6,169 |
| Indiana | 97,000 | 17,700 | 77.4 | 182 | 82,000 | 18,306 | 5,506 |
| Iowa | 139,000 | 34,400 | 94.1 | 247 | 104,500 | 30,327 | 8,481 |
| Kansas | 86,000 | 49,900 | 95.7 | 580 | 96,600 | 23,745 | 4,877 |
| Kentucky | 120,000 | 16,700 | 63.8 | 139 | 36,000 | 8,796 | 3,613 |
| Louisiana | 52,000 | 12,200 | 36.0 | 235 | 94,300 | 14,751 | 5,466 |
| Maine | 9,700 | 2,300 | 13.1 | 237 | 35,800 | 27,028 | 7,307 |
| Maryland | 18,000 | 3,200 | 49.9 | 178 | 137,000 | 24,761 | 6,877 |
| Massachusetts | 6,200 | 720 | 18.0 | 116 | 73,900 | 29,107 | 7,145 |
| Michigan | 85,000 | 13,000 | 37.4 | 153 | 54,300 | 12,673 | 2,858 |
| Minnesota | 122,000 | 32,000 | 60.7 | 262 | 66,300 | 18,372 | 5,104 |
| Mississippi | 93,000 | 17,400 | 58.6 | 187 | 50,200 | 12,237 | 4,650 |
| Missouri | 141,000 | 33,000 | 74.0 | 234 | 61,000 | 13,140 | 3,904 |
| Montana | 25,800 | 67,100 | 70.6 | 2,601 | 154,800 | 25,745 | 7,174 |
| Nebraska | 71,000 | 48,100 | 97.6 | 677 | 107,400 | 31,314 | 8,136 |
| Nevada | 2,000 | 9,000 | 14.9 | 4,500 | 262,700 | 41,670 | 9,330 |
| New Hampshire | 3,500 | 720 | 15.6 | 206 | 42,900 | 17,158 | 1,667 |
| New Jersey | 8,400 | 990 | 24.0 | 118 | 130,800 | 33,607 | 7,084 |

Continued—

Table 9.—Summaries of State agriculture—Continued

| State | 1971 | | | | | 1970 | |
|---|---|---|---|---|---|---|---|
| | Farms | Land in farms | Percentage of land area in farms | Average size per farm | Value of land and buildings per farm | Gross income per farm | Realized net income per farm |
| | *Number* | *Thousand acres* | *Percent* | *Acres* | *Dollars* | *Dollars* | *Dollars* |
| New Mexico | 13,200 | 48,000 | 61.3 | 3,636 | 168,700 | 38,224 | 11,433 |
| New York | 57,000 | 11,500 | 40.1 | 202 | 58,200 | 21,961 | 5,925 |
| North Carolina | 156,000 | 16,000 | 46.0 | 103 | 39,400 | 11,085 | 4,628 |
| North Dakota | 41,000 | 42,000 | 96.3 | 1,004 | 105,500 | 21,095 | 5,056 |
| Ohio | 111,000 | 17,300 | 67.1 | 156 | 68,800 | 14,050 | 3,502 |
| Oklahoma | 90,000 | 37,100 | 81.7 | 412 | 78,800 | 13,614 | 3,337 |
| Oregon | 39,500 | 20,900 | 33.3 | 529 | 90,600 | 15,952 | 2,954 |
| Pennsylvania | 73,000 | 10,550 | 37.5 | 145 | 55,800 | 16,158 | 4,447 |
| Rhode Island | 900 | 90 | 15.5 | 100 | 84,400 | 25,871 | 3,917 |
| South Carolina | 51,000 | 8,200 | 41.8 | 161 | 47,100 | 10,604 | 3,571 |
| South Dakota | 45,500 | 45,500 | 93.7 | 1,000 | 87,400 | 24,618 | 7,800 |
| Tennessee | 125,000 | 15,400 | 57.7 | 123 | 34,600 | 7,080 | 2,202 |
| Texas | 185,000 | 145,000 | 84.2 | 784 | 123,000 | 20,528 | 6,579 |
| Utah | 14,500 | 13,400 | 24.4 | 924 | 80,900 | 17,430 | 3,724 |
| Vermont | 7,100 | 2,200 | 42.5 | 310 | 62,200 | 24,735 | 6,900 |
| Virginia | 71,000 | 11,400 | 47.1 | 161 | 50,000 | 10,090 | 2,795 |
| Washington | 45,000 | 18,000 | 44.7 | 400 | 98,100 | 20,446 | 5,431 |
| West Virginia | 28,000 | 5,000 | 34.2 | 179 | 20,800 | 4,915 | 748 |
| Wisconsin | 110,000 | 20,200 | 58.5 | 184 | 46,500 | 16,046 | 5,069 |
| Wyoming | 8,200 | 37,000 | 59.5 | 4,512 | 181,900 | 31,460 | 5,396 |
| United States | 2,876,310 | 1,117,835 | 49.0 | 389 | 83,300 | 19,350 | 5,374 |

Table 10.—Agriculture's capacity to produce

| Year | Farms | | Farm population[1] | | | Man-hours | | Crops | | Livestock | | Overall |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number | Change from preceding year | Number | Change from preceding year | Proportion of U.S. population[2] | Total used | Output per man-hour index | Production volume index | Production per acre index | Production volume index | Production per unit index | Farm output |
| | *Thousands* | *Thousands* | *Thousands* | *Thousands* | *Percent* | *Millions* | *1967=100* | *1967=100* | *1967=100* | *1967=100* | *1967=100* | *1967=100* |
| 1951 ... | 5,428 | -220 | 21,890 | -1,158 | 14.2 | 15,222 | 36 | 77 | 69 | 78 | 75 | 75 |
| 1952 ... | 5,198 | -230 | 21,748 | -142 | 13.9 | 14,504 | 39 | 81 | 73 | 78 | 75 | 78 |
| 1953 ... | 4,984 | -214 | 19,874 | -1,874 | 12.5 | 13,966 | 41 | 81 | 73 | 79 | 78 | 79 |
| 1954 ... | 4,798 | -186 | 19,019 | -855 | 11.7 | 13,310 | 43 | 79 | 71 | 82 | 77 | 79 |
| 1955 ... | 4,654 | -144 | 19,078 | +59 | 11.5 | 12,808 | 47 | 82 | 74 | 84 | 78 | 82 |
| 1956 ... | 4,515 | -140 | 18,712 | -366 | 11.1 | 12,028 | 50 | 82 | 77 | 84 | 82 | 82 |
| 1957 ... | 4,372 | -142 | 17,656 | -1,056 | 10.3 | 11,059 | 53 | 80 | 77 | 83 | 80 | 80 |
| 1958 ... | 4,233 | -139 | 17,128 | -528 | 9.8 | 10,548 | 54 | 89 | 86 | 85 | 84 | 86 |
| 1959 ... | 4,097 | -136 | 16,592 | -536 | 9.4 | 10,301 | 62 | 89 | 86 | 88 | 87 | 88 |
| 1960 ... | 3,962 | -135 | 15,635 | -957 | 8.7 | 9,795 | 67 | 92 | 88 | 87 | 88 | 90 |
| 1961 ... | 3,821 | -141 | 14,803 | -832 | 8.1 | 9,400 | 70 | 91 | 92 | 91 | 92 | 90 |
| 1962 ... | 3,685 | -136 | 14,313 | -490 | 7.7 | 8,979 | 73 | 92 | 95 | 92 | 91 | 91 |
| 1963 ... | 3,561 | -124 | 13,367 | -946 | 7.1 | 8,664 | 80 | 95 | 97 | 95 | 92 | 95 |
| 1964 ... | 3,442 | -119 | 12,954 | -413 | 6.7 | 8,194 | 83 | 93 | 95 | 97 | 95 | 94 |
| 1965 ... | 3,340 | -102 | 12,363 | -591 | 6.4 | 7,773 | 91 | 98 | 100 | 95 | 93 | 97 |
| 1966 ... | 3,239 | -101 | 11,595 | -768 | 5.9 | 7,381 | 94 | 95 | 99 | 99 | 99 | 96 |
| 1967 ... | 3,146 | -93 | 10,875 | -720 | 5.5 | 7,269 | 100 | 100 | 100 | 100 | 100 | 100 |
| 1968 ... | 3,054 | -92 | 10,454 | -421 | 5.2 | 7,005 | 106 | 103 | 104 | 100 | N.A. | 102 |
| 1969 ... | 2,971 | -83 | 10,307 | -147 | 5.1 | 6,695 | 112 | 104 | 107 | 101 | N.A. | 103 |
| 1970 ... | 2,924 | -47 | 9,712 | -595 | 4.8 | 6,521 | 113 | 100 | 102 | 106 | N.A. | 102 |

[1] Beginning 1959 includes Alaska; beginning 1960 includes Hawaii.
[2] Including Armed Forces overseas. N.A.—Not available.

Sources: Agricultural Statistics 1967 and 1968; *Farm Income Situation*, July 1968.

Table 11.—Agricultural prices; farm income

| Fiscal year | Parity ratio (1910-14=100) | | Income in agriculture | | | | Assets of proprietors | | | Harvested crop acreage | | | Value of agricultural exports (Fiscal year) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Unadjusted | Adjusted[1] | Realized net, farm operators | | Disposable per capita for farm people | | Net real estate | Financial[2] | Total net[3] | Total | Domestic use per capita | For export | |
| | | | Total | Per farm | Amount | Proportion of nonfarm income | | | | | | | |
| | | | *Million dollars* | *Dollars* | *Dollars* | *Percent* | *Billion dollars* | *Billion dollars* | *Billion dollars* | *Million acres* | *Acres* | *Million acres* | *Million dollars* |
| 1951 | 107 | 108 | 14,803 | 2,727 | 990 | 64.0 | 80.5 | 16.1 | 138.4 | 344 | 1.85 | 59 | 3,411 |
| 1952 | 100 | 101 | 14,129 | 2,718 | 952 | 59.2 | 88.4 | 16.6 | 152.3 | 349 | 1.99 | 36 | 4,053 |
| 1953 | 92 | 93 | 13,711 | 2,751 | 918 | 54.7 | 89.3 | 16.7 | 148.2 | 348 | 1.98 | 31 | 2,819 |
| 1954 | 89 | 89 | 12,012 | 2,503 | 886 | 52.8 | 87.3 | 17.0 | 144.3 | 346 | 1.91 | 37 | 2,936 |
| 1955 | 84 | 85 | 11,249 | 2,417 | 854 | 48.2 | 90.0 | 17.5 | 147.5 | 340 | 1.78 | 47 | 3,144 |
| 1956 | 83 | 84 | 11,900 | 2,636 | 885 | 47.8 | 93.9 | 18.0 | 150.8 | 324 | 1.57 | 60 | 3,496 |
| 1957 | 82 | 85 | 10,707 | 2,449 | 927 | 48.7 | 100.6 | 18.0 | 158.6 | 324 | 1.61 | 48 | 4,728 |
| 1958 | 85 | 88 | 12,675 | 2,994 | 1,062 | 55.5 | 105.5 | 18.3 | 165.4 | 324 | 1.61 | 44 | 4,003 |
| 1959 | 82 | 82 | 11,362 | 2,773 | 1,001 | 50.1 | 113.3 | 19.2 | 178.6 | 324 | 1.49 | 61 | 3,719 |
| 1960 | 80 | 82 | 11,736 | 2,962 | 1,100 | 54.5 | 118.1 | 18.2 | 178.3 | 324 | 1.44 | 64 | 4,519 |
| 1961 | 79 | 83 | 12,646 | 3,309 | 1,226 | 59.8 | 118.9 | 18.0 | 177.8 | 303 | 1.29 | 67 | 4,946 |
| 1962 | 80 | 83 | 12,619 | 3,424 | 1,308 | 61.5 | 124.1 | 18.3 | 184.2 | 295 | 1.23 | 66 | 5,142 |
| 1963 | 78 | 81 | 12,583 | 3,533 | 1,410 | 64.4 | 128.6 | 18.9 | 189.3 | 300 | 1.18 | 77 | 5,078 |
| 1964 | 76 | 80 | 13,080 | 3,802 | 1,462 | 62.4 | 135.3 | 19.1 | 194.9 | 310 | 1.19 | 74 | 6,068 |
| 1965 | 77 | 82 | 13,993 | 4,190 | 1,772 | 71.4 | 142.0 | 19.8 | 200.9 | 298 | 1.14 | 76 | 6,097 |
| 1966 | 80 | 86 | 16,334 | 5,044 | 1,985 | 75.1 | 151.3 | 20.6 | 214.4 | 295 | 1.15 | 69 | 6,676 |
| 1967 | 74 | 79 | 14,223 | 4,520 | 2,032 | 72.8 | 159.2 | 21.2 | 224.2 | 308 | 1.21 | 69 | 6,771 |
| 1968 | 73 | 79 | 15,026 | 4,919 | 2,220 | 74.5 | 167.6 | 22.1 | 233.6 | 300 | 1.24 | 54 | 6,311 |
| 1969 | 74 | 79 | 16,798 | 5,654 | 2,423 | 76.5 | 175.5 | 22.5 | 248.8 | 294 | 1.15 | 61 | 5,741 |
| 1970 | 72 | 77 | 15,713 | 5,374 | 2,546 | 74.9 | 180.5 | 23.3 | 257.9 | 297 | 1.10 | 72 | 6,721 |

[1] Ratio adjusted to include farm program payments. [2] Includes currency, deposits, U.S. savings bonds, co-op stock investment. [3] Total net assets include net real estate equities and net value of other physical items.

Sources: *Agricultural Statistics 1967 and 1968; Agricultural Prices; Balance Sheet of Agriculture; Farm Income Situation.*

Table 12.—Leading agricultural producing States, 1970
(Sequence of commodities by value)

| Commodity | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Corn, grain | Iowa | Illinois | Minnesota | Indiana | Nebraska |
| Wheat | Kansas | North Dakota | Washington | Oklahoma | Nebraska |
| Oats | Minnesota | North Dakota | South Dakota | Wisconsin | Iowa |
| Sorghum grain | Texas | Kansas | Nebraska | California | Oklahoma |
| Hay | Wisconsin | Minnesota | California | Iowa | Nebraska |
| Rice[1] | Arkansas | Texas | Louisiana | California | Mississippi |
| Tobacco | N. Carolina | Kentucky | S. Carolina | Georgia | Virginia |
| Cotton | Texas | Mississippi | California | Arkansas | Louisiana |
| Soybeans | Illinois | Iowa | Indiana | Arkansas | Missouri |
| Peanuts | Georgia | N. Carolina | Texas | Alabama | Virginia |
| Sugarcane[1] | Hawaii | Louisiana | Florida | . | . |
| Sugarbeets | California | Idaho | Colorado | Michigan | Minnesota |
| Apples | Washington | New York | Michigan | Pennsylvania | California |
| Oranges[1] | Florida | California | Texas | Arizona | . |
| Potatoes | Idaho | Maine | Washington | California | North Dakota |
| Cattle and calves[2] | Texas | Iowa | Nebraska | Kansas | California |
| Hogs[2] | Iowa | Illinois | Indiana | Missouri | Nebraska |
| Sheep and lambs[2] | Texas | California | Colorado | Wyoming | South Dakota |
| Milk | Wisconsin | New York | Minnesota | California | Pennsylvania |
| Eggs | California | Georgia | N. Carolina | Arkansas | Pennsylvania |
| Broilers | Georgia | Arkansas | Alabama | N. Carolina | Mississippi |
| Turkeys | Minnesota | California | N. Carolina | Missouri | Texas |

[1] Production of leading States only. [2] Liveweight production on farms.

Continued—

Table 12.—Leading agricultural producing States, 1970—Continued
(Sequence of commodities by value)

| Commodity | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|
| Corn, grain | Ohio | Missouri | Wisconsin | Michigan | S. Dakota |
| Wheat | Montana | Colorado | Texas | Idaho | S. Dakota |
| Oats | Illinois | Ohio | Texas | Michigan | Pennsylvania |
| Sorghum grain | N. Mexico | Missouri | Arizona | Colorado | S. Dakota |
| Hay | New York | S. Dakota | Missouri | N. Dakota | Pennsylvania |
| Rice[1] | Missouri | . | . | . | . |
| Tobacco | Tennessee | Pennsylvania | Florida | Maryland | Ohio |
| Cotton | Alabama | Arizona | Tennessee | Georgia | Missouri |
| Soybeans | Minnesota | Ohio | Mississippi | Louisiana | Tennessee |
| Peanuts | Oklahoma | Florida | S. Carolina | N. Mexico | Mississippi |
| Sugarcane[1] | . | . | . | . | . |
| Sugarbeets | Nebraska | Washington | N. Dakota | Wyoming | Montana |
| Apples | Virginia | W. Virginia | N. Carolina | Ohio | Oregon |
| Oranges[1] | . | . | . | . | . |
| Potatoes | New York | Oregon | Colorado | Minnesota | Wisconsin |
| Cattle and calves[2] | Oklahoma | S. Dakota | Colorado | Missouri | Minnesota |
| Hogs[2] | Minnesota | Ohio | S. Dakota | Wisconsin | N. Carolina |
| Sheep and lambs[2] | Utah | Idaho | Montana | Iowa | Minesota |
| Milk | Iowa | Michigan | Ohio | Texas | Illinois |
| Eggs | Iowa | Indiana | Alabama | Texas | Florida |
| Broilers | Maryland | Texas | Delaware | California | Maine |
| Turkeys | Ohio | Iowa | Virginia | Utah | Wisconsin |

[1] Production of leading States only. [2] Liveweight production on farms.

Table 13.—Leading States for cash receipts, 1970

| Commodity | United States | | Leading 10 States with sales | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Rank[1] | Value | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| | | *Million dollars* | *Million dollars* | *Million dollars* | *Million dollars* | *Million dollars* | *Million dollars* | *Million dollars* | *Million dollars* | *Million dollars* | *Million dollars* | *Million dollars* |
| All commodities | | 49,231 | Calif. 4,456 | Iowa 3,930 | Texas 3,137 | Ill. 2,700 | Nebr. 2,016 | Minn. 2,016 | Kans. 1,774 | Wis. 1,610 | Mo. 1,560 | Ind. 1,553 |
| All livestock | | 29,595 | Iowa 2,857 | Texas 1,946 | Calif. 1,790 | Nebr. 1,446 | Wis. 1,379 | Minn. 1,373 | Ill. 1,299 | Kans. 1,223 | Mo. 1,129 | Colo. 922 |
| All crops | | 19,636 | Calif. 2,666 | Ill. 1,401 | Texas 1,191 | Iowa 1,073 | N.C. 919 | Fla. 872 | Ind. 715 | Minn. 643 | Nebr. 570 | Ohio 555 |
| Cattle and calves | 1 | 13,662 | Iowa 1,413 | Texas 1,383 | Nebr. 1,062 | Kans. 953 | Calif. 835 | Colo. 775 | Okla. 678 | S. Dak. 529 | Mo. 513 | Minn. 492 |
| Dairy products | 2 | 6,523 | Wis. 907 | N.Y. 619 | Calif. 535 | Pa. 448 | Minn. 446 | Mich. 259 | Ohio 256 | Iowa 221 | Texas 205 | Mo. 156 |
| Hogs | 3 | 4,510 | Iowa 1,081 | Ill. 585 | Ind. 374 | Mo. 356 | Nebr. 271 | Minn. 266 | Ohio 196 | S. Dak. 161 | Wis. 152 | Kans. 145 |
| Corn | 4 | 2,986 | Ill. 748 | Iowa 544 | Ind. 318 | Nebr. 292 | Minn. 218 | Ohio 152 | Mo. 95 | Kans. 70 | N.C. 60 | Mich. 59 |
| Soybeans | 5 | 2,789 | Ill. 514 | Iowa 472 | Ind. 260 | Mo. 220 | Ark. 208 | Minn. 196 | Ohio 173 | Miss. 140 | La. 99 | Tenn. 72 |
| Eggs | 6 | 2,169 | Calif. 227 | Ga. 193 | N.C. 130 | Pa. 107 | Ark. 101 | Ala. 97 | Ind. 91 | Texas 88 | Miss. 85 | Iowa 75 |
| Wheat | 7 | 1,560 | Kans. 274 | N. Dak. 234 | Wash. 123 | Mont. 116 | Okla. 101 | Nebr. 92 | Colo. 65 | Texas 64 | S. Dak. 63 | Idaho 51 |
| Broilers | 8 | 1,462 | Ark. 200 | Ga. 194 | Ala. 159 | N.C. 155 | Miss. 108 | Md. 107 | Texas 90 | Del. 77 | Calif. 57 | Maine 52 |
| Tobacco | 9 | 1,388 | N.C. 576 | Ky. 303 | Ga. 102 | S.C. 101 | Va. 89 | Tenn. 82 | Fla. 31 | Conn. 24 | Md. 21 | Ohio 14 |
| Cotton lint | 10 | 1,047 | Texas 286 | Miss. 169 | Calif. 125 | Ark. 112 | Ariz. 63 | La. 57 | Ala. 53 | Tenn. 42 | Ga. 32 | Mo. 25 |
| Greenhouse and nursery[2] | 11 | 915 | Calif. 222 | Fla. 84 | N.Y. 57 | Ohio 50 | Pa. 40 | Ill. 36 | N.J. 35 | Mich. 31 | Ore. 28 | Mass. 25 |
| Potatoes | 12 | 665 | Idaho 135 | Calif. 82 | Maine 67 | Wash. 46 | N.Y. 44 | Wis. 29 | N. Dak. 26 | Ore. 25 | Fla. 25 | Mich. 23 |

—Continued

Table 13.—Leading States for cash receipts, 1970—Continued

| Commodity | United States | | Leading 10 States with sales | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Rank[1] | Value | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| | | *Million dollars* | *Million dollars* | *Million dollars* | *Million dollars* | *Million dollars* | *Million dollars* | *Million dollars* | *Million dollars* | *Million dollars* | *Million dollars* | *Million dollars* |
| Sorghum grain | 13 | 631 | Texas 332 | Kans. 109 | Nebr. 67 | Calif. 38 | Okla. 18 | N. Mex. 16 | Ariz. 15 | Colo. 9 | Ark. 7 | Mo. 6 |
| Hay | 14 | 629 | Calif. 166 | Ariz. 30 | Colo. 30 | Wash. 26 | Idaho 26 | Texas 23 | Kans. 23 | Minn. 21 | Nebr. 20 | Pa. 19 |
| Turkeys | 15 | 492 | Minn. 68 | Calif. 67 | N.C. 38 | Mo. 36 | Texas 35 | Ark. 34 | Iowa 27 | Ind. 22 | Utah 19 | Va. 17 |
| Tomatoes | 16 | 404 | Calif. 187 | Fla. 59 | Ohio 37 | N.J. 18 | Ind. 14 | Texas 9 | Pa. 8 | Mich. 7 | S.C. 7 | Ark. 6 |
| Oranges | 17 | 402 | Fla. 276 | Calif. 111 | Ariz. 10 | Texas 6 | Hawaii[3] | --- | --- | --- | --- | --- |
| Rice | 18 | 391 | Ark. 110 | Calif. 94 | La. 93 | Texas 85 | Miss. 8 | Mo. 1 | --- | --- | --- | --- |
| Sugar beets | 19 | 387 | Calif. 117 | Idaho 46 | Colo. 36 | Mich. 28 | Minn. 27 | Nebr. 21 | Wash. 19 | N. Dak. 16 | Wyo. 14 | Mont. 14 |
| Peanuts[4] | 20 | 328 | Ga. 142 | N.C. 58 | Texas 47 | Va. 40 | Ala. 31 | Okla. 21 | Fla. 11 | S.C. 3 | N. Mex. 2 | Miss. |
| Sheep and lambs | 21 | 325 | Texas 39 | Colo. 37 | Calif. 27 | Iowa 22 | Idaho 22 | S. Dak. 20 | Wyo. 19 | Utah 16 | Minn. 14 | Mont. 13 |
| Grapes | 22 | 298 | Calif. 236 | N.Y. 27 | Mich. 9 | Wash. 8 | Pa. 7 | Ariz. 4 | Ohio 2 | Ark. 1 | S.C. 1 | N.C. 1 |
| Apples | 23 | 294 | Wash. 63 | N.Y. 38 | Mich. 29 | Pa. 21 | Va. 17 | Calif. 17 | W. Va. 12 | N.C. 9 | Ohio 9 | Mass. 7 |
| Forest products | 24 | 267 | N.C. 45 | Wash. 30 | Ga. 28 | Ala. 15 | Miss. 13 | Va. 10 | S.C. 9 | Wis. 7 | Ore. 7 | N.Y. 7 |
| Barley | 25 | 262 | Calif. 61 | N. Dak. 40 | Mont. 37 | Idaho 21 | Wash. 15 | Minn. 15 | Ore. 14 | Ariz. 10 | Okla. 10 | Colo. 10 |

[1] By value of farm marketings. [2] Excludes mushrooms. [3] Minor State estimate. [4] U.S. total differs from sum of States due to adjustment for Georgia.

Table 14.—Income of farmers and

| Year | Cash receipts from marketings | Gov't payments to farmers | Cash income from farming | Noncash income from farming[1] | Realized gross from farming[2] | Total gross income from farming | Income from off-farm sources[3] | Total gross income all sources |
|---|---|---|---|---|---|---|---|---|
| | *Billion dollars* | *Billion dollars* | *Billion dollars* | *Billion dollars* | *Billion dollars* | *Billion dollars* | *Billion dollars* | *Billion dollars* |
| 1940 .. | $ 8.4 | $0.70 | $ 9.1 | $ 2.2 | $11.1 | $11.3 | $ 3.5 | $14.8 |
| 1945 .. | 21.7 | 0.74 | 22.4 | 3.0 | 25.8 | 25.4 | 6.0 | 31.4 |
| 1946 .. | 24.8 | 0.77 | 25.6 | 4.0 | 29.5 | 29.6 | 6.3 | 35.9 |
| 1947 .. | 29.6 | 0.31 | 29.9 | 2.5 | 34.1 | 32.4 | 7.2 | 39.6 |
| 1948 .. | 30.2 | 0.26 | 30.5 | 6.0 | 34.7 | 36.5 | 7.8 | 44.3 |
| 1949 .. | 27.8 | 0.19 | 28.0 | 2.8 | 31.7 | 30.8 | 7.9 | 38.7 |
| 1950 .. | 28.5 | 0.28 | 28.7 | 4.3 | 32.3 | 33.1 | 8.0 | 41.1 |
| 1951 .. | 32.9 | 0.29 | 33.1 | 5.1 | 37.1 | 38.2 | 8.4 | 46.6 |
| 1952 .. | 32.5 | 0.28 | 32.8 | 4.9 | 36.8 | 37.7 | 8.7 | 46.3 |
| 1953 .. | 31.0 | 0.21 | 31.2 | 3.1 | 35.0 | 34.4 | 8.2 | 42.6 |
| 1954 .. | 29.8 | 0.26 | 30.1 | 4.0 | 33.6 | 34.1 | 7.4 | 41.5 |
| 1955 .. | 29.5 | 0.23 | 29.7 | 3.6 | 33.1 | 33.4 | 7.7 | 41.0 |
| 1956 .. | 30.4 | 0.55 | 31.0 | 2.9 | 34.3 | 33.8 | 8.0 | 41.8 |
| 1957 .. | 29.7 | 1.02 | 30.7 | 3.9 | 34.0 | 34.6 | 8.0 | 42.6 |
| 1958 .. | 33.5 | 1.09 | 34.5 | 4.2 | 38.0 | 38.7 | 8.0 | 46.8 |
| 1959 .. | 33.5 | 0.68 | 34.2 | 3.4 | 37.5 | 37.6 | 8.4 | 46.0 |
| 1960 .. | 34.2 | 0.70 | 34.9 | 3.6 | 38.1 | 38.4 | 8.5 | 46.9 |
| 1961 .. | 35.1 | 1.49 | 36.6 | 3.5 | 39.8 | 40.1 | 9.2 | 49.3 |
| 1962 .. | 36.4 | 1.75 | 38.1 | 3.8 | 41.3 | 41.9 | 10.0 | 51.8 |
| 1963 .. | 37.4 | 1.70 | 39.1 | 3.8 | 42.3 | 42.9 | 10.9 | 53.7 |
| 1964 .. | 37.2 | 2.18 | 39.4 | 2.3 | 42.6 | 41.7 | 11.5 | 53.3 |
| 1965 .. | 39.4 | 2.46 | 41.8 | 4.1 | 45.0 | 45.9 | 12.5 | 58.4 |
| 1966 .. | 43.3 | 3.28 | 46.6 | 3.1 | 49.7 | 49.7 | 13.4 | 63.0 |
| 1967 .. | 42.7 | 3.08 | 45.8 | 3.9 | 49.0 | 49.7 | 13.8 | 63.5 |
| 1968 .. | 44.1 | 3.46 | 47.6 | 3.5 | 50.9 | 51.0 | 14.7 | 65.7 |
| 1969 .. | 48.1 | 3.79 | 52.0 | 3.7 | 55.5 | 55.6 | 15.6 | 71.1 |
| 1970 .. | 49.2 | 3.72 | 52.9 | 3.9 | 56.6 | 56.8 | 17.1 | 73.9 |
| 1971[6] . | 51.6 | 3.20 | 54.8 | 4.4 | 58.6 | 59.2 | 17.8 | 77.0 |

[1] Includes net change in value of farm inventories, gross value of farm products used on the farm, and a rental value for farm dwellings.

[2] USDA realized gross is gross income from farming before changes in value of farm inventory of crops and livestock. The next column on total gross income from farming does allow for net increase or decrease in value of inventories.

[3] Includes wages, salaries, interest, dividends, custom work, rental of property, etc. but

farm people from all sources

| Gross per farm all sources | Total production expenses | Production expenses per farm | Realized net from farming[4] | Total net income from farming | Total net for family personal spending and investment[5] | Number farm operators | Family personal spending and investment per farm |
|---|---|---|---|---|---|---|---|
| *Dollars* | *Billion dollars* | *Dollars* | *Billion dollars* | *Billion dollars* | *Billion dollars* | *Million* | *Dollars* |
| $ 2,336 | $ 6.9 | $ 1,080 | $ 4.2 | $ 4.5 | $ 8.0 | 6.35 | $ 1,256 |
| 5,261 | 13.1 | 2,189 | 12.8 | 12.3 | 18.3 | 5.97 | 3,072 |
| 6,060 | 14.5 | 2,447 | 15.0 | 15.1 | 21.4 | 5.93 | 3,613 |
| 6,744 | 17.0 | 2,901 | 17.1 | 15.4 | 22.6 | 5.87 | 3,843 |
| 7,627 | 18.8 | 3,238 | 16.0 | 17.7 | 25.5 | 5.80 | 4,389 |
| 6,763 | 18.0 | 3,142 | 13.6 | 12.8 | 20.7 | 5.72 | 3,620 |
| 7,280 | 19.4 | 3,437 | 12.9 | 13.7 | 21.7 | 5.65 | 3,843 |
| 8,587 | 22.3 | 4,100 | 14.8 | 16.0 | 24.4 | 5.43 | 4,488 |
| 8,916 | 22.6 | 4,354 | 14.1 | 15.1 | 23.7 | 5.20 | 4,562 |
| 8,541 | 21.3 | 4,269 | 13.7 | 13.1 | 21.3 | 4.98 | 4,273 |
| 8,655 | 21.6 | 4,497 | 12.0 | 12.5 | 19.9 | 4.80 | 4,158 |
| 8,811 | 21.9 | 4,704 | 11.2 | 11.5 | 19.1 | 4.65 | 4,108 |
| 9,258 | 22.4 | 4,957 | 11.9 | 11.4 | 19.4 | 4.51 | 4,302 |
| 9,748 | 23.3 | 5,328 | 10.7 | 11.3 | 19.3 | 4.37 | 4,420 |
| 11,047 | 25.2 | 5,962 | 12.7 | 13.5 | 21.5 | 4.23 | 5,085 |
| 11,228 | 26.1 | 6,371 | 11.4 | 11.5 | 19.9 | 4.10 | 4,856 |
| 11,840 | 26.4 | 6,652 | 11.7 | 12.1 | 20.6 | 3.96 | 5,189 |
| 12,915 | 27.1 | 7,098 | 12.6 | 13.0 | 22.2 | 3.82 | 5,816 |
| 14,060 | 28.6 | 7,771 | 12.6 | 13.2 | 23.2 | 3.69 | 6,288 |
| 15,092 | 29.7 | 8,337 | 12.6 | 13.2 | 24.1 | 3.56 | 6,755 |
| 15,478 | 29.5 | 8,566 | 13.1 | 12.3 | 23.8 | 3.44 | 6,913 |
| 17,499 | 30.9 | 9,262 | 14.0 | 15.0 | 27.5 | 3.34 | 8,238 |
| 19,461 | 33.4 | 10,314 | 16.3 | 16.3 | 29.6 | 3.24 | 9,147 |
| 20,169 | 34.8 | 11,052 | 14.2 | 14.9 | 28.7 | 3.15 | 9,115 |
| 21,526 | 36.2 | 11,856 | 14.7 | 14.8 | 29.5 | 3.05 | 9,667 |
| 23,940 | 38.7 | 13,021 | 16.8 | 16.9 | 32.4 | 2.97 | 10,919 |
| 25,261 | 40.9 | 13,976 | 15.7 | 15.9 | 33.0 | 2.92 | 11,284 |
| 26,773 | 42.9 | 14,917 | 15.7 | 16.3 | 34.1 | 2.88 | 11,857 |

does not include capital gains income from off-farm sources.

[4] Realized net is net income from farming before changes in value of farm inventory of crops and livestock.

[5] Includes total net income from farming (after change in value of farm inventory) plus off-farm income of farm people.

[6] Estimated.

Table 15.—Agricultural and nonagricultural uses of land, United States, 1964

| Major land use | Acreage | Percentage of total |
|---|---|---|
| | *Million acres* | *Percent* |
| Agricultural: | | |
| Cropland: | 444 | 19.6 |
| Cropland used for crops[1] | (335) | (14.8) |
| Soil improvement crops and idle cropland | (52) | (2.3) |
| Cropland used only for pasture | (57) | (2.5) |
| Grassland pasture and range[2] | 640 | 28.3 |
| Forest land grazed | 225 | 9.9 |
| Farmsteads, farm roads | 9 | .4 |
| Total agricultural land | 1,318 | 58.2 |
| Nonagricultural: | | |
| Forest land not grazed[3] | 507 | 22.4 |
| Special uses: | 164 | 7.2 |
| Urban and other build-up areas[4] | (55) | (2.4) |
| Primarily for recreation parks and wildlife[5] | (76) | (3.4) |
| Public installations and facilities[6] | (33) | (1.5) |
| Miscellaneous land[7] | 277 | 12.2 |
| Total nonagricultural land | 948 | 41.8 |
| Total land area | 2,266 | 100.0 |

[1] Cropland harvested, crop failure, and cultivated summer fallow. [2] Excludes cropland used only for pasture. [3] Excludes 28 million acres of reserved forest land and 2 million acres of unreserved forest land duplicated mainly in parks and other special use areas. It was not feasible to eliminate some overlap that exists because of multiple use. [4] Urban and town areas; highway, road, and railroad rights-of-way; and airports. [5] National and State parks and related recreational areas, National and State wildlife refuges, and National Forest wilderness and primitive areas. [6] National defense (including military reservations and other land administered by Department of Defense), Federal flood control, Federal industrial (AEC land, etc.), and State institutional areas. [7] Marshes, open swamps, bare rock areas, deserts, tundra, and other land generally having low value for agricultural purposes.

## GLOSSARY

*Acreage allotment.* An acreage allotment is the individual farm's share, based on its production history, of the national acreage considered desirable as a means of adjusting supplies of the particular crop closer to national needs. Acreage allotments apply only to crops and under conditions specified by law.

*Animal unit.* A measure of livestock numbers by which kinds, classes, sizes, and ages are converted to an approximate common standard, equivalent to a mature cow (approximately 1,000 lbs. live weight).

*Attainable yield.* Yields that would be expected in a time period from application of presently known technology. See *Yield, economic maximum.*

*Base-period price.* The average price for an item in a specified period—such as 1910-14, 1935-39, 1957-59.

*Adjusted base-period price.* In parity calculations, the average price received by farmers in the most recent 10 years, divided by the index (1910-14=100) of average prices received by farmers for all farm products in the same 10 years.

*Breeding unit index.* The total number of female breeding animals, weighted by the production per head, in a base period, expressed as an index.

*Casein.* A protein found only in milk. Used for making cheese, paint, glue, and plastics.

*Cash-grain farm.* A farm on which corn, sorghums, small grains, soybeans, or field beans and peas account for at least 50 percent of the value of farm products sold.

*Census of Agriculture.* A census taken by the Bureau of Census every 5 years—of number of farms; land in farms; crop acreage and production; livestock numbers and production; farm spending, farm facilities and equipment, farm tenure, value of farm products sold; farm size; type of farm, etc. Data are given for States and counties.

*Climate.* The sum total of all atmospheric or meteorological influences—principally temperature, moisture, wind pressure, and evaporation—which combine to characterize a region and give it individuality by influencing the nature of its land forms, soils, vegetation, and land use.

*Commercial farm.* Farm with gross sales of at least $2,500. Farms with gross sales of $50 to $2,499 also are classified as commercial if the operator is under 65 and did not work off the farm more than 100 days during the year, and the gross sales were more than all nonfarm income of the operator and his family.

*Complementary imports.* Agricultural items not produced in appreciable commercial volume in the United States. Examples: Bananas, coffee, rubber, cocoa, tea, spices, and cordage fiber. See *Supplementary imports.*

*Conservation, soil.* The preservation of soil against deterioration and loss by using it within its capabilities and applying conservation practices needed for its protection and improvement. More specifically, soil conservation is using land within the limits of economic practicability, while safeguarding it against depletion by erosion, exhaustion of plant nutrients (through leaching, excessive cropping, or overgrazing),

accumulation of toxic salts, burning, waterlogging (inadequate drainage), improper use, or failure to protect the land from soil loss or impairment of productiveness. See *Land capability* and *Soil.*

*Consumer Price Index.* General measure of retail prices (goods and services) purchased by consumers. Includes prices of food, clothing, housing, and transportation.

*Contour farming.* Conducting field operations—such as plowing, planting, cultivating, and harvesting—on the contour, or at right angles to the natural slope.

*Cooperative.* A self-help organization which farmers own and use mainly to handle the off-the-farm part of their business—buying farm supplies, marketing their products, furnishing electric and telephone service, and providing business services—at cost. Essential features are democratic control, limited return on capital, and operation at cost, with distribution of financial benefits to individuals in proportion to their use of association's services.

*Corn-hog ratio.* Number of bushels of corn that are equal (in value) to 100 pounds of live hogs; that is, the price of hogs divided by the price of corn. Can be calculated in terms of U.S. average prices received by farmers; prices received by farmers in North Central States; or Chicago prices. A favorable (high) ratio is usually followed by an increase in hog production; an unfavorable (low) ratio, by a decrease.

*Corporation farm.* A farm that is legally incorporated. This may include family farms as well as larger than family farms.

*County agent.* A professional worker—jointly employed by the county, State land-grant college, and the U.S. Department of Agriculture—to bring agricultural and homemaking information to local people and help them meet farm, home, and community problems. Also called extension agents, farm & home advisors, agricultural, home demonstration, and 4-H or youth agents. See *Extension Service.*

*Cover crop.* A close-growing crop, grown primarily to protect and improve soil between periods of regular crops, or between trees and vines in orchards and vineyards.

*Credit, supervised.* A technique pioneered by the Farmers Home Administration and its predecessor agencies. Adequate amounts of low interest credit are combined with intensive supervision provided by local representatives of the agency to help small farmers and their families upgrade their farming and homemaking. In recent years, a number of private lenders have picked up the idea and are providing similar services to borrowers.

*Custom work.* Specific farm operations performed under contract between the farmer and the contractor. The contractor furnishes labor, equipment, and materials to complete the operation. Custom harvesting of grain, spraying and picking of fruit, and sheep shearing are examples.

*Dialdehyde starch.* A chemical derivative of starch developed from cereal grains. Used to improve wet strength of paper products and tanning leather, among other uses.

*Disk.* A harrow composed of circular plates arranged at an angle with the line of pull. Used to prepare soil for seeding. Also, disk plow; a plow composed of large circular plates. See *Harrow.*

*Dry farming.* (1) Farming in semiarid or arid regions without irrigation. (2) A system of fallow and stubble mulch designed to absorb and retain the limited precipitation that occurs.

*Enzymes.* Substances produced by living cells that can bring about or speed up chemical reactions.

*Erosion.* The detachment and movement of the solid material of the land surface—by wind, moving water, ice, landslides, and creep.

*Export payment.* Government assistance to exporters includes export differential to enable them to compete in foreign markets. This assistance—on commodities such as wheat, rice, barley, sorghum grains, and tobacco—represents the difference between domestic price and "world price."

*Extension Service.* A cooperative educational agency, whose county agents and State extension specialists serve as the field arm of the U.S. Department of Agriculture, State colleges, and experiment stations. There are State agricultural extension services in each State, and the Extension Service of the U.S. Department of Agriculture. Together they make up the Cooperative Extension Service. See *County Agent.*

*Fallow.* Cropland (either tilled or untilled) left idle during the growing season. Tillage is usually practiced to control weeds and encourage the storage of moisture in the soil.

*Family farm.* A farm business in which the operating family does most of the work and most of the managing—and takes most risks.

*Farm.* For the Census of Agriculture, the definition of a farm is based on a combination of the "acres in the place" and the "value of farm products sold." "Place" included all land on which agricultural operations were conducted, under the control of one person, partnership or corporation.

Places of 10 or more acres were counted as farms if estimated sales of agricultural products were at least $50. Places of less than 10 acres were counted as farms if sales of agricultural products for the year were at least $250. See also *Adequate-size farm, Commercial farm, Corporation farm, Family farm, Marginal farm, Subsistence farm.*

*Farm income.* See *Gross* farm income; *Net* farm income.

*Farm operator.* A person who operates a farm, either by doing or supervising the work.

*Farming, contract.* Producing under an agreement to deliver specified goods and services at a later time.

*Federal Land Bank Associations.* (formerly National Farm Loan Association). Local farmer-owned organizations, over 700 in number, through which farmers obtain long-term (up to 40 years) loans.

*Feed grain.* Any of several grains most commonly used for livestock or poultry feed, such as corn, grain sorghum, oats, barley, and rye.

*Fertility, soil.* The presence in a soil of the necessary elements, in sufficient amounts, in proper balance and available for the growth of specified plants, when other such factors as light, temperature, and the physical condition of the soil are favorable.

*Fertilizer.* Any material used to supply one or more of the plant nutrients.

*Food, farm-produced.* Food products originating on U.S. farms. These include processed products made mainly from farm-produced ingredients, as well as eggs, fresh fruits and vegetables, and other products sold to consumers without processing. *Nonfarm foods are those not originating on farms, such as fish.*

*Food grain.* Grain most commonly used for human food, chiefly wheat and rice.

*Forward pricing.* A system whereby support prices for agricultural products are announced before the planting or breeding season so that production can be adjusted.

*4-H clubs.* Organized groups of young people (ages 10-19), through which the Cooperative Extension agents of the U. S. Department of Agriculture and State colleges carry on educational work in farming and homemaking projects, career development, citizenship, leadership, and other youth development activities. The 4–H's stand for Head, Hand, Heart, and Health. See *Extension Service.*

*Fungicide.* Any substance used to kill fungi, which are forms of plant life that lack chlorophyll and are unable to make their own food.

*Futures contract.* An agreement between two people, one who sells and agrees to deliver, and one who buys and agrees to receive a certain kind and quantity of product to be delivered during a specified delivery month at a specified price.

*Great Plains.* A level to gently sloping region, spanning the United States from Canada to Mexico, and subject to recurring droughts and high winds. It consists of parts of the Dakotas, Montana, Nebraska, Wyoming, Kansas, Colorado, Oklahoma, Texas, and New Mexico, and lies between the Rockies and approximately the 98th meridian.

*Gross farm income.* The total gross income realized by farm operators from farming. Allowing for inventory change, it includes cash receipts from the sale of farm products, Government payments, value of food and fuel produced and consumed on farms where grown, and rental value of farm dwellings. See *Net farm income.* and *Appendix,* page 84.

*Harrow.* A cultivating implement set with spikes, springs, or disks and used to pulverize and smooth soil. See *Disk.*

*Herbicide.* Any substance used to kill plants.

*Hog-corn price ratio.* See *Corn-hog ratio.*

*Integration.* The combination (under the management of one firm) of two or more production processes, capable of being operated as separate businesses.

*International commodity agreement.* An agreement among a number of countries pertaining to international trade of a particular commodity. It usually concerns quantity, maximum and minimum prices, stocks, and production controls. Existing agreements include the International Wheat Agreement and the International Sugar Agreement.

*International trade barriers.* Obstacles raised by countries against imports. Examples: Tariffs, embargos, quotas, sanitary restrictions.

*Land capability.* The suitability of land for use without damage. Land capability, as ordinarily used in the United States, is an expression of the effect of physical land conditions, including climate, on the total suitability for agricultural use without damage. Arable soils are grouped according to their potential and limitations for sustained production of the common cultivated crops. Nonarable soils are grouped according to their potentialities and limitations for the production of permanent vegetation and according to their risks of soil damage if mismanaged.

*Land-grant college.* State colleges and universities, started from Federal government grants of land to each State, to encourage further practical education in agriculture, homemaking, and the mechanic arts.

*Land use planning.* The development of plans for the uses of land that will, over a long period, best serve the general welfare, together with the formulation of ways and means to achieve such uses.

*Legume.* A member of the legume or pulse family. One of the most important and widely distributed plant families. Includes many valuable food and forage species, such as the peas, beans, peanuts, clovers, alfalfas, sweetclovers, lespedezas, vetches, and kudzu. Practically all legumes are nitrogen-fixing plants, and many of the herbaceous species are used as cover and green-manure crops.

*Lime.* The term lime is commonly used in agriculture to include a great variety of materials, usually composed of the oxide, hydroxide, or carbonate of calcium, or of calcium and magnesium. The most commonly used forms of agricultural lime are ground limestone, hydrated lime, burnt lime, marl, and oyster shells.

*Linters.* The short fibers remaining on cottonseed after ginning. Too short for usual textile use, they are used for batting and mattress stuffing and as a source of cellulose.

*Marginal farm.* A farm that, on the average, produces barely enough income to maintain the farm and support an average operator at a low level of living.

*Market basket of farm foods.* The average quantities of domestic farm-produced foods, purchased annually per household in 1960-61, for consumption at home by the urban wage earner, clerical worker families, and single persons living alone.

*Marketing margin.* The difference between the retail price of a product and the farm value. The marketing margin, also known as the farm-retail spread, is the charges made by marketing firms for assembling, storing, processing, transporting, and distributing the product. It may also be the difference between the retail cost of a group of products and their total farm value.

*Marketing orders and agreements. (Federal).* A means (authorized by, and based on, enabling legislation) to permit agricultural producers to affect the supply, demand and/or price for a particular crop or commodity. The basic purpose is to improve returns to producers through orderly marketing. An order may establish and maintain minimum quality standards, and provide for an orderly flow of products to market to avoid unreasonable fluctuations in supplies and prices. A *marketing order* may contain only certain specified types of provisions. However, once approved by a required number—usually two-thirds—of producers of the regulated commodity, the order is binding on all handlers of the commodity in the area of regulation. A *marketing agreement* may contain more diversified provisions, but it is enforceable only with respect to those producers or handlers who voluntarily enter into the agreement with the Secretary of Agriculture.

*Marketing quota.* Basically, a marketing quota is a means of regulating the production *and marketing,* when supplies become excessive, of a commodity to which the quota is applicable under law. A national marketing quota is the quantity of the crop that, in general, will provide adequate and normal market supplies. This quantity is translated into terms of acreage and allotted among individual farms, based on their production history. When marketing quotas are in effect (only after approval by two-thirds or more of the eligible producers voting in a referendum) growers who produce the commodity on acreage in excess of their farm acreage allotments are subject to marketing penalties on the "excess" production and are ineligible for support loans. For certain tobaccos, a poundage limitation is applicable, as well as acreage allotments, when approved by grower referendum.

*National Forest.* A forest area owned by the Federal Government and used for watershed protection, timber production, recreation, and in some areas, limited grazing of livestock. National forests are administered by the Forest Service.

*National Grassland.* An area of land, mainly grass and shrub cover, owned by the Federal Government and administered by the Secretary of Agriculture as part of the National Forest System for promotion of grassland agriculture, watersheds, grazing, wildlife and recreation.

*National Wool Act.* Legislation that provides for price support of shown wool, at an incentive level, to encourage a minimum production of 300 million pounds annually. This is about half of annual domestic use.

*Naval stores.* Products, such as turpentine and resin, obtained from the distillation of crude pine gum.

*Nematocide.* Any substance used to kill nematodes. These are parasitic worms, abundant in many soils, that are important because many of them attack and destroy plant roots.

*Net income.* The income (realized net) farm operators realize as a return for labor, investment, and management after production expenses have been paid, excluding inventory change.

*Total net income.* Net income adjusted for the net inventory change in the change in the value of farm crops and livestock. See *Appendix*, page 84.

*Nitrogen.* A chemical element essential to life. Animals get it from protein foods; plants get it from soil; and some bacteria get it directly from air. One of the primary plant nutrients.

*Oil crops.* The three main oil crops are flaxseed, soybeans, and cottonseed. Sunflower, safflower, castor bean, and corn are also used for making oil.

*One-man baling.* Use of field pickup hay balers, with self-tying attachments and bale ejectors, that allow one man to harvest hay crops.

*Parity Price Indexes.* A price index is an indicator of the average level of prices for a group of commodities in relation to prices for the same commodities at some other period, commonly called the base period. Monthly price indexes computed by the U.S. Department of Agriculture are the Index of Prices Received by Farmers and the Index of Prices Paid by Farmers for Commodities and Services, Interest, Taxes and Farm Wage Rates, sometimes referred to as the Parity Index.

*Parity Price.* A parity price is a price for an individual commodity such that it would purchase on a given date a quantity of a standard list of goods equal to those which could have been bought in 1910-14 at the prices then prevailing.

*Parity Ratio.* The parity ratio is a measure of the average per unit purchasing power of all farm products in terms of goods and services farmers buy in relation to the 1910-14 base period.

*Pesticide.* A substance used to kill a pest; a nonspecific term that includes insecticides, fungicides, herbicides, and nematocides.

*Phosphate.* An important element in fertilizer. Derived from phosphoric acid, it occurs in bones and certain rocks. A term commonly used to indicate a fertilizer supplying phosphorous.

*Potash.* Potassium carbonate, an essential nutrient for plant growth and a major element in chemical fertilizers. A term commonly used to indicate a fertilizer supplying potassium.

*Prices-paid index.* The index of prices farmers pay for goods and services (including interest, taxes, and farm wage rates) used for producing farm products and in farm family living (1910-1914=100). Also referred to as the Parity Index.

*Prices-received index.* An index of average prices received by farmers for 55 of the most important products sold by farmers (1910-14=100).

*Production credit associations.* Associations, owned by their farmer-borrowers, that provide operating loans for periods up to one year and capital loans for periods up to seven years, from funds obtained from investors in the money markets.

*Production expenses.* Total cash outlays for production (excluding capital expenditures) plus "noncash" outlays, such as depreciation of capital items.

*Public Law 480.* A law enacted to expand agricultural trade between the United States and friendly nations and to make most efficient use of agricultural abundances to further U.S. foreign policy. Through four titles, it provides:

Title I – Sale of U. S. farm products for foreign currencies used for the mutual benefit of the United States and the purchasing country.

Title II – Use of abundant agricultural products (held by the Commodity Credit Corporation) for famine and similar relief abroad. Administered by AID (Agency for International Development).

Title III – Two programs: One provides for distribution of abundant foods to needy persons in the United States and abroad. The other provides for barter of CCC commodities for strategic and other materials, goods, and equipment the United States needs.

Title IV – For long-term supply and dollar credit sales of U. S. agricultural products.

*Pulpwood.* Wood used in the manufacture of paper and synthetic fibers.

*Ranch.* An establishment, including land and facilities, used for the production of livestock. Accepted western usage generally refers to the headquarters facilities, pastures, and other land as the ranch, as distinguished from range. Loosely, a western farm, as a fruit ranch.

*Rangeland.* Land that produces primarily native forage suitable for grazing by livestock. Also, forest land producing forage. Usually, relatively extensive areas of land suitable for grazing, but not suitable for cultivation–especially in arid, semiarid, or forested regions.

*Resources.* Available means for production. Land, labor, and capital are the basic means of production on farms.

*Rotation, crop.* The growing of different crops, in recurring succession, on the same land.

*Roughage.* Feed, such as hay and silage, with high fiber content and low total digestible nutrients.

*Section 32.* A section of Public Law 320 (approved August 24, 1935) which authorizes use of customs receipts funds to encourage increased consumption of agricultural commodities by means of purchase, export, and diversion programs.

*Sharecropper.* Tenant who shares crops, livestock, or livestock products with the landlord, and who usually works under close supervision of the landlord.

*Silage.* A crop that has been preserved in a moist, succulent condition by partial fermentation in a tight container (silo). The chief silage crops are corn, sorghum, and various legumes and grasses.

*Soil.* A dynamic natural body on the surface of the earth in which plants grow, composed of mineral and organic materials and living forms. In the United States

about 70,000 kinds of soil are recognized in the nationwide system of classification. Each has a unique set of characteristics and a unique potential for use.

A *soil series* is a group of soils alike in all those *properties* that influence the behavior of the soil in its natural environment. They are given proper names from place names within the areas where they occur. Thus Norfolk, Miami, and Houston are names of well-known soil series.

A *soil type* is a group within a series according to the *texture* of the surface soil, such as Miami silt loam. Many series have only one type.

*A phase* is a subdivision of a soil type on the basis of some factor of importance to its use under *culture.* Thus Miami silt loam, undulating, and Miami silt loam, sloping, are phases with Miami silt. Other phases are those indicating stoniness, depth to rock, and so forth.

*Soil Bank.* A program authorized by Congress in 1956, establishing an Acreage Reserve until 1958, provided that growers be compensated each year to reduce production of certain crops by idling land. The Conservation Reserve provided for rental payments to farmers who retired cropland for 3 to 10 years.

*Soil conservation district.* An organization, created under State Law, for developing and carrying out a program of soil and water conservation within its geographic boundaries. In most States, a soil conservation district is a legal subdivision of the State Government, autonomously controlled with public powers.

*Sorghum.* A cereal grass used mainly for feed grain or silage. Often grown in corn and wheat areas.

*Soybeans.* A legume crop, native to the Orient, used mainly in the United States for high protein feed and oil.

*Standard Metropolitan Statistical Areas (SMSA's).* Except in New England, SMSA's include the county in which a city of 50,000 or more is located and adjacent counties that are economically and socially integrated (that is, 15 percent or more of the work force commutes) with the county of the central city. In New England, SMSA's consist of towns and cities rather than counties.

*Starch.* A complex carbohydrate found in most plant seeds, bulbs, and tubers.

*Stripcropping.* Growing crops in a systematic arrangement of strips or bands to serve as vegetative barriers to wind and water erosion. See *Contour farming.*

*Stubble mulch.* A protective cover provided by leaving plant residues of any previous crop as a mulch on the soil surface when preparing for the following crop.

*Subsistence farm.* A low-income farm where the emphasis is on production for use of the operator and his family.

*Supplementary imports.* Imports that supplement output of U. S. agriculture. Examples: Cattle, meat, fruit, vegetables, and tobacco. See *Complementary imports.*

*Synthetics.* Artificially produced products that may be similar to natural products.

*Tall oil.* Byproduct from the manufacture of chemical wood pulp. Used in making soaps and for various industrial products.

*Technology.* The application of new techniques and innovations.

*Tobacco* (types).

*Air-cured*—Cured under natural atmospheric conditions. Artificial heat is sometimes used to control excess humidity during the drying period.

*Fire-cured*—Cured under artificial atmospheric conditions by the use of open fires, from which the smoke and fumes of burning wood are partly absorbed by the tobacco.

*Flue-cured*—Cured under artificial atmospheric conditions, by regulating heat and ventilation, without allowing smoke or fumes from the fuel to come in contact with the tobacco.

*Trace element.* A chemical substance that occurs in minute amounts in plants. Some are beneficial to plant and animal growth, some may exert detrimental effects, and some have no known effects.

*Unit cost.* The total production cost of a single item. The total cost (fixed plus variable) divided by the number of items produced.

*Upland cotton.* A type of cotton native to the United States, Mexico, and Central America. Includes all cotton grown in the continental United States except Sea Island and American-Egyptian cotton. Staple length of upland cotton ranges from 3/4 inch to 1-3/32 inches.

*Utilization research.* Study of how a commodity can be used, in contrast with *production* research, which is a study of how a commodity can be produced more efficiently.

*Watershed.* (1) The total land area, regardless of size, above a given point on a waterway that contributes runoff water to the flow at that point. (2) A major drainage-area subdividion of a drainage basin. On the basis of this concept, the United States is generally divided into some 18 major drainage areas, 160 principal river drainage basins, containing some 12,700 smaller watersheds.

*Waterway.* A natural course for the flow of water.

*Yield, economic maximum.* Yield based on full efficient economic application of presently known technology. Assumes there are no limitations on management, materials, equipment, capital, and experience.

## SELECTED REFERENCES

The Crop Reporting Board of the USDA Statistical Reporting Service issues periodic reports of crop and livestock production and related topics. For detailed contents of each report, write for "Crop Reporting Board Reports, 1972, Issuance Dates and Contents," available free. Order from OMS Information, U.S. Department of Agriculture, Washington, D. C. 20250. Free mailing lists are maintained for most reports.

### SITUATION REPORTS

Situation Reports summarize the current situation and present economic outlook for agriculture.

*Cotton Situation, (CS), Dairy Situation (DS), Fats and Oils Situation (FOS), Feed Situation (FdS), Fruit Situation (TFS), Livestock and Meat Situation (LMS), Poultry and Egg Situation (PES), Rice Situation (RS), Tobacco Situation (TS), Vegetable Situation (TVS), Wheat Situation (WS), Wool Situation (TWS),* all free, unrestricted mailing lists. *Contents:* These commodity reports anaylze supply, demand, price, and outlook of major farm commodities. They include tables and charts presenting current data on production, market movement, stocks, consumption, prices, and foreign trade. Relevant special studies are frequently included.

*Agricultural Finance Outlook* (AFO), free, unrestricted mailing list. *Contents:* Provides situation and outlook for farm income, the financial condition of farmers, farm real estate, farm debts and assets, and a projected balance sheet of the farming sector. Situation and outlook are discussed for each farm production region.

*Agricultural Outlook Digest* (AOD), free, unrestricted mailing list. *Contents:* A monthly newsletter that briefs the outlook and changes in commodity situations.

*Demand and Price Situation* (DPS), free, unrestricted mailing list. *Contents:* Reviews factors affecting the domestic and foreign demand for farm products. It also briefly reviews farm income and general trends in demand, supply, and prices of major farm products and the principal farm inputs.

*Farm Cost Situation* (FCS), free, unrestricted mailing list. *Contents:* Discusses farm labor, farm power and machinery, feeds, livestock and feed, seeds, fertilizer, petroleum, pesticides, land values and rentals, interest, taxes and insurance, and costs on different types of enterprises. The tables show index numbers of prices paid for goods and services used in production, numbers of machines on farms, feed supplies in relation to livestock, retail

seed prices, and value of farm real estate. The report gives the outlook for farm costs and anlyzes the effects of changing technology on farm costs.

*Farm Income Situation* (FIS), free, unrestricted mailing list. *Contents:* Estimates cash receipts from farm marketings, by commodity groups, and Government payments, index numbers of cash receipts and of physical volume of farm marketings, and State estimates of cash receipts from sales of crops and livestock. Each issue gives quarterly estimates of gross and net farm income, seasonally adjusted at annual rates. The report also compares farm and nonfarm incomes. A State supplement shows direct Government payments to farmers, value of home consumption, gross and net farm income, farm production expense details by accounts and cash receipts from farm marketings by States, by major individual commodities.

*Farm Real Estate Market Developments* (CD), free, unrestricted mailing list. *Contents:* Issued once a year with two supplements, summarizes trends in farmland values, volume of sales, financing of farm purchases, and factors affecting the land market. Each issue includes index numbers of estimated average value per acre by States.

*Marketing and Transportation Situation* (MTS), free, unrestricted mailing list. *Contents:* Published quarterly, contains analysis and statistics on the retail cost of a market basket of farm foods, returns received by farmers for these products, and the spread between these returns and the retail cost. The marketing bill for farm food products and related statistics and data on costs of goods and services used by marketing firms are also published once a year. Each issue includes special articles on marketing and transportation.

*National Food Situation* (NFS), free, unrestricted mailing list. *Contents:* Details per capita consumption of major foods, nutrients available for civilian consumption, indexes of the annual supply and use of farm food commodities, retail food price indexes, the Consumer Price Index, total food expenditures, and the percentage of income spent for food. It includes the outlook for food expenditures, retail prices, and consumption. Some issues carry special analyses on various aspects of food consumption and prices.

*World Agricultural Situation* (WAS), free, unrestricted mailing list. *Contents*: Published annually in November, appraises world agriculture for 1970 and the outlook for the coming year. Regional situation reports and data books are issued in April for these regions: Western Hemisphere, Western Europe, the Communist Areas, Far East, Africa and Middle East. Each report gives data by country on agricultural output, use, trade, and trends.

## FARM FINANCE REPORTS

*Balance Sheet of the Farming Sector*, free, unrestricted mailing list. *Contents*: Issued annually as of January 1, it views the farm sector of agriculture as one large enterprise, and brings together individual series of farm assets and claims to these assets. It includes both farm assets owned and farm-mortgage debt owed by nonoperators.

*Farm-Mortgage Debt* (FMD), free, unrestricted mailing list. *Contents*: Issued annually, shows total farm-mortgage debt and amounts held by principal lender groups.

*Farm-Mortgage Lending Experience* (FML), free, unrestricted mailing list. *Contents*: Semiannual report on activities of selected life insurance companies, the Federal land banks, and the Farmers Home Administration. It compares the mortgages owned at the beginning of the period, the mortgages acquired and repaid during the period, and those owned at the end of the period. Mortgage loan commitments, mortgages in process of foreclosure, and interest rates are also discussed.

*Characteristics of Farm Mortgage Lending*, free, no mailing list. *Contents*: Reports (for odd years) the average interest rates, size, and term of farm real estate mortgages made and recorded in 48 States.

## FARM COST AND RETURNS AND EFFICIENCY REPORTS

*Farm Costs and Returns* (FCR), free, unrestricted mailing lists. *Contents:* Costs and returns are surveyed annually for 9 types of farming operations and reported in 9 separate publications.

*Changes in Farm Production and Efficiency* (FPE), free, unrestricted mailing list. *Contents:* Published annually, presenting major statistical series on farm production, production inputs, and efficiency. It provides in one place the latest information on production trends, changes in farm inputs and practices, uses of cropland, labor productivity, and farm mechanization.

*Livestock-Feed Relationships* (NLFR), free, unrestricted mailing list. *Contents:* Annually provides current data on livestock-feed relationships.

## FOREIGN AGRICULTURAL TRADE REPORTS

*Foreign Agricultural Trade of the United States* (FATUS), free, unrestricted mailing list. *Contents:* A monthly review, emphasizes the current status and outlook for U.S. agricultural trade, including food-for-peace shipments, commercial exports, price developments, and monthly quantity indexes for selected commodity groups.

*Foreign Gold and Exchange Reserves* (FGER), free, unrestricted mailing list. *Contents:* Issued twice a year, appraises the external financial position of foreign countries and implications for U.S. farm product exports.

*Farm Population Estimates* (PE), free, unrestricted mailing list. *Contents*: Usually issued annually, estimates the current farm population distribution by geographic regions and divisions and estimates the components of annual change (births, deaths, and migration) in the farm population for the United States and geographic areas. Occasional special reports contain historical estimates for 1910 on, or State estimates for intercensal dates.

*Census-ERS Series* (Census-ERS P-27), free, unrestricted mailing list. *Contents:* Prepared cooperatively with the Bureau of the Census, provides annual estimates of the farm population distribution by age, sex, labor force status, and, at times, by other characteristics. *Census-ERS Series* and *Farm Population Estimates* contain the same estimate of the total U.S. farm population, but the distributions shown in each are obtained independently.

*Hired Farm Working Force* (Hired FWF), free, unrestricted mailing list. *Contents:* Annual report on U.S. agricultural workers, based on data obtained for ERS by the Bureau of the Census.

## ANNUAL SUMMARIES

*Agricultural Statistics,* free distribution limited to libraries and Members of Congress, purchase price: $2.75, Superintendent of Documents, Government Printing Office, Washington, D.C. 20402. A comprehensive statistical report, containing current and historical agricultural data. Revised annually.

*Handbook of Agricultural Charts,* purchase price: 65 cents, no mailing list. *Contents:* Provides 150 charts with accompanying data that cover key factors in the economic situation and outlook for agriculture. Revised annually.

*Agricultural Slide Series,* purchase price, $19.00. *Contents*: A set of 150 full-color slides of all charts contained in the *Handbook of Agricultural Charts.* Designed for teachers, lecturers, meetings, and exhibits. Order from: Photography Division, Office of Information, USDA, Washington, D. C., 20250. Make check payable to Office of Information, USDA.

*Agricultural Situation* (Ag. Sit.), $1.00 per year, $1.50 foreign, restricted mailing list. *Contents:* Issued 11 times a year, presents articles on timely marketing and economic developments affecting farmers. Review and outlook of current production, supply, and price conditions is included in each issue. Free distribution limited to voluntary crop and livestock reporters, county agents, libraries, and government officials.

*Farm Index,* single copies of this magazine free, free mailing list, restricted to participants in ERS projects. Subscriptions: $2.00, $2.50 foreign. *Contents:* Features monthly, in nontechnical language, results of ERS's broad research program.

*Agricultural Economics Research,* free mailing list, restricted to agricultural economics professionals. Single copies 40 cents, subscriptions $1.00, $1.25 foreign. *Contents:* A quarterly containing technical articles on methods, results, and findings of research in agricultural economics.

*Agricultural Finance Review*, free, unrestricted mailing list. *Contents*: Annually reviews developments and research findings in agricultural finance.

## FARM INCOME CONCEPTS: THEIR MEANING AND MEASUREMENT

The Department of Agriculture publishes regularly a comprehensive set of income estimates relating to agriculture which have been developed over more than a third of a century.

Basically, the estimates center around two major concepts of farm income.

One views agriculture as a business or industry, measuring gross farm income, farm production expenses, and finally the net return to farm operators for their farm work (including that of their families) and for the capital invested in their farms and equipment. The most commonly used measure of the net return from agriculture is– *Realized Net Income of Farm Operators from Farming.*

The other major concept relates to the people who live on farms and the incomes they have available for purchasing the goods and services in the American standard of living. This concept recognizes that there are some people living on farms, such as farm laborers and their families, in addition to people in farm-operator families, and also that farm people receive a significant part of their income from nonfarm sources as well as from the farm. The series appropriate to this concept is–*Personal Income of the Farm Population from All Sources.*

These two major series are derived from the various components, or building blocks, of the farm income estimates. Generally, the individual components are important series in their own right, providing insight into the major economic forces affecting the over-all farm income situation.

The components used in calculating the *realized net* and *total net income* from farming for 1971 are shown in the following table:

*Income from Farming*

| | 1971 |
|---|---|
| | *Bil. dol.* |
| Cash receipts from farm marketings | 51.6 |
| Government payments to farmers | 3.2 |
| Realized nonmoney income | 3.8 |
| Realized gross farm income | 58.6 |
| Farm production expenses | −42.9 |
| Farm operators' realized net income | 15.7 |
| Net change in farm inventories | .6 |
| Farm operators' total net income | 16.3 |

*Realized gross farm income* includes 3 principal components:

1. *Cash receipts from farm marketings* of farm products represent gross receipts from commercial market sales as well as loans (net of redemptions) made or guaranteed by CCC and purchases under price support programs.
2. *Government payments to farmers* are those made directly to farmers in connection with farm programs such as the Soil Bank, Agricultural Conservation, and Wool Incentive programs.
3. *Nonmoney income* includes farm products consumed directly in farm households (valued at average prices received by farmers) and the value of housing provided by farm dwellings (determined in relation to the value of the dwellings).

*Farm production expenses* comprise the aggregate costs incurred in farm production. They include current farm operating expenses for such items as wages paid to hired labor (in cash and in kind) and outlays for repairs of equipment and operation of the farm, as well as purchases of feed, seed, and livestock. Overhead-type costs include charges for depreciation and other capital consumption, taxes on farm property and interest on the farm mortgage debt.

Expenditures on new buildings, motor vehicles and other capital equipment are not included as a production cost. Production expenses include instead an allowance for annual depreciation and other capital consumption.

Estimates of depreciation are based on replacement cost, which is the amount necessary at current prices to replace buildings and equipment used

up during the year. Thus, after a period of substantial price increase, as has occurred since World War II, the current replacement cost basis results in larger depreciation charges than would estimates on an original cost basis. For example, during 1967-71, farm machinery prices rose some 23 percent.

*Farm operators' realized net income* represents what is left from realized gross farm income after deducting farm production expenses. This is substantially the net income realized from sales.

*Net change in farm inventories* measures the change in physical quantities of livestock and crops on farms, valued at average prices prevailing during the year. For some purposes, particularly for combining with the national income estimates of the nonfarm economy, which measure the net value of production during the calendar year, it is necessary to take into account changes in farm inventories. However, it should be kept in mind that the value of a buildup in inventories is "unrealized" until sold and that prices realized at the time of sale may be considerably different from those prevailing during the year of accumulation.

*Farm operators' total net income* is their realized income plus or minus the value of the net change in inventories. It is the figure included in the national income estimates of the U.S. Department of Commerce as farm proprietors' income.

*Farm wages of laborers on farms* represent the income received by farm laborers living on farms from wages paid by farm operators.

*Personal income of the farm population from all sources* is the sum of the personal income of the farm population from farm and nonfarm sources. Personal income from farm sources is the total net income of farm operators, including government payments, *less* the net income of nonresident farm operators, *plus* wages and salaries and other labor income of farm resident workers, *less* contributions of farm resident operators and workers to social insurance. Personal income of the farm population from nonfarm sources consists of income received from nonfarm wages and salaries, business and professional income, interest, and transfer payments, such as unemployment compensation, social security, and veterans benefits. Also included is rental income from nonfarm sources and an estimate of income from items such as dividends and royalities.

The components used in calculating the personal income of the farm population are shown in the following table:

*Personal Income of Farm Population*

| | 1971 |
|---|---|
| | *Bil. dol.* |
| From farm sources | 14.5 |
| From nonfarm sources | 13.5 |
| Total, all sources | 28.0 |

The *per capita personal income* of the farm population is derived by dividing the appropriate totals by the number of people living on farms.

The difference between *nonfarm income* and *off-farm income* is primarily the group of people referred to when each term is used. Nonfarm income, of which the preliminary 1971 estimate is $13.5 billion, is the income of *resident farm population* from nonfarm sources. Off-farm income, preliminarily estimated at $17.8 billion for 1971, refers to the income of *all farm operator families* from sources other than the farm operated. A number of farm operator families reside in urban areas while operating farms in rural areas, and they are not counted among the *resident farm population.* The term, *off-farm income,* therefore refers to the more inclusive group—*all farm operator families,* whether or not they reside on farms.



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