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Structural and Financial Characteristics of U.S. Farms, 1993: 18th Annual Family Farm Report to Congress. By Robert A. Hoppe, Robert Green, David Banker, Judith Z. Kalbacher, and Susan E. Bentley. Rural Economy Division, Economic Research Service, U.S. Department of Agriculture. Agriculture Information Bulletin No. 728.

Abstract

In 1993, the 2.1 million farms in the contiguous United States operated an average of 436 acres and produced an average of $73,700 in agricultural products, as measured by gross sales. Characteristics of individual farms—including their level of production—varied widely, however. Most production occurred on relatively few commercial farms. Commercial farms (sales of $50,000 or more) were only 27 percent of U.S. farms, but accounted for about 90 percent of sales. Households with noncommercial farms (sales less than $50,000) relied on off-farm sources for virtually all their income. U.S. farms are diverse, and variation within the industry is hidden by U.S. averages.

Keywords: Farm Costs and Returns Survey, farm structure, farm financial situation, farm operator household income.

Preface

This report is the 18th annual report to the Congress on the status of family farms. These reports have been submitted to Congress in accordance with the Food and Agriculture Act of 1977, as amended. This report is the fourth in the series to provide annual data on the major structural and financial characteristics of U.S. farms using the U.S. Department of Agriculture's Farm Costs and Returns Survey (FCRS).

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Summary

The 2.1 million farms in the contiguous 48 States operated an average of 436 acres and produced an average of $73,700 in agricultural products in 1993. But the characteristics of the farms varied widely.

This report uses statistics from USDA's 1993 Farm Costs and Returns Survey. It presents information on structural characteristics of farm operations, farmland ownership and use, farm finances, characteristics of farm operators, farm operator households' dependence on farming, and linkages between farm operators and their communities.

Nearly three-fourths of U.S. farms were noncommercial (gross farm sales less than $50,000). However, noncommercial farms accounted for only 10 percent of total gross farm sales. Commercial farms (gross sales of $50,000 or more) made up 27 percent of all farms but accounted for 90 percent of gross sales. Just 4 percent of all farms accounted for half of gross sales, while less than 1 percent of farms produced 25 percent of total U.S. output.

Overall, only about 12 percent of farm operator household income came from farming. Households operating noncommercial farms averaged $35,000 in total income, virtually all from off-farm sources. Households running commercial farms averaged higher income ($53,100), half of which came from off-farm sources. Only 8 percent of all farm operator households received income from farming that was near or above the average income for all U.S. households.

Most farm operations were full owners of their land. The 6 percent of farms that rented both land and other assets produced about 23 percent of gross sales. About 3 percent of U.S. farms were corporations in 1993, and that 3 percent produced 18 percent of total gross farm sales. Family corporations accounted for a larger share of total gross farm sales (15 percent) than nonfamily corporations (3 percent).

About 17 percent of all farm operators said they were retired. Although still classified as farm operators, this group accounted for little production.

Structural and Financial Characteristics of U.S. Farms, 1993

18th Annual Family Farm Report to Congress

Robert Hoppe
Robert Green
David Banker
Judith Kalbacher
Susan Bentley

Introduction

This report is the 18th in the series of congressionally mandated Family Farm Reports. It provides detailed information about the major structural and financial characteristics of farms in 1993 that is not available from any other single publication. The series of Family Farm Reports originated with the Food and Agricultural Act of 1977, which required the U.S. Department of Agriculture (USDA) to prepare a report to Congress providing information about the trends in family and nonfamily farm operations and the effects of government programs and Federal laws on the family farm system. Congress has continued to require Family Farm Reports on an annual basis since that time, although the scope and content of the reports have changed.

This report examines farms classified by size and other characteristics. Farms are diverse, ranging from the very small to the very large. Most farms are small, however, because very little production is necessary to be classified as a farm by the USDA (or the Census Bureau). A farm is defined as a place that sells, or normally would sell, at least $1,000 of agricultural products (U.S. Dept. Agr., Nat'l. Agr. Stat. Serv., 1994a, p. 301; U.S. Dept. Comm., Bur. Cen., 1994a, p. vii).

Some operations may also be classified as a farm even if they have less than $1,000 in sales. If an operation does not have $1,000 in sales, a point system assigns values for acres of various crops and head of various livestock species to estimate a normal level of sales (U.S. Dept. Agr., Nat'l. Agr. Stat. Serv., 1993b, p. 1). Point farms have less than $1,000 of sales, but points worth at least $1,000, and are also counted as farms.

The information presented in this report falls into seven basic categories, each with its own section:

- **Structural Characteristics of Farm Operations.** Provides information on the size and types of farms, forms of farm organization, ownership and control of resources, and acreage and sales classes of farms.
- **Farmland Ownership and Use**. Measures the total amount of land operated, and the arrangements under which land is held and operated.
- **Farmland Removed from Production**. Shows how much land is taken out of production to comply with government programs.
- **Farm Finances**. Measures income and wealth of farms.
- **Characteristics of Farm Operators**. Provides information about the people who operate farms.
- **Farm Operator Households' Dependence on Farming**. Provides a sense of the importance of farming to operator households.
- **Farm Operators and Their Communities**. Shows where operators buy goods and services and how satisfied they are with their communities.

The discussion of these topics shows how the Nation's farms are organized to use and control their resources,

as well as the financial and economic results of their activities.

The characteristics of the farm sector in 1993 are discussed in the text and presented in summary tables and figures. The appendix tables contain additional detailed data frequently requested by policymakers and the public. Readers should note that, in some cases, individual estimates reported in the tables do not add exactly to totals due to rounding.

Appendix A contains detailed definitions of terms used in this report, while appendix B provides technical information about the Farm Costs and Returns Survey (FCRS), the source of most of the data used in this report. A brief description of the survey also appears in the box below.

Sources of Data

Most of the information in this report is from the 1993 Farm Costs and Returns Survey (FCRS). The FCRS has been used to prepare the annual Family Farm Report since the 15th report was prepared using data from the 1990 FCRS. The U.S. Department of Agriculture's Economic Research Service (ERS) and National Agricultural Statistics Service (NASS) conduct the FCRS in all States but Alaska and Hawaii. The FCRS is the only national-level data source on farm structure and finances that is available on an annual basis.

The data for 1993 were collected during February and March of 1994 from a representative sample of farm and ranch operations in the contiguous United States. In 1993, the useable sample size was about 8,000 operations.

Average gross cash income and average gross farm sales (or gross sales) are presented together in several of the tables for the first time this year. Gross cash income and gross sales measure different things. Gross sales, used primarily as an indication of farm size, is a measure of what the farm has produced. Unlike gross cash income, gross sales includes the shares of sales and government payments received by both the operation and the landlord(s). It also includes production contractors' share of the value of production.

In contrast, gross cash income is a measure of cash actually received by the farm business during the year and includes only the share received by the operation. More information and detailed definitions of terms used in this report are presented in appendix A.

Survey data are subject to both sampling and nonsampling errors. Both types of errors affect the reliability and validity of estimates from the FCRS. The magnitude of nonsampling error cannot be measured directly. Sampling error, however, can be measured. The relative standard error (RSE) used in this report is a measure of sampling error and data reliability.

The RSE for an estimate is the standard error of the estimate divided by the estimate, expressed as a percentage throughout this report. Because the reliability of estimates is questionable when the RSE exceeds 25 percent, data users should exercise caution when interpreting items with RSE's of this magnitude. See appendix B for a more detailed explanation of this statistic. FCRS estimates noted as different in the text differed from each other at the 95-percent (or higher) level of statistical significance, unless noted otherwise.

Census of agriculture data are used occasionally in this report to provide historical perspective. The FCRS is a relatively new survey, beginning in 1985 when data were collected for the 1984 calendar year. In contrast, the census of agriculture, begun in 1840 (U.S. Dept. Comm., Bur. Cen., 1994a, p. vii), allows one to follow trends over long periods of time.

Structural Characteristics of Farm Operations

Farm structure is variously defined, but discussions of the topic frequently cover:

- Number and size of farms (in terms of sales or acres)
- Specialization in production
- Ownership and control of productive farm resources, including (but not limited to) land
- Legal organization (individual operation, partnership, or corporation)
- Contractual linkages with other farm and non-farm businesses
- Geographic location of production
- Concentration of production
- Characteristics of farm operators and their households.[1]

Farm structure can be defined as how resources are organized to produce farm products, which includes all the points listed above. This section focuses on the structural characteristics of the farms themselves, or all the points except the last. Separate sections deal with operators and their households.

Number of Farms

U.S. farms numbered 2,063,300 in 1993. This estimate did not differ by a statistically significant amount from the 1992 estimate of 2,090,700 farms reported in the previous Family Farm Report (Kalbacher and Oliveira, 1995).[2] Both numbers, however, are down dramatically from the peak of 6.8 million in 1935 (U.S. Dept. Agr., Stat. Rep. Serv., 1962). Of course, farms were much smaller in 1935, averaging 155 acres (U.S. Dept. Comm., Bur. Cen, 1975, p. 457), compared with 436 acres in 1993. The remaining U.S. farms are diverse, as shown in the rest of this section.

Sales Class

One measure of the size of farms is the level of their gross sales. The sales classes used in this report are:

- Noncommercial farms (less than $50,000 in sales)
- Commercial (at least $50,000 in sales):
  - Small ($50,000 to $99,999 in sales)
  - Lower medium ($100,000 to $249,999 in sales)
  - Upper medium ($250,000 to $499,999 in sales)
  - Large ($500,000 to $999,999 in sales)
  - Superlarge ($1,000,000 or more in sales)

On average, noncommercial farms operated fewer acres, received smaller amounts of gross cash income, and produced a much smaller volume of gross sales than commercial farms (table 1). And, within the commercial category, average gross cash income and average volume of sales increased with sales class.[3]

Although 73 percent of U.S. farms were noncommercial in 1993, they accounted for a very small share of agricultural activity (fig. 1). Noncommercial farms received only 13 percent of gross cash income and accounted for only 10 percent of production, as measured by gross sales. At the other extreme, superlarge farms alone accounted for only 0.7 percent of all farms but received 23 percent of gross cash income and accounted for 26 percent of gross sales.

Most operators of noncommercial farms have an occupation other than farming. Only 29 percent of noncom-

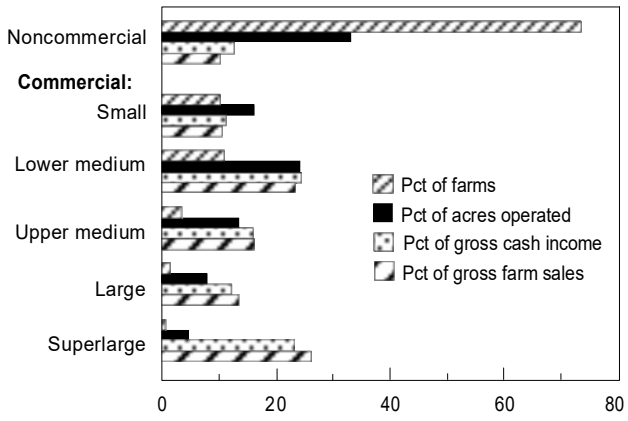
[1]This list was drawn from Penn (1979), Babb (1979), and Stanton (1993a).

[2]FCRS-based estimates discussed as different in the text differed from each other at the 95-percent (or higher) level of statistical significance, unless noted otherwise. For more information, see the box on sources of data or appendix B.

[3]Not all the increases in average acres operated were statistically significant.

Figure 1
Distribution, by sales class, of farms, acres operated, gross cash income, and gross farm sales, 1993

Most farms are noncommercial, but commercial farms account for most gross cash income and gross farm sales



Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey

Table 1—Farms, acres operated, gross cash income, and gross farm sales, by selected characteristics, 1993

Characteristic	Farms		Mean acres operated		Mean gross cash income		Mean gross farm sales	
	Number	*RSE*[1]	*Acres*	*RSE*[1]	*Dollars*	*RSE*[1]	*Dollars*	*RSE*[1]
All farms	2,063,300	2.3	436	3.7	68,891	3.3	73,694	3.7
Sales class								
Noncommercial	1,514,476	3.1	198	5.4	11,922	3.1	10,225	3.0
Commercial	548,824	2.1	1,094	4.4	226,096	3.0	248,835	3.5
Small	210,478	4.8	697	7.2	76,576	2.1	76,503	3.1
Lower medium	222,645	3.2	972	5.2	155,124	1.4	159,606	1.1
Upper medium	70,300	5.2	1,739	14.7	326,372	2.0	351,421	1.2
Large	30,575	7.3	2,342	13.5	571,882	5.0	669,175	1.5
Superlarge	14,825	6.7	2,941	12.5	2,226,139	8.4	2,682,215	9.8
Acreage class:								
1-49 acres	588,206	6.1	21	4.0	18,295	11.1	22,323	11.4
50-179 acres	629,906	4.4	104	1.6	28,761	6.6	31,248	7.2
180-499 acres	463,737	3.7	302	1.2	71,137	8.2	73,033	8.1
500-999 acres	200,545	4.2	691	0.9	144,301	4.8	171,031	9.1
1,000 or more acres	180,906	3.8	3,005	5.1	283,778	4.5	282,302	4.6
Farm type:								
Cash grains	351,275	3.9	635	3.8	91,047	3.8	95,121	3.9
Tobacco	91,787	13.5	147	10.4	32,032	13.5	34,524	13.9
Cotton	26,414	11.1	832	9.5	223,201	11.1	205,409	11.1
Other field crops	223,668	8.4	267	8.1	41,761	10.0	36,941	10.4
Veg., fruit, or nuts	111,304	11.9	157	15.0	133,525	15.5	123,278	16.4
Nursery or greenhouse	49,868	14.5	60	20.8	114,410	18.0	110,869	18.1
Beef, hogs, or sheep	962,900	3.7	512	6.4	42,673	7.6	47,673	9.3
Poultry	30,578	23.7	97	21.8	99,128	25.5	307,334	23.1
Dairy	140,022	4.9	328	4.1	173,326	4.3	173,629	4.4
Other livestock	75,484	13.1	256	26.3	40,095	23.9	38,649	25.6
Tenure:								
Full owner	1,123,922	3.6	225	6.9	34,714	8.1	41,092	9.5
Part owner	741,573	3.1	730	4.9	111,569	3.7	113,108	3.7
Tenant	197,805	7.4	534	9.2	103,084	7.7	111,171	7.9
Rental arrangements:								
No rentals	1,194,451	3.5	217	6.8	25,774	5.1	32,118	8.9
Land only	660,272	3.3	729	5.5	100,879	3.8	104,520	3.8
Land and other rentals	131,259	4.9	1,058	5.4	259,850	5.2	262,069	5.4
Other rentals only	77,319	13.1	278	15.6	137,636	27.4	132,939	28.1
Legal organization:[2]								
Individual	1,867,741	2.5	362	4.4	48,746	3.0	52,271	3.2
Partnership	125,171	6.9	850	9.5	182,049	7.2	196,001	10.7
Corporation	68,762	9.1	1,672	11.6	399,940	13.1	394,146	13.3
Family corporation	58,357	9.2	1,701	11.7	380,258	14.2	378,278	14.5
Nonfamily corporation	10,406	31.3	1,510	40.8	510,318	36.7	483,141	36.5
Farms, by type of sales:								
Cash sales only	1,837,992	2.5	409	4.3	51,050	4.2	49,967	4.3
Contracts (with or without cash sales)	225,308	4.7	661	5.4	214,432	4.6	267,248	6.4
Production contracts[3]	43,609	10.4	380	12.0	149,167	11.4	484,985	15.4
Marketing contracts[3]	185,736	5.2	730	5.8	235,181	5.1	225,691	5.3

[1]The relative standard error (RSE) provides the means of evaluating the survey results. A smaller RSE indicates greater reliability of the estimate. For more information, see the box on data sources or appendix B.
[2]This classification excludes cooperative farms. Categories do not sum to all farms.
[3]The categories "production contracts" and "marketing contracts" are not mutually exclusive. Farms may have both types of contracts.
Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey.

mercial operators reported farming or hired farm manager as their major occupation. In contrast, about 90 percent of commercial farm operators reported those as their major occupations.

Among noncommercial farms, average gross cash income was larger than average gross sales (table 1). These smaller farms had miscellaneous sources of farm income (such as custom work, grazing fees, tobacco allotment rents, land rents, and sales of forest products) that are included in gross cash income but excluded from gross sales.

Among commercial farms, however, gross sales appeared to be greater than gross cash income, although the difference between the two measures was statistically significant only for the upper medium and large groups. Extensive contracting and share renting can result in lower gross cash income than gross sales. Gross cash income includes only the share of income received by the operation. Gross sales, in contrast, reflects the shares of output accruing to the operation, production contractors, and share landlords.

Commercial farms are more likely than noncommercial farms to share output with production contractors or share landlords. For example, consider production contracts in 1993. Hardly any noncommercial farms had production contracts, compared with 7 percent of all commercial farms and approximately 20 percent of the large and superlarge farms.

Acreage Class

While sales class generally is a better indicator of farm size, acreage class is also used. Sales class unambiguously measures economic activity in dollars, while acreage class simply measures land used, without any indication of the value of what is actually produced. The number of acres necessary to produce a given dollar amount of farm products varies with the characteristics of the land. For example, farms in a fertile area with adequate rainfall require less land to produce a given amount of a particular crop than similar farms in more arid areas.

In addition, farms producing high-value or high-margin products may require relatively little land, compared with other farms. For example, nursery or greenhouse operations averaged $110,900 dollars of gross sales, similar to the $95,100 average for cash grain farms and the $123,300 average for vegetable, fruit, or nut farms. But cash grain farms and vegetable, fruit, and nut farms used an average of 635 acres and 157 acres, respectively, compared with only 60 acres for nursery or greenhouse operations.

Nevertheless, acreage class data show that most farms are small (fig. 2), the same conclusion drawn from sales class data. About 29 percent of all farms had 49 or fewer acres, and another 31 percent had between 50 and 179 acres. These two groups together produced only one-fifth of either gross cash income or gross sales.

Like the superlarge farms discussed earlier, farms with 1,000 or more acres accounted for a disproportionate share of gross cash income and gross sales. Three-fourths of all farms with at least 1,000 acres were located in the Corn Belt, the Northern and Southern Plains, and the Mountain States (app. table 1). See appendix A for the States in each region.

Farm Type

Farm type was determined by the farm production specialty classification that accounted for the largest portion of gross sales from the farm operation. In this report, 10 farm types are used (table 1). For more information about crops or livestock included in each category, see appendix A.

Beef, hogs, or sheep was by far the most common specialization among U.S. farms. Approximately 963,000 farms (47 percent of all farms) specialized in those livestock species. The next largest specialization was cash grain, which included 351,000 farms (17 percent of all farms).

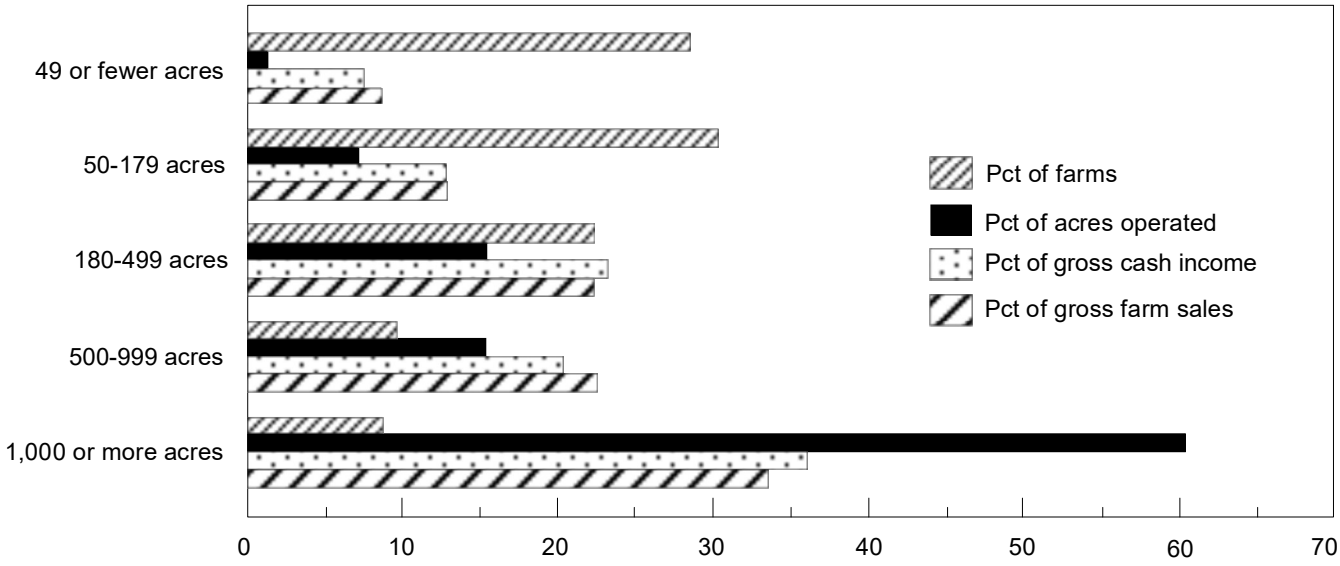
Farms specializing in beef, hogs, or sheep tended to be smaller than cash-grain farms. The average gross sales for beef, hog, or sheep farms was $47,700, compared with $95,100 for cash grain farms. About 86 percent of beef, hog, and sheep farms were noncommercial, compared with 51 percent of cash grain farms.

Farms specializing in beef, hogs, or sheep were also less likely to be operated by farmers reporting farming or hired manager as their major occupation. Sixty-six percent of the operators of cash grain farms reported that farming or hired manager was their major occupation, but only 36 percent of operators of beef, hog, or sheep farms reported those major occupations. The remaining beef, hog, or sheep operators either had another occupation (44 percent) or were retired (20 percent). The beef, hog, or sheep category is largely made up of cattle farms, and cattle farms often have relatively flexible labor requirements (Holcomb, 1982,

Figure 2

Distribution, by acreage class, of farms, acres operated, gross cash income, and gross farm sales, 1993

Small farms are more common, but larger farms produce more



Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey.

pp. 6, 22-23) that can fit well with an off-farm job or retirement.

Nevertheless, beef, hog, and sheep farms averaged 512 acres, which was above the U.S. average. Farms in this category can be land extensive. About 46 percent of farms with at least 1,000 acres specialized in beef, hogs, or sheep. At the other extreme, nearly 50 percent of the farms with 1-49 acres or 50-179 acres also specialized in raising beef, hogs, or sheep.

About 69 percent of poultry farms had production contracts, which accounted for the large difference between their average gross sales ($307,300) and average gross cash income ($99,100). This is because the contract fee that poultry operations receive is typically very small compared with the total value of poultry produced. As explained earlier, gross cash income includes only the operation's share of cash income while gross sales includes both the operation's share and the contractor's share of production.

Tenure

Each farming operation must have access to assets in order to produce crop and livestock products. This access may be obtained through renting rather than outright ownership. Historically, analysts have been most interested in the ownership and rental of land, since it is the principal asset used by farmers. Three tenure classes are used here:

- Full owners, who own all the land they operate
- Part owners, who own some of the land they operate, but also rent additional land
- Tenants, who rent all the land they farm. Operations that own only a small portion of the land they operated (less than 1 percent) are also considered to be tenant operations.

Census of agriculture data show that farm operations rented more acres of land during the Great Depression than currently, but most rentals then were by tenants (U.S. Dept. Agr., Econ. Res. Serv., 1994a, p. 24). In 1935, about 71 percent of rented land was leased to tenants and 29 percent was rented to part owners. By the 1970's, the percentages had reversed.

Land leasing has changed from a way for beginning farmers to enter agriculture to a way of gaining access to additional land (U.S. Dept. Agr., Econ. Res. Serv., 1994a, p. 20). Farm operations now expand by renting land to avoid debt and the risks associated with ownership (Reimund and Gale, 1992, p. 8) and to be able to respond more quickly to changing market conditions.

In 1993, most operations were full owners, but part owners and tenants had larger farms in terms of average acres operated, average gross cash income, and average

gross sales (table 1). The shares of gross cash income and gross sales accounted for by part owners and tenants were disproportionately large relative to their share of farms (fig. 3).

Generating that much income and production required operators to devote most of their working hours to farming. About 61 percent of partly owned and 66 percent of tenant operations had operators who reported farming or hired manager as their major occupation. In contrast, only 32 percent of fully owned operations had operators who reported those occupations.

Tenure differs by sales class (fig. 4), with commercial farms less likely to be full owners. About 66 percent of noncommercial farms were full owners, compared with between 16 and 31 percent for the various commercial classes.

Other Rental Arrangements

Land (or real estate) is not the only asset that farms rent. Among other assets commonly rented are vehicles, machinery, equipment, and livestock. The motivation for renting these assets is the same as for renting land: renting allows operations to control and use additional assets without incurring additional debt or the risks of ownership.

Farms that rented both land and other assets were larger than other farms, whether size was measured as average acreage, average gross cash income, or average gross sales (table 1). With only 6 percent of all farms, this group accounted for about 23 percent of gross sales. Average age of operators in this group was 46 years, or 5-10 years less than the averages for the other groups. Farms renting both land and other assets were most likely to specialize in cash grain (40 percent); beef, hogs, or sheep (23 percent); or dairy (16 percent). They were most concentrated in the Corn Belt (26 percent), Lake States (18 percent), and Northern Plains (18 percent).

Renting was much more common among commercial farms than among noncommercial farms (fig. 5). A particularly large percentage of superlarge farms (9 percent) rented only assets other than land.

Legal Organization

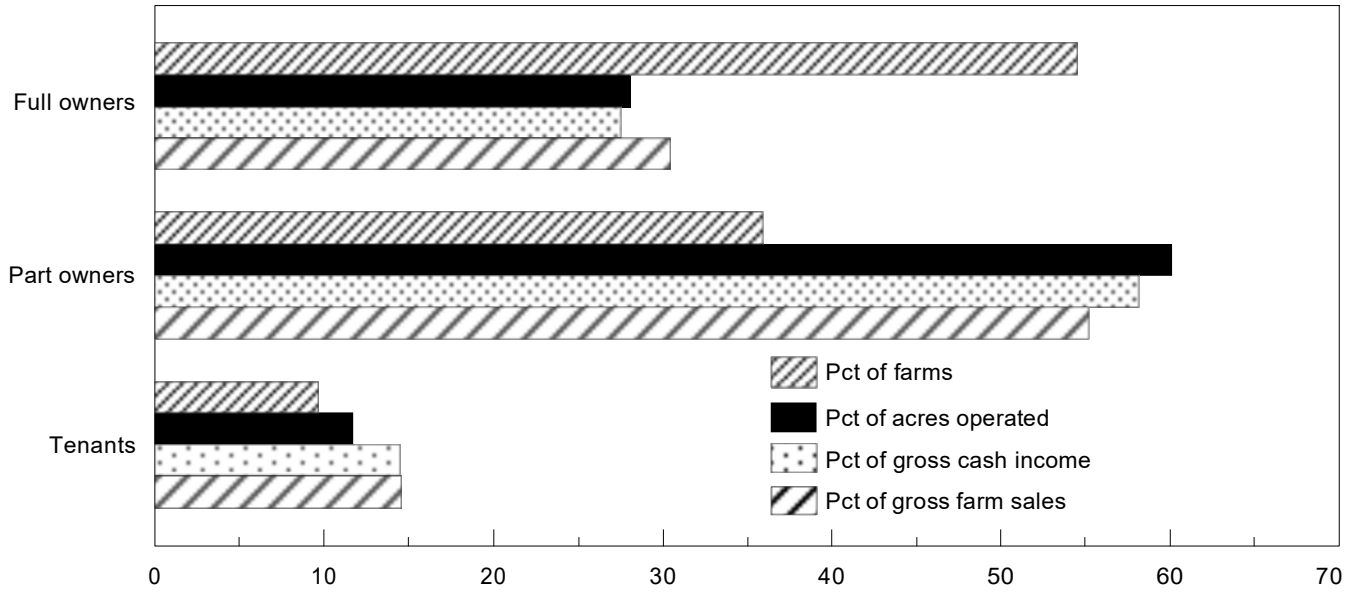
Farms are classified in the FCRS according to their legal organization using the following categories (U.S. Dept. Agr., Nat'l. Agr. Stat. Serv., 1993a, pp. M5114-M5115):

- Individual operations or sole proprietorships. Includes informal partnerships, such as those between spouses.

Figure 3

Distribution, by tenure, of farms, acres operated, gross cash income, and gross farms sales, 1993

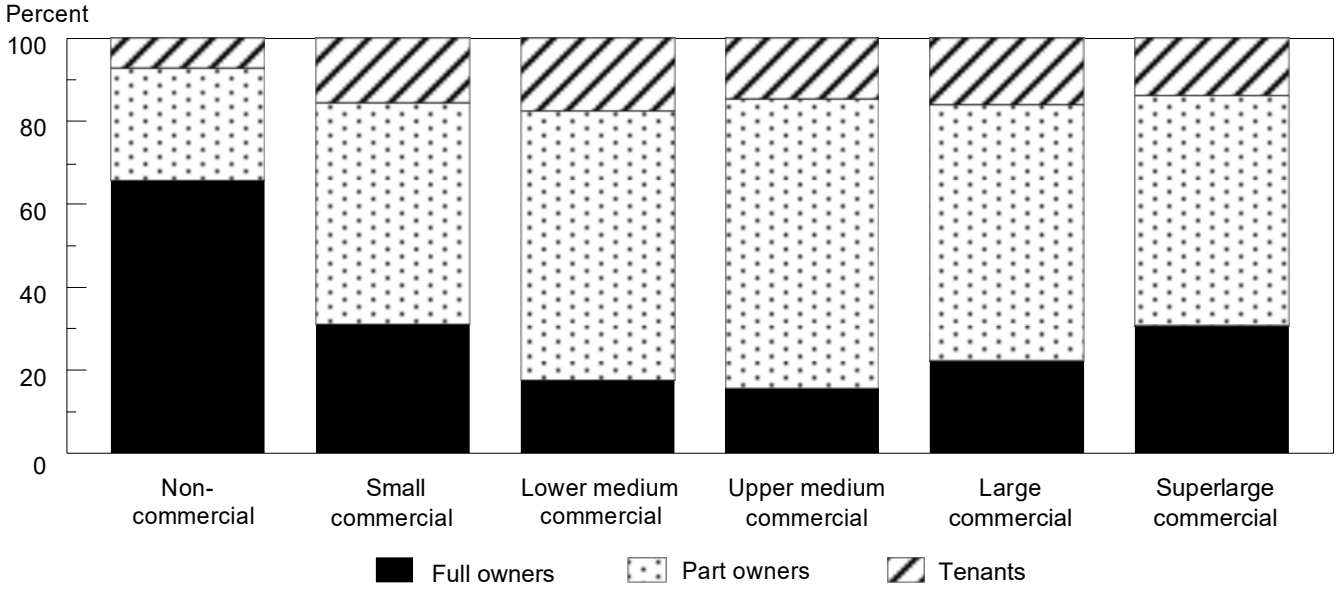
Part owners receive most gross cash income and generate most gross farm sales



Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey.

Figure 4
Sales class by tenure, 1993

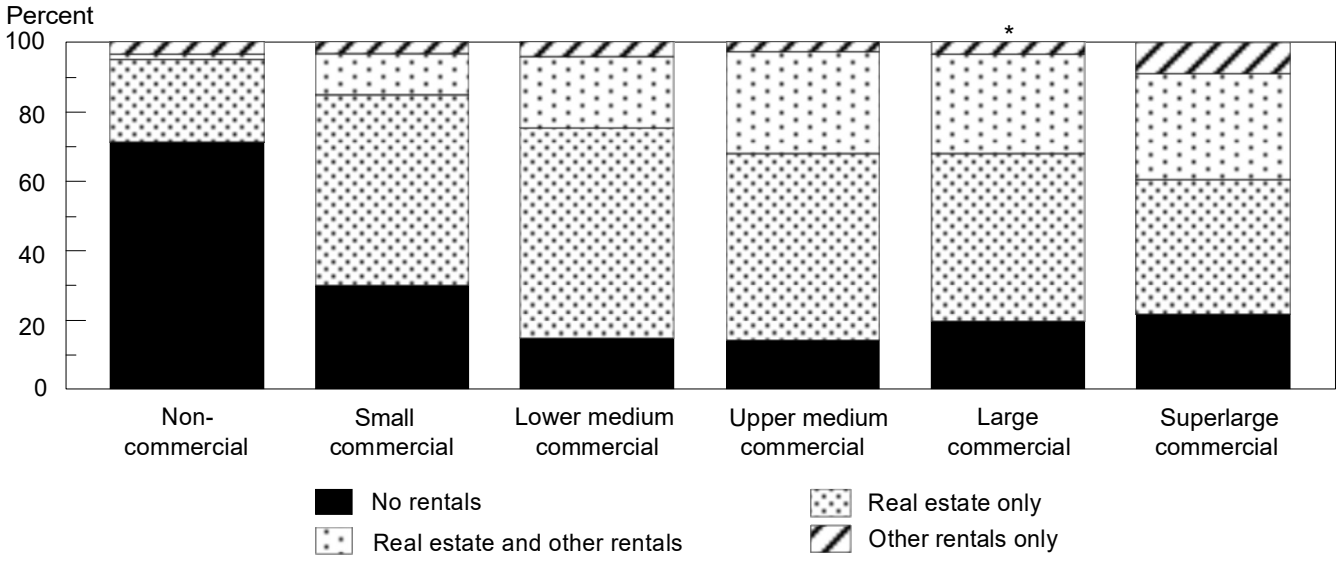
Noncommercial farms are more likely to be full owners



Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey.

Figure 5
Sales class by rental arrangements, 1993

Renting is more common among commercial farms



*Relative standard error is greater than 25 percent.

Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey.

- Partnerships. Includes only partnerships established legally.
- Corporations:
  - Family corporations. More than 50 percent of the stock is held by people related by blood or marriage.
  - Nonfamily corporations. Corporations other than family corporations.
- Cooperatives. Voluntarily organized associations controlled by their members or patrons.

Because of the small number of cooperative farms (less than 1 percent of all farms), they are not presented separately in the tabulations pertaining to organization in table 1.

U.S. farms are most commonly organized as individual operations. Of the 2.1 million farms, approximately 1.9 million were individual operations in 1993 (table 1). Individual operations were more common among smaller farms. Approximately 94 percent of noncommercial farms were individual operations, compared with 82 percent of commercial farms. Within the commercial farm category, the share of individual operations was highest, 90 percent, for small commercial farms and decreased to 40 percent for superlarge farms.

Farms organized as legal partnerships and corporations are much larger than individual operations in terms of average acres, average gross cash income, and average gross sales. Farms organized as partnerships or corporations also produced a share of agricultural products disproportionate to their numbers. Partnerships made up only 6 percent of U.S. farms, but accounted for 16 percent of gross sales (fig. 6). Similarly, family and nonfamily corporations together were only 3 percent of U.S. farms, but accounted for 18 percent of gross sales.

Corporate farms were not, for the most part, run by large nonfarm businesses. In 1993, 58,400 farms were organized as family corporations, while only 10,400 farms were organized as nonfamily corporations (table 1). Family corporations also were responsible for a larger share of gross sales (15 percent) than nonfamily corporations (3 percent) (fig. 6).

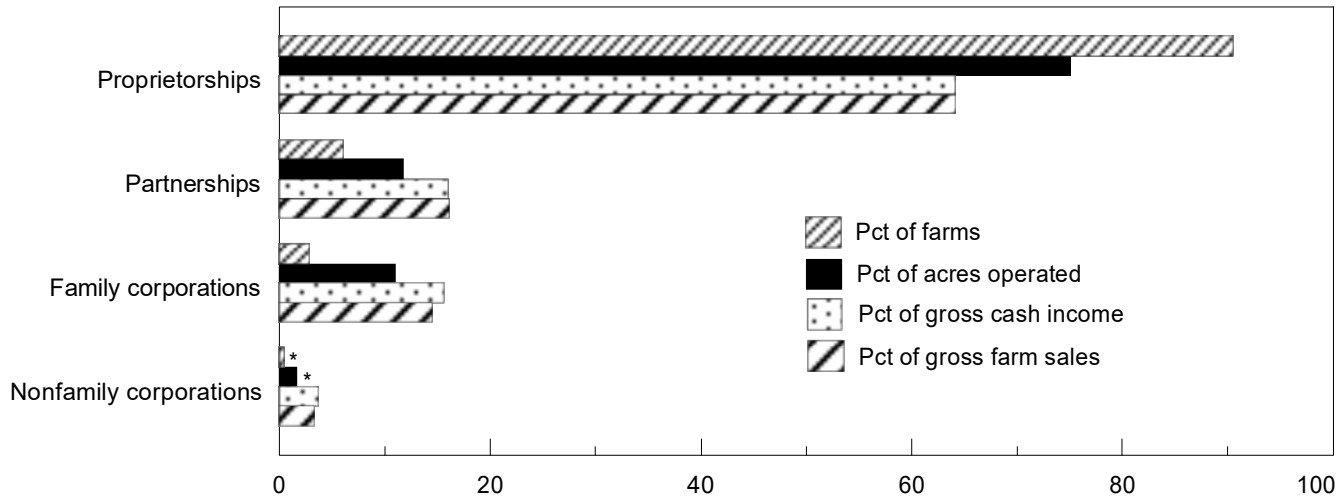
Data from the census of agriculture show that family-owned farms (individual operations, partnerships, and family corporations) are not losing their share of U.S. agriculture to nonfarm corporations (Reimund and Gale, 1992, p. 7; U.S. Dept. Comm., Bur. Cen., 1994a, p. 58). Nonfamily corporations' share of all U.S. farms remained relatively stable between 1978 and 1992. And, nonfamily corporations' share of total farm product sales actually fell slightly after 1978.

Family corporations, however, increased their share of both farms and sales during the 1978-92 period.

Figure 6

Distribution, by legal organization, of farms, acres operated, gross cash income, and gross farm sales, 1993

Partnerships and corporations generate a disproportionate share of gross cash income and gross farm sales



*Relative standard error greater than 25 percent.
Note: Data exclude cooperative farms.

Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey.

Partnerships' share of farms fell slightly, while their share of sales grew. Shares of both farms and sales decreased only for individual operations.

Contracting

Although nonfamily corporations may not be taking over farming, some important changes have occurred in the way farm production and marketing are conducted. Over the past 40 years, farmers have become less dependent on terminal markets and spot pricing to market their goods, and more reliant on production and marketing contracts (O'Brien, 1994, p. 299). In addition, farm operations have become more vertically integrated.

In a vertically integrated operation, the same firm typically owns several farm-related businesses, such as hatcheries, feed mills, processing plants, and packing facilities. The integrator may also own farms or, more typically, contract with farmers to produce commodities. By the 1990's, contracting or vertical integration had become dominant modes of production and marketing in the broiler, turkey, egg, milk, and specialty crop markets (O'Brien, 1994, p. 302), as well as becoming increasingly common in hog farming (Hurt, 1994).

The increasing use of contracting and vertical integration in the food and fiber system is commonly identified with the industrialization of agriculture.[4] In part, industrialization arose as processors began to produce food products rather than food commodities (Drabenstott, 1994, p. 4). Processors need a steady supply of farm products of known quality and specifications to process (Council on Food, Agricultural and Resource Economics, 1994, p. 7). Contracting and vertical integration help provide these farm products, thereby reducing processor risk.

Contracting can also reduce marketing and production risks for producers. Because marketing contracts set a price in advance for output, they reduce marketing risk. Since production contractors own the commodity produced, make most of the production decisions, and supply most inputs, they assume a substantial part of the risk associated with production, as well as risks associated with marketing. The actual distribution of risk, of course, depends on the terms and conditions of the contract and the bargaining strength of the farmer and the contractor (Hoppe, 1996a).

To examine the prevalence of contracting in 1993, this report uses these categories:

- Cash sales only. Operation produced nothing under contract in 1993.
- Contracts (with or without cash sales). Operation had at least some of its 1993 production under a production or marketing contract.
  - Production contracts. Operation had at least some of its 1993 production under a production contract.
  - Marketing contracts. Operation had at least some of its 1993 production under a marketing contract.

The production contracts and marketing contracts categories are not mutually exclusive. Farms may have both types of contracts.

Most farms (89 percent) had only cash sales in 1993 (fig. 7). The remaining 11 percent of U.S. farms had at least one marketing or production contract, but these farms received 34 percent of gross cash income and accounted for about 40 percent of production, as measured by gross sales.

About 225,000 farms had a production and/or a marketing contract in 1993 (table 1). Regardless of the type of contract (marketing or production), contracting farms had larger sales and gross cash income than farms with only cash sales. But, farms with a production contract averaged only 380 acres per farm, about the same as farms with only cash sales (409 acres). Nearly half (49 percent) of the farms with production contracts were poultry farms, and poultry farms generally do not require large acreages. They averaged only 97 acres, which lowered the average acreage for farms with production contracts.

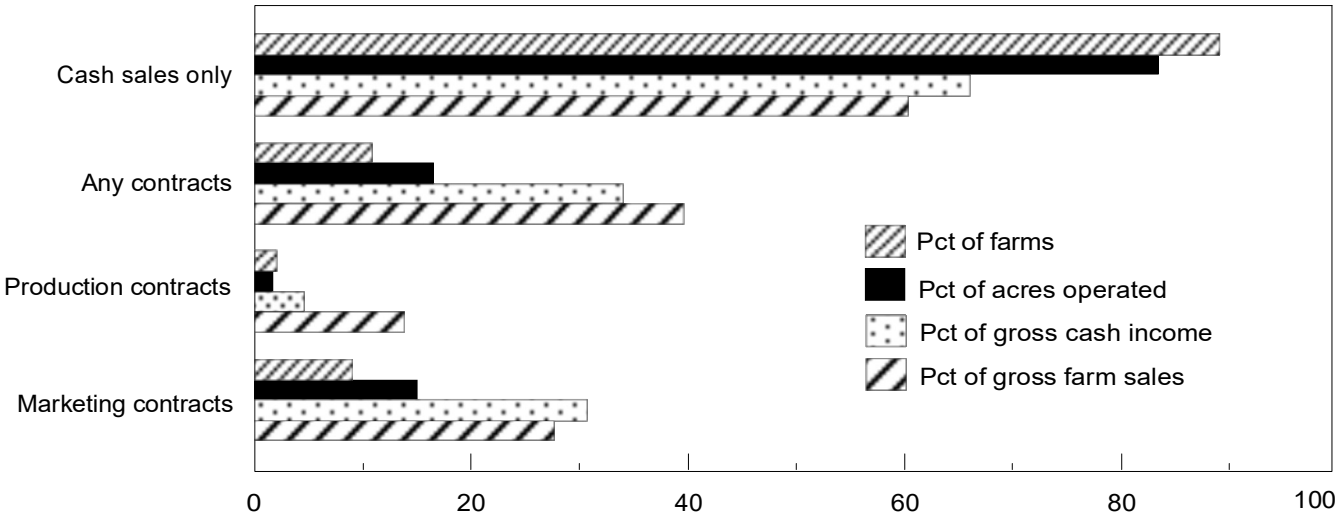
Only 44,000 farms had production contracts in 1993. But, these farms were large, averaging about $485,000 in gross sales, substantially more than their $149,200 gross cash income. Because gross cash income includes only the fee received by the operation, while gross sales includes the full value of the product removed, average gross sales was much larger than average gross cash income.

Marketing contracts were much more common than production contracts; about 186,000 farms had marketing

[4]According to the Council on Food, Agricultural and Resource Economics (1994, p. 1): "Industrialization in agriculture refers to the increasing consolidation of farms and to vertical coordination (contracting and integration) among the stages of the food and fiber system."

Figure 7
Distribution, by contracting arrangements, of farms, acres operated, gross cash income, and gross farm sales, 1993

Farms with contracts generated a disproportionate share of gross cash income and gross farm sales



Note: The categories "production contracts" and "marketing contracts" are not mutually exclusive. Farms may have both types of contracts.
Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey.

contracts in 1993. Three commodity specializations accounted for 75 percent of farms with marketing contracts: cash grain (36 percent); vegetables, fruits, or nuts (21 percent); and dairy (18 percent). Farms with marketing contracts had higher average gross cash income, but lower average gross sales, than farms with production contracts. Farms with marketing contracts produced less, on average, than farms with production contracts, but they kept more of the cash from their sales. Under marketing contracts, the farm receives a price reflecting the market value of the commodity (and typically provides the inputs).

Farms organized as individual operations are much less likely to have contracts than farms organized as partnerships or corporations. Only 10 percent of farms organized as an individual operation had a contract in 1993, compared with 20 percent of partnerships and 26 percent of corporations (family and otherwise). But, 10 percent of 1.9 million individual operations is still a substantial number of farms. Of the farms with contracts, 81 percent were individual operations.

Location of U.S. Farms

U.S. farms vary substantially according to their geographic location. For a brief discussion of the geographic units used here, see the box on the next page. This section of the report examines the characteristics of farms by region, metro-nonmetro status, and county economic specialization.

Major Production Regions. The Corn Belt had the largest number of farms in 1993, followed by the Appalachian Region[5] (table 2). Farms, however, were considerably smaller in the Appalachian Region than in the Corn Belt in terms of average acres, average gross cash income, and average gross sales. Farms in the Mountain Region had the largest average acreage, while those in the Pacific Region had the largest gross cash income and gross sales per farm.[6]

Farm production is concentrated in the Corn Belt, Pacific Region, and Northern Plains, which together accounted for about half of total U.S. gross sales (fig. 8). Farms in the various regions specialized in the production of specific commodities. The Corn Belt and Northern Plains contained 44 percent and 20 percent, respectively, of the Nation's cash grain farms

[5]The difference between the Appalachian Region and the Southern Plains in the number of farms was significant at the 90-percent level.

[6] The difference between the Pacific Region and the Northern Plains in average gross sales was significant at the 90-percent level.

Geographic Units

Previous editions of the Family Farm Report used major farming regions to discuss geographic variation in farming. There are 10 regions composed of groups of States with similar agriculture. (See appendix A for the States in each region.)

The current report provides additional information on geographic variation by also examining farming in metropolitan (metro) and nonmetropolitan (nonmetro) areas. Metro areas are defined by the U.S. Office of Management and Budget (OMB) as geographic areas with a large population nucleus (generally at least 50,000 inhabitants), plus adjacent communities that are socially and economically integrated with that nucleus (U.S. Dept. Comm., Cen. Bur., 1993, pp. A8-A9). Metro designations as of 1993, which identified 813 metro counties, are used in this report.

Metro areas are important to agriculture because they are not made up entirely of central cities and their heavily populated suburbs. For example, although Fresno County, California, is classified as metropolitan, it ranked first in the Nation in market value of agricultural products sold in 1992, according to the census of agriculture (U.S. Dept. Comm., Bur. Cen., 1994b, p. 28).

Nonmetro counties are a residual, the part of the Nation lying outside metro areas. Nonmetro counties are diverse, however, and the 2,276 nonmetro counties can be categorized into smaller groups with common characteristics. In this report, nonmetro counties are further sorted into two groups: those adjacent to metro areas (991 counties) and those that are not adjacent (1,285 counties) (Butler and Beale, 1994). One would expect urban influences to be stronger in adjacent counties than in non-adjacent counties.

Nonmetro counties can also be categorized according to their economic specialization. This report uses the ERS typology (Cook and Mizer, 1994), which sorts counties into mutually exclusive groups based on their economic base. The typology identifies six groups of counties:

- Farming-dependent (556 counties)
- Manufacturing-dependent (506 counties)
- Services-dependent (323 counties)
- Government-dependent (244 counties)
- Mining-dependent (146 counties)
- Nonspecialized (484 counties)

Geography is collapsed in some instances to make tables or graphs more readable. Some of the tables and figures use a three-way division of counties: farming-dependent counties, other nonmetro counties, and metro counties.

Table 2—Farms, acres operated, gross cash income, and gross farm sales, by selected characteristics, 1993

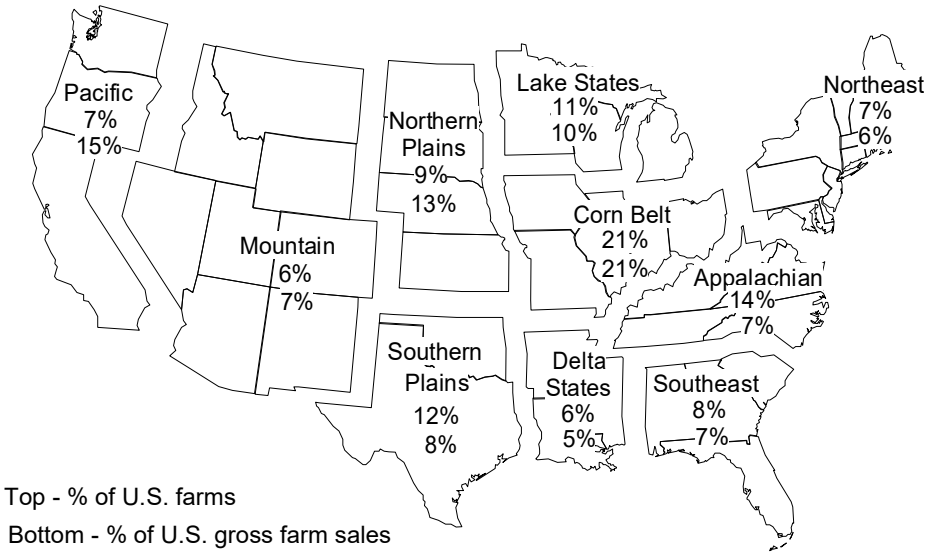
Characteristic	Farms		Mean acres operated		Mean gross cash income		Mean gross farm sales	
	Number	*RSE*[1]	*Acres*	*RSE*[1]	*Dollars*	*RSE*[1]	*Dollars*	*RSE*[1]
All farms	2,063,300	2.3	436	3.7	68,891	3.3	73,694	3.7
Major farming region:								
Northeast	142,900	6.3	183	5.7	59,411	7.3	61,760	7.5
Lake States	218,000	7.3	266	6.7	74,267	7.5	71,723	8.0
Corn Belt	425,000	4.7	275	4.6	69,736	5.5	75,945	5.5
Northern Plains	187,500	7.7	984	7.5	93,385	7.9	104,952	12.6
Appalachian	299,000	6.1	177	7.9	27,465	6.5	33,695	7.7
Southeast	155,300	6.8	230	8.3	57,129	11.4	65,401	11.0
Delta	114,000	9.5	282	8.7	47,356	9.5	70,118	13.0
Southern Plains	256,000	7.2	635	14.7	42,744	10.4	50,455	17.6
Mountain	116,600	9.1	1,472	11.6	97,977	10.9	96,937	11.7
Pacific	149,000	12.2	400	16.5	170,911	16.0	155,649	16.8
Metro-nonmetro status:								
Metro	639,640	4.7	229	5.5	76,544	7.5	76,698	7.6
Nonmetro	1,423,660	2.9	529	4.4	65,452	3.3	72,344	4.3
Adjacent	742,423	4.4	339	5.0	58,482	5.3	62,368	5.3
Not adjacent	681,237	4.0	737	6.3	73,049	4.3	83,216	6.5
County type:[2]								
Farming-dependent	311,594	6.3	903	7.7	102,119	7.1	107,599	8.9
Manufacturing-dependent	354,795	6.0	242	7.5	46,751	7.2	54,352	7.1
Services-dependent	209,136	7.7	494	8.1	66,576	8.5	66,266	8.7
Government-dependent	106,573	10.9	934	21.4	62,001	13.2	65,776	14.4
Mining-dependent	48,128	18.2	677	20.4	47,810	18.9	46,319	19.9
Nonspecialized	390,821	6.1	379	8.4	55,492	6.4	68,492	9.9

[1]The relative standard error (RSE) provides the means of evaluating the survey results. A smaller RSE indicates greater reliability of the estimate. For more information, see the box on data sources or appendix B.
[2]This classification excludes 17 counties that could not be categorized due to data suppressions (Cook and Mizer, 1994, p. 30).
Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey.

Figure 8

Distribution of farms and gross farm sales by major farming regions, 1993

The Corn Belt, Northern Plains, and Pacific account for nearly half of gross farm sales



Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey.

(app. table 2). And, the Pacific Region had 53 percent of vegetable, fruit, and nut farms.

Other types of farms were more heavily concentrated in other regions. Most tobacco farms (85 percent) operated in the Appalachian Region. Nearly half (45 percent) of the cotton farms were in the Southern Plains, while dairy farms were more concentrated in the Lake States (40 percent) than elsewhere.

Some of these regional specializations are longstanding (Cochrane, 1993, pp. 91-92). For example, the specialization of the Corn Belt and Northern Plains in grain was established by the late 1800's. Also at that time, dairy specialization became established in the Lake States, and the Pacific Region began to specialize in high-value specialty crops.

Metro-Nonmetro. Most farms were located in nonmetro counties (69 percent), and the average acreage operated per farm was higher in nonmetro counties (529 acres) than in metro counties (229 acres) (table 2). Despite the smaller average acreage in metro areas, there were no significant metro-nonmetro differences in gross cash income or gross sales per farm, probably because metro counties tend to produce products of higher value (Ahearn and Banker, 1988; Heimlich and Barnard, 1992). Metro counties contained about 65 percent of the Nation's vegetable, fruit, and nut farms in 1993, as well as 70 percent of all nursery and greenhouse farms.

Farms also varied in their characteristics within nonmetro areas. For example, farms in nonmetro counties that were adjacent to metro areas operated fewer acres, received lower average gross cash income, and had lower average gross sales than farms in nonadjacent counties.

Compared with nonadjacent and metro counties, adjacent counties contained a particularly large portion of the Nation's dairy farms in 1993. About 43 percent of dairy farms were located in adjacent counties, compared with 27 percent in nonadjacent counties and 30 percent in metro counties. Dairy farms in nonmetro counties near metro areas may have an advantage over nonadjacent counties in transporting their highly perishable product to market. At the same time, they may face less competition for land than they would within metro areas.

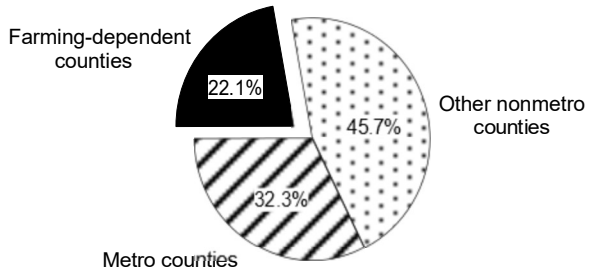
Economic Specialization. Of the 2,276 nonmetro counties, 556 (or 24 percent) depend on farming for at least 20 percent of their earned income. Farms in these farming-dependent counties had higher average gross sales and higher average gross cash income than farms in other nonmetro counties (table 2). However, only 15 percent of all U.S. farms and 24 percent of commercial farms were located in farming-dependent counties. Manufacturing-dependent counties alone had about as many farms as the farming-dependent counties, and nonspecialized counties had more.

In 1950, the Nation had 2,016 farming-dependent counties, approximately 3.6 times the current number. Growing farm productivity over the decades led to declining farm numbers and falling farm employment. At the same time, off-farm employment grew, often in the same communities where farmers lived. As a result, the number of counties depending economically on farming declined (Hoppe, 1994, p. 1). Some formerly farming-dependent counties were also absorbed into expanding metro areas.

But, farming did not disappear from most counties that are no longer farming-dependent (Hoppe, 1994, p. 3). In many of these counties, farming remained significant, although it no longer dominated the economies of the counties. In 1993, 78 percent of gross farm sales came from counties that were not farming dependent (fig. 9). Nonmetro counties (farming-dependent or otherwise), however, accounted for about two-thirds of the sales.

Figure 9
Distribution of gross farm sales in metro, farming-dependent, and other nonmetro counties, 1993

Most farm production occurs outside farming-dependent counties



Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey.

Concentration of Production

Concentration of production refers to the increasing share of agricultural output produced by fewer and fewer farms. In farm structure discussions, concentration now is a bigger issue than the declining number of farms (Stanton, 1993b, p. 46). Concentration can be measured by determining the smallest number of farms necessary to produce a particular amount of product. Less than 1 percent of U.S. farms produced 25 percent of total gross sales in 1993 (table 3). Only 4 percent of farms produced half of gross sales. These 4 percent of farms plus 9 percent more accounted for 75 percent of sales.

These FCRS estimates are consistent with the 1992 Census of Agriculture. According to the 1992 Census of Agriculture, 0.3 percent of farms accounted for 25 percent of the market value of sales, 3 percent of farms accounted for 50 percent, and 12 percent of farms accounted for 75 percent (U.S. Dept. Comm., Bur. Cen. 1994a, p. 47). The census data were within a percentage point of the corresponding 1993 FCRS estimates in table 3.[7]

Census of agriculture data show that farm production has become more concentrated over time. For example, 17 percent of U.S. farms produced 50 percent of farm sales in 1900 (Peterson and Brooks, 1993, pp. 3-5) compared with only 3 percent of farms in 1992 (U.S. Dept. Comm., Bur. Cen., 1994a, p. 47). On the other hand, the 17-percent figure for 1900 also indicates that some concentration already existed nearly 100 years ago. Production was not evenly distributed across all farms in 1900.

[7]Three factors help explain the slight differences between the two data sets. First, the data are for different years, 1992 for the census and 1993 for the FCRS. Second, the FCRS is a survey, but the census is a complete census. Third, sales are defined differently in the two data sources.

Table 3—Farms by concentration of gross farm sales, 1993

		Fewest number of farms to account for . . .		
Item	All farms	25 percent of gross farm sales	50 percent of gross farm sales	75 percent of gross farm sales
Number of farms	2,063,300	12,800	82,854	273,866
RSE[1]	2.3	7.5	4.7	2.5
Percent of farms	100.0	0.6	4.0	13.3
RSE[1]	0.0	7.9	5.1	3.3

[1]The relative standard error (RSE) provides the means of evaluating the survey results. A smaller RSE indicates greater reliability of the estimate. For more information, see the box on data sources or appendix B.
Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey.

Farmland Ownership and Use

As noted earlier in the discussions of tenure and rental arrangements, farm operations do not necessarily own all the land that they use. Acres operated include land that farm operations own themselves, as well as land they rent from others. In addition, operations may rent out some of their land to others.

Acres operated in table 4 is actually a net amount, calculated as: acres owned, plus acres rented in, less acres rented out. The detailed items in table 4 do not sum to total acres operated, however, because the small number of acres rented in free-of-charge, acres rented out free-of-charge, and acres used part of the year and rented out another part of the year are not reported separately. These items are included in total acres operated, however.

Ninety-two percent of U.S. farm operations owned land in 1993, and this owned land accounted for about 63 percent of the land operated. About 38 percent of farms rented land from others. Average acres rented in per reporting farm was 485 acres, which was substantially greater than the 297-acre average of owned land per reporting farm.

Only 15 percent of farms reported renting land for a share of production, compared with 31 percent renting for cash. However, the average amount of land rented per reporting farm for cash rentals (425 acres) and share rentals (384 acres) did not differ by a statistically significant amount. Share-rented acres accounted for a particularly large percentage of land operated in the Corn Belt (26 percent).

About 267,000 farm operations reported renting a total of 66 million acres to others. This land made up only a fraction of the 384 million acres that farms reported renting from others. Nonfarm landlords made up the difference.

Many nonfarm landlords have a connection to farming. There are currently about 2.1 million farms in the United States—a considerable drop from the peak of 6.8 million in 1935. Among the people who have retired, exited farming, or inherited farmland, a number have retained ownership of some or all of their land (Hoppe et al., 1995).

Neither the FCRS nor the regular census of agriculture collects information about the characteristics of landlords. However, the Agricultural Economics and Land Ownership Survey (AELOS) of 1988, a special "follow-on" survey to the 1987 Census of Agriculture, reported selected characteristics of landlords in 1988 (U.S. Dept. Comm., Bur. Cen., 1990).

According to AELOS, 93 percent of the landlords were individuals/families or partnerships. Of these unincorporated landlords, most were retired. Twenty-six percent reported that they had retired from farming or from a farm-related job. Another 26 percent reported that they had retired from a nonfarm-related job. How many of the second group of retirees farmed before taking the nonfarm-related job is unknown. About 12 percent of landlords were still farming or holding a farm-related job. The remaining 36 percent held jobs unrelated to farming. Nearly half of landlords' land was acquired through their families, by inheritance, gift, or purchase (Hoppe et al., 1995).

Table 4—Farms and acres operated, by land ownership and participation in government programs, 1993

Item	Farms reporting		Acres		Acres per reporting farm	
	Number	*RSE*[1]	*1,000*	*RSE*[1]	*Acres*	*RSE*[1]
Acres operated	2,063,300	2.3	900,289	3.3	436	3.7
Owned	1,892,988	2.4	563,161	3.9	297	4.1
Rented in	791,531	2.8	383,858	5.5	485	5.8
Cash	629,652	3.2	267,410	7.8	425	8.0
Share	303,368	3.8	116,447	4.2	384	4.0
Rented out	266,739	6.3	65,674	16.7	246	16.4
Land in government programs	611,218	3.0	59,664	5.3	98	4.8
Set aside	429,467	2.8	18,566	4.7	43	4.3
Conservation Reserve Program	233,097	6.5	36,010	7.9	154	7.2
Other government programs	32,930	12.1	5,088	16.5	155	15.4

[1]The relative standard error (RSE) provides the means of evaluating the survey results. A smaller RSE indicates greater reliability of the estimate. For more information, see the box on data sources or appendix B.
Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey.

Land Removed from Production

Some land is removed from production in compliance with government programs. Set-aside acres include land removed under annual Federal commodity acreage adjustment programs. Land removed under the Conservation Reserve Program (CRP) has been diverted from production through 10- to 15-year contracts (Young and Shields, 1996, p. 17). Other State and Federal programs remove much less land. Land removed from production totaled 60 million acres (table 4).

Although fewer farms participated in the CRP than in set-aside programs, average CRP acres per reporting farm were higher. The CRP accounted for 60 percent of the total cropland removed, and most of the rest of the removed acres were in set-aside programs. About 30 percent of all idled land in government programs was located in the Northern Plains (app. table 9).

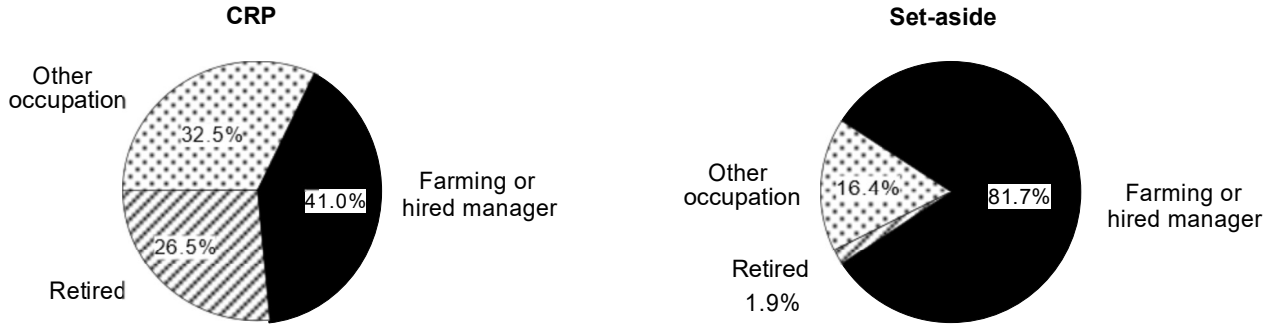
About 50 percent of set-aside acres were in cash grain farms. These farms grew crops (feed grains, wheat, and rice) targeted by set-aside programs. Another 25 percent of set-aside acres were in beef, hog, and sheep farms, which often raise targeted feed grains as feed for their livestock.

Farms participating in the set-aside programs were more likely to have operators reporting farming or hired manager as their major occupation (fig. 10). Eighty-two percent of the farms participating in set-aside programs had an operator whose major occupation was farming or hired manager. In contrast, only 41 percent of farms participating in the CRP program were run by an operator with those major occupations.

Figure 10

Farms participating in the set-aside and Conservation Reserve Programs, by major occupation of operator, 1993

Farms with operators whose occupation was farming or hired manager accounted for a larger share of participants in the set-aside program



Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey.

Farm Finances

Previous versions of the Family Farm Report presented income statement and balance sheet items as averages per reporting farm. The present report, however, uses averages for all farms. This allows interpreting the data as an average income statement and an average balance sheet.[8] *Note also that the estimates presented here differ from the official USDA sector estimates. (See the box.)*

This report also includes "common-size" financial statements. Common-size financial statements are useful when comparing financial data among farms in different sales classes. According to Fraser (1988, p. 125):

> Common size financial statements are a form of financial ratio analysis that allows the comparison of firms with different levels of sales or total assets by introducing a common denominator. A common size balance sheet expresses each item on the balance sheet as a percentage of total assets; and a common size income statement expresses each income statement category as a percentage of net sales [gross cash income for farms] . . .

The Income Statement

An abbreviated income statement appears in table 5. Gross cash income is the total cash income generated by farming operations, through farming and closely related activities. Net cash farm income is calculated by deducting cash expenses from gross farm income. Net farm income is derived from net cash farm income by subtracting noncash expenses, adjusting for inventory change, and adding noncash income. Noncash expenses are depreciation and nonmonetary benefits provided to labor. Noncash income includes the value of agricultural products consumed at home and the imputed rental value of farm dwellings.

Gross cash income averaged $68,900 dollars for all farms in 1993. Net cash farm income and net farm income were considerably less, $11,700 and $10,900 respectively. Income statement items varied considerably by farm size, however. For example, gross cash income ranged from $11,900 for noncommercial farms to $2.2 million for superlarge farms. With very few exceptions, the average for each income and expense item in table 5 increased by a statistically significant amount with each increase in sales class.

Noncommercial farms had particularly low average net cash income (-$800) and net farm income ($1,100). As noted in a later section of this report, households running noncommercial farms and smaller commercial farms depend heavily on off-farm sources of income.

The common-size income statement farther down in table 5 provides some insight into differences in the sources of income for farms of different sizes. Farms in the commercial size classes received a greater percentage of their income from crops than noncommercial farms, explained by commercial farms' heavier specialization in crops. About 49 percent of commer-

Caution:

Farm Business Estimates Differ from Farm Sector Estimates

FCRS financial data presented in this report are based on information provided by the sampled operations about their farm (or ranch) businesses. This financial information, which relates strictly to the farm business, differs conceptually from official USDA sector estimates, which include not only farm businesses but also all participants in the sector. For example, the income of farm businesses estimated from the FCRS includes the income of those with ownership interest in the operation—farm operators, partners, and shareholders. In addition to these participants, USDA's sector estimates include others, such as contractors and landlords, who share the risks of production (U.S. Dept. Agr., Econ. Res. Serv., 1993b; Hoppe, 1995). Official sector estimates also use a combination of data sources and cover all 50 States rather than the 48 contiguous States covered by the FCRS. More information about the survey's comparability with other sources of data can be found in appendix B.

[8]Appendix tables dealing with financial data continue to use dollars per reporting farm. The public often requests financial data in that form.

Table 5—Selected farm business financial characteristics by sales class, 1993

Item	Noncommercial		Small commercial		Lower medium commercial		Upper medium commercial		Large commercial		Superlarge commercial		All farms	
	Estimate	*RSE*[1]	*Estimate*	*RSE*[1]	*Estimate*	*RSE*[1]	*Estimate*	*RSE*[1]	*Estimate*	*RSE*[1]	*Estimate*	*RSE*[1]	*Estimate*	*RSE*[1]
Number of farms	1,514,476	3.1	210,478	4.8	222,645	3.2	70,300	5.2	30,575	7.3	14,825	6.7	2,063,300	2.3
							Dollars per farm							
Gross cash income	11,922	3.1	76,576	2.1	155,124	1.4	326,372	2.0	571,882	5.0	2,226,139	8.4	68,891	3.3
Livestock sales	5,476	3.8	32,826	4.4	64,437	3.5	123,236	5.9	231,956	8.3	1,128,005	15.6	30,062	5.2
Crop sales	2,979	5.0	25,648	4.9	60,862	3.5	144,766	5.2	252,146	7.8	928,293	11.2	26,709	4.1
Government payments	1,245	6.7	7,409	6.7	14,482	4.3	25,902	5.4	28,019	7.4	32,153	9.0	4,761	3.1
Other farm-related income	2,222	8.9	10,692	12.8	15,343	7.4	32,467	10.6	59,761	22.8	137,688	14.2	7,359	5.2
Cash expenses	12,730	2.9	62,604	3.0	119,564	1.8	250,806	2.4	462,697	5.4	1,829,946	11.1	57,182	3.6
Net cash farm income	-808	35.9	13,972	10.9	35,560	4.6	75,566	4.7	109,186	14.4	396,193	11.3	11,709	5.4
Net farm income	1,105	31.4	8,709	21.4	25,700	7.6	50,378	11.5	95,287	16.3	461,605	13.5	10,918	6.6
Farm assets	261,606	3.2	488,497	4.1	656,507	2.8	1,079,544	5.8	1,497,860	5.5	4,013,647	11.1	400,511	2.3
Liabilities	17,359	5.5	74,791	7.1	116,519	5.7	208,359	5.2	316,709	5.8	893,219	12.5	51,154	3.5
Equity	244,247	3.4	413,706	4.9	539,989	3.0	871,185	7.0	1,181,151	6.8	3,120,428	13.2	349,356	2.4
Capital investments	4,337	8.2	11,958	7.1	20,133	5.3	36,237	6.9	62,551	17.1	133,727	15.0	9,698	4.3
							Percent of gross cash income							
Gross cash income	100.0	0.0	100.0	0.0	100.0	0.0	100.0	0.0	100.0	0.0	100.0	0.0	100.0	0.0
Livestock sales	45.9	3.0	42.9	4.6	41.5	3.4	37.8	5.6	40.6	6.9	50.7	9.9	43.6	3.2
Crop sales	25.0	4.4	33.5	5.0	39.2	3.1	44.4	4.8	44.1	6.6	41.7	11.0	38.8	3.1
Government payments	10.5	6.1	9.7	6.4	9.3	4.2	7.9	5.3	4.9	7.3	1.4	12.2	6.9	3.2
Other farm-related income	18.6	7.4	14.0	11.2	9.9	6.9	10.0	10.3	10.5	21.0	6.2	15.9	10.7	5.0
Cash expenses	106.8	2.4	81.8	2.3	77.1	1.3	76.9	1.3	80.9	3.0	82.2	3.4	83.0	1.0
Net cash farm income	-6.8	37.1	18.3	10.5	22.9	4.3	23.2	4.3	19.1	12.8	17.8	15.8	17.0	5.0
Net farm income	9.3	31.3	11.4	21.9	16.6	7.4	15.4	11.1	16.7	14.3	20.7	12.3	15.9	5.7
							Percent of assets							
Farm assets	100.0	0.0	100.0	0.0	100.0	0.0	100.0	0.0	100.0	0.0	100.0	0.0	100.0	0.0
Liabilities	6.6	5.9	15.3	7.6	17.8	5.1	19.3	6.8	21.1	7.3	22.3	12.8	12.8	3.1
Equity	93.4	0.4	84.7	1.4	82.3	1.1	80.7	1.6	78.9	1.9	77.8	3.7	87.2	0.5
Capital investments	1.7	8.6	2.5	8.4	3.1	5.1	3.4	8.2	4.2	18.3	3.3	17.5	2.4	4.3

[1]The relative standard error (RSE) provides the means of evaluating the survey results. A smaller RSE indicates greater reliability of the estimate. For more information, see the box on data sources or appendix B.
Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey.

cial farms specialized in crops, compared with only 39 percent of noncommercial farms.

Government payments were a larger percentage of gross cash income for noncommercial farms, small commercial, and lower medium commercial farms than for farms in the larger commercial classes. Although the average government payment was higher for the larger commercial farms, these farms had enough income from other sources to make government payments a smaller share of total cash income.[9]

About 19 percent of noncommercial farms' gross cash income came from other farm-related income. This item averaged only $2,200 for noncommercial farms, however. Commercial farms had larger amounts of this income, but it accounted for a smaller share of gross cash income.

For all the commercial size classes, cash expenses ran about 80 percent of gross cash income, making net cash income about 20 percent of gross cash income. For noncommercial farms, however, average cash expenses were 7 percent higher than gross cash income, resulting in negative average net cash farm income.

The Balance Sheet

As with income statement items, assets, liabilities, equity, and capital investments per farm increased with each increase in sales class (table 5). For farms in the commercial sales classes, liabilities as a percentage of assets (the debt/asset ratio) were between 15 and 22 percent. Noncommercial farms had much lower debt relative to assets, with a debt/asset ratio of only 7 percent. Capital investments were a smaller percentage of assets, however, for noncommercial than for commercial farms.

Sharing Income and Equity

Readers examining table 5 may be impressed by the large average equity for farms of all sales classes and the large net farm income for farms in the larger sales classes. But, a certain amount of equity is necessary to continue the farm as a business. Maintaining or expanding this equity base may also require capital investment, which must be paid for out of current net income, the sale of assets, or loans. For larger farms, these expenditures can be substantial (table 5). Even after allowing for an equity base and capital investment, not all the farm's equity and net farm income are necessarily available to the farm operator and his or her household for two reasons.

First, some farms (nonfamily corporations, cooperatives, or farms with a hired manager) are not closely held (or legally controlled) by the operator household. These operator households have limited say over the distribution of their farms' net income or equity. Farms not closely held by the operator household are relatively rare, however. Closely held farms accounted for 99 percent of all farms in 1993 and at least 95 percent of farms in each sales class except the superlarge class, where 82 percent of the farms were closely held.

Second, even if the farm is closely held by the operator household, the operator household may share farm income, farm assets, or farm debt with other households. Income, assets, and debt may be shared with partners, relatives who no longer live on the farm, and shareholders in family corporations.

Noncommercial farms best fit the traditional view of farming, where each farm is closely held by a single operator household that receives all the farm's net income and holds all the farm's assets and debts. About 92 percent of noncommercial farms fit this single-household-per-farm view of farming (fig. 11) in 1993. The percentage of single-household farms was less for commercial farms. For example, only 48 percent of superlarge farms were single-household farms. Commercial farms today may require more management, labor, and financial resources than can be provided by a single household.[10] They distribute the returns from farming to more than one household.

Farm Financial Performance

Both net farm income and debt/asset ratios are used to assess financial performance. To get a complete picture of a farm's economic health, however, the two measures must be considered together. Used independently of

[9]Government payments are not adjusted for payment limitations in this report.

[10] The single-household farm described above is based (in part) on who receives shares of farm business income, where farm business income is defined narrowly to exclude shares received by share landlords and contractors. A second definition of single-household farms used by ERS also considers sharing of output with share landlords and contractors. The second definition classifies a farm as single-household if it is closely held, shares income with no other household, has no share landlords, and has no production contracts. This second definition results in substantially fewer single-household farms (74 percent of all farms) than the first definition (90 percent).

each other, they have limitations. For example, if a farm earns enough income to service debt and meet its other financial obligations, then a high debt/asset ratio may be manageable. Similarly, an operation carrying a low debt load may be able to weather periods of low or negative income.

To reflect the range of financial situations, ERS developed a measure of overall financial position of farms based on their combined net income and solvency status (Morehart, Johnson, and Banker, 1992, pp. 34-35):

- Favorable: positive net farm income and debt/asset ratio is no more than 40 percent.
- Marginal income: negative net farm income and debt/asset ratio is no more than 40 percent.
- Marginal solvency: positive net farm income and debt/asset ratio more than 40 percent.
- Vulnerable: negative net farm income and debt/asset ratio more than 40 percent.

Most farms (60 percent) were in a favorable financial position in 1993 (table 6). These farms averaged about $76,200 dollars in gross sales, similar to the average for all farms. Farms in a favorable financial position accounted for about 62 percent of gross sales and 61 percent of gross cash income.

Another 29 percent of farms were in the marginal income category. These farms tended to be smaller operations, averaging only $42,800 in sales. They made 17 percent of farm sales and received 19 percent of gross cash income. No farm can remain in the mar-

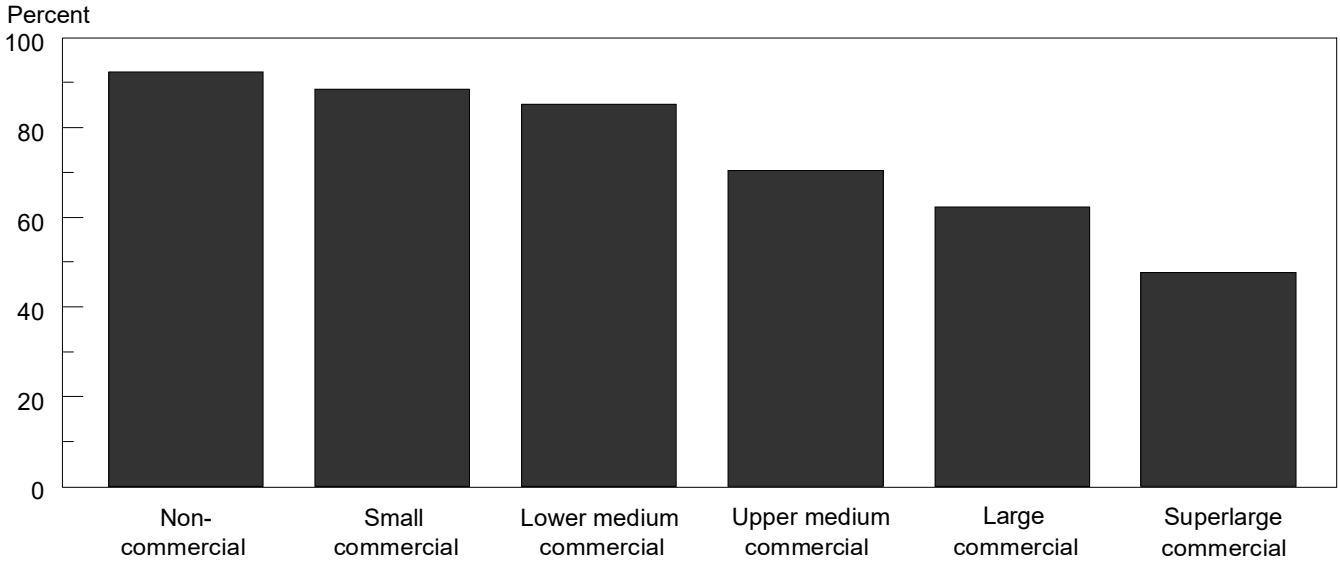
Table 6—Farms, gross cash income, and gross farm sales, by financial position, 1993

Item	Farms		Mean gross cash income		Mean gross farm sales	
	Number	*RSE*[1]	*Dollars*	*RSE*[1]	*Dollars*	*RSE*[1]
All farms	2,063,300	2.3	68,891	3.3	73,694	3.7
Favorable	1,229,371	3.0	70,187	3.7	76,186	4.7
Marginal income	607,106	4.5	43,735	6.1	42,842	6.2
Marginal solvency	123,317	9.3	173,269	14.9	188,247	14.1
Vulnerable	103,506	12.4	76,690	13.2	88,570	14.6

[1]The relative standard error (RSE) provides the means of evaluating the survey results. A smaller RSE indicates greater reliability of the estimate. For more information, see the box on data sources or appendix B.
Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey.

Figure 11
Single-household farms by sales class, 1993

Single-household farms are more common among smaller size classes



Note: Single-household farms are closely held by the operator household, and the operator household does not share farm income, farm assets, or farm debt with another household.
Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey.

ginal income category indefinitely, unless it is subsidized with additional funds, such as off-farm wages. In many cases, a farm will make enough in other years to cover a year of negative returns.

Marginally solvent farms tended to be larger, with average gross sales of $188,200. Only 6 percent of all farms, they accounted for about 15 percent of both gross cash income and gross sales. Even if a farm has high debt, it may still be viable because net farm income is sufficient to meet financial obligations.

Vulnerable farms were relatively rare, accounting for only 5 percent of all farms in 1993. These farms' average sales and average gross cash income were similar to those of farms in the favorable category. Vulnerable farms experience financial stress and may have to undertake drastic actions to reduce debt and generate additional income.

Commercial and noncommercial farms were equally likely to be in a favorable financial position (fig. 12). Compared with commercial farms, however, noncommercial farms were more likely to be in the marginal income category and less likely to be in the marginal solvency category. The difference between noncommercial and commercial farms in the percentage of vulnerable farms was not statistically significant.

As discussed in a later section, households operating noncommercial farms rely heavily on off-farm income. They sustain low income or losses from farming with money earned off the farm. Although noncommercial farms tend to have small positive or even negative net farm income, they also have little debt. Thus, they generally fall into the favorable and marginal income categories.

Commercial farms, however, are more likely to be run as profit-oriented businesses. For example, return on assets and the ratio of sales to assets were higher for commercial than for noncommercial farms (fig. 13).[11] Businesses often incur debts in the production process, even if they have substantial income. Commercial farms, therefore, are more likely than noncommercial farms to be marginally solvent.

Variation by Type of County

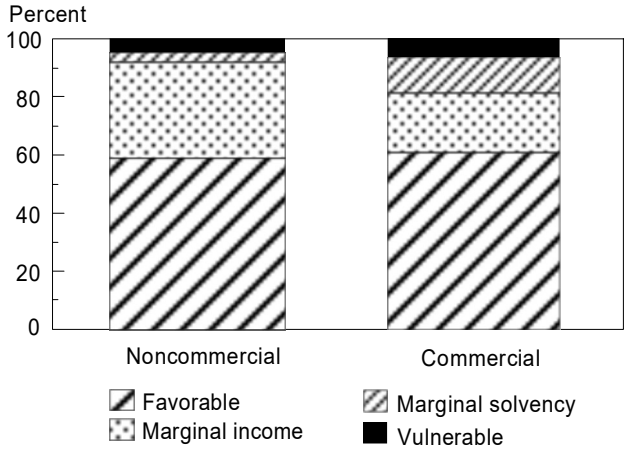
Although this discussion of financial data has focused on variation in finances by size of farm, farm finances also vary with other characteristics, including geographic location. Farm finances in farming-dependent counties are of particular interest whenever farm program changes are under consideration. Policymakers are often concerned about the effects of program changes in areas most dependent on farming.

Average gross cash income in 1993 was highest in farming-dependent counties ($102,100) followed by metro counties ($76,500) and other nonmetro counties

[11]See appendix A for the definition of return on assets.

Figure 12
Financial performance by sales class, 1993

Most farms performed favorably in 1993

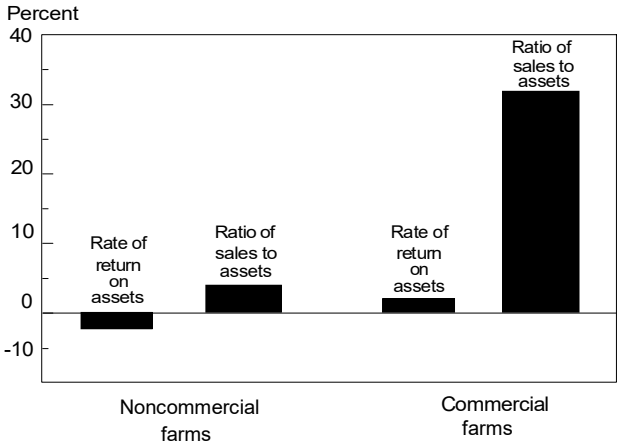


Note: See text for definition of performance categories.

Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey.

Figure 13
Return on assets and ratio of sales to assets, by sales class, 1993

Smaller farms have lower rate of return



Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey.

Table 7—Selected farm business financial characteristics by type of county, 1993

Item	Farming-dependent		Other nonmetro		Metro		All farms	
	Estimate	*RSE*[1]	*Estimate*	*RSE*[1]	*Estimate*	*RSE*[1]	*Estimate*	*RSE*[1]
Number of farms	311,594	6.3	1,112,066	3.3	639,640	4.7	2,063,300	2.3
				Dollars per farm				
Gross cash income	102,119	7.1	55,179	3.8	76,544	7.5	68,891	3.3
Livestock sales	45,029	10.0	25,470	5.0	30,755	13.4	30,062	5.2
Crop sales	32,599	8.0	19,328	5.2	36,673	8.4	26,709	4.1
Government payments	10,803	6.6	4,283	4.7	2,650	7.1	4,761	3.1
Other farm-related income	13,688	12.9	6,098	6.8	6,467	9.4	7,359	5.2
Cash expenses	82,530	7.4	44,476	3.6	66,924	8.4	57,182	3.6
Net cash farm income	19,589	8.3	10,702	7.1	9,620	14.3	11,709	5.4
Net farm income	14,032	11.4	9,601	8.3	11,690	15.0	10,918	6.6
Farm assets	457,983	6.6	350,725	2.8	459,071	4.4	400,511	2.3
Liabilities	73,277	7.2	44,133	4.2	52,585	8.0	51,154	3.5
Equity	384,706	7.1	306,592	3.0	406,486	4.6	349,356	2.4
Capital investments	13,198	7.5	9,008	5.6	9,193	9.9	9,698	4.3

[1]The relative standard error (RSE) provides the means of evaluating the survey results. A smaller RSE indicates greater reliability of the estimate. For more information, see the box on data sources or appendix B.
Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey.

($55,200) (table 7). After cash expenses were subtracted, farms in farming-dependent counties also had the highest average net cash income. Average net farm income estimates in the three groups of counties, however, ranged within $4,400 of each other.

Average equity was greater in farming-dependent counties ($384,700) and metro counties ($406,500) than in other nonmetro counties ($306,600). Farms in farming-dependent counties, however, had the highest debt/asset ratio (16 percent).

Average government payments were $10,800 in farming-dependent counties, compared with less than $5,000 in the two other county groups. About 11 percent of gross cash income in farming-dependent counties came from government payments, more than in other nonmetro counties (8 percent) or in metro counties (3 percent). With 15 percent of U.S. farms, farming-dependent counties had 35 percent of set-aside acres and 49 percent of CRP acres.

Farm commodity programs are often believed to have a large effect on local economies. However, program payments made up only 7 percent of gross cash income nationwide in 1993. Government payments are most likely to have an impact in farming-dependent counties, particularly those specializing in covered commodities (Hoppe, 1994, pp. 25). In counties that are not farming-dependent, government programs boost farmers' income, but have less of an impact on the overall economy (Perry and Whittaker, 1994, pp. 4-5).

Characteristics of Farm Operators

The FCRS provides selected information on the people who operate farms. However, this information is collected for only one operator per farm. For farms with more than one operator, such as partnerships, data are collected only for the primary operator.

Major Occupation

Major occupation refers to the occupation at which operators spent 50 percent or more of their work time during the year. The 1993 FCRS used four responses: farm or ranch work, hired manager, something else, and retired.

The FCRS allowed retired as a response for the first time in 1993. It is the only national data source to specifically identify retired farm operators. In previous years, retired operators were most likely to have reported farm or ranch work as their major occupation.

About 45 percent of all farm operators reported farm or ranch work as their major occupation (fig. 14). However, they operated most of the farmland (73 percent), accounted for most of gross sales (82 percent), and received most of gross cash income (82 percent). Hired farm managers ran only about 1 percent of the farms, but their farms tended to be large in terms of average acres operated, average gross cash income, and average gross sales (table 8).

Operators reporting major occupations other than farming accounted for a substantial proportion of all farms (37 percent), but their farms were small in terms of average acres, average gross cash income, and average gross sales. Retired operators accounted for another 17 percent of farms and ran the smallest farms in terms of average gross cash income and average gross sales.

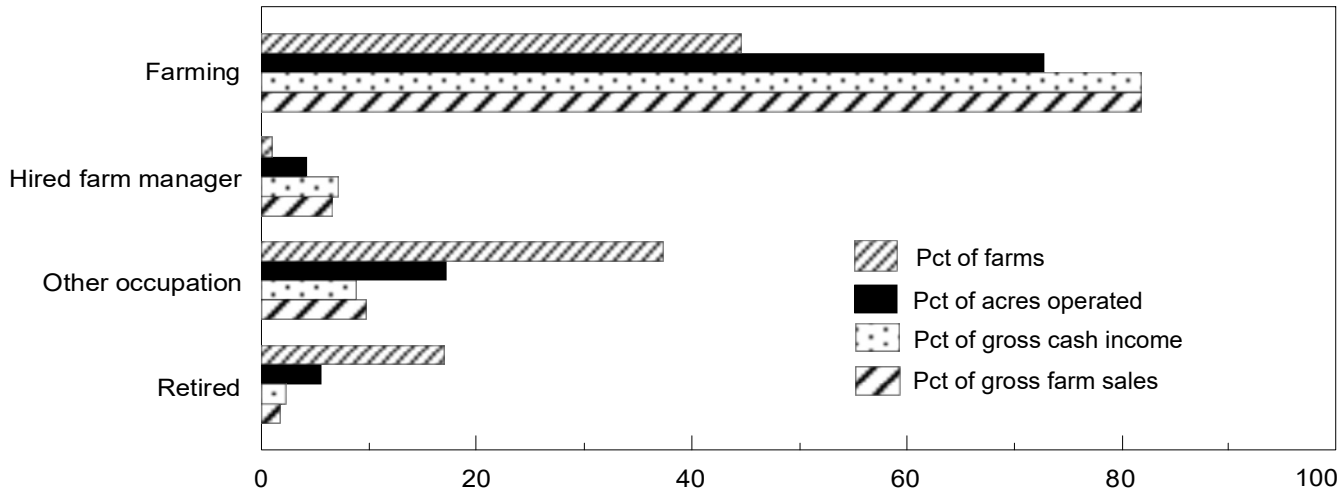
About half of the operators reporting farming or hired manager as their major occupation operated commercial-sized farms (table 9). In contrast, virtually all operators with another occupation and retired operators had noncommercial farms. In fact, 71 percent of operators with another occupation and 84 percent of retired operators reported sales less than $10,000.

Operators with farm or ranch work as their major occupation reported the highest average hours worked onfarm, and two-thirds of these operators reported working at least 2,000 hours per year onfarm, equivalent to a full-time job. Hired managers worked fewer hours onfarm than operators reporting farming as their major occupation, but more hours than operators with another occupation or retired operators.

Figure 14

Distribution, by major occupation of operator, of farms, acres operated, gross cash income, and gross farm sales, 1993

Farm operators reporting farming as their major occupation account for most farming activities



Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey.

Table 8—Farms, acres operated, gross cash income, and gross farm sales, by farm operator characteristics, 1993

Characteristic	Farms		Mean acres operated		Mean gross cash income		Mean gross farm sales	
	Number	*RSE*[1]	*Acres*	*RSE*[1]	*Dollars*	*RSE*[1]	*Dollars*	*RSE*[1]
All farms	2,063,300	2.3	436	3.7	68,891	3.3	73,694	3.7
Occupation:								
Farming	922,140	2.4	712	3.5	126,175	2.7	135,047	3.2
Hired farm manager	18,281	21.1	2,077	22.7	556,555	32.5	546,245	33.4
Other occupation	771,245	4.4	201	13.2	16,273	7.0	19,267	14.4
Retired	351,634	7.3	143	9.9	8,721	7.7	7,606	8.1
Age:								
Less than 35 years	182,393	6.9	507	10.7	89,594	8.4	100,244	8.4
35-44 years	399,896	4.8	531	10.3	97,170	5.8	107,660	7.3
45-54 years	480,204	5.0	433	7.0	81,357	8.2	88,901	9.1
55-64 years	439,778	4.9	443	6.5	67,561	6.3	68,678	6.4
65 years or older	561,030	4.9	343	7.6	32,376	7.8	31,766	8.1
Education:								
Less than high school	475,841	5.4	243	6.7	32,061	6.8	34,504	7.5
High school	846,070	3.6	389	4.4	62,751	4.3	66,829	4.3
Some college	420,016	5.8	573	9.1	87,200	9.0	96,561	10.0
College	321,373	5.1	670	9.9	115,658	6.9	119,907	8.4

[1]The relative standard error (RSE) provides the means of evaluating the survey results. A smaller RSE indicates greater reliability of the estimate. For more information, see the box on data sources or appendix B.
Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey.

Operators with another occupation worked relatively few hours onfarm, but they all reported an off-farm job. The average number of off-farm hours per reporting operator was 2,330, and 90 percent of the reporting operators worked at least 2,000 hours off-farm.

Retired operators worked the fewest hours on their farms and were least likely to report working off-farm. When they did work off-farm, they worked fewer hours than operators with another occupation and a similar number of hours as operators with farming as their major occupation.

As pointed out above, most gross sales (82 percent) were accounted for by the 45 percent of operators who reported farm or ranch work as their major occupation. However, there was variation within this category in terms of size of farm and hours worked onfarm. Some operators in this category had noncommercial farms, and 20 percent worked off-farm. Sales were actually concentrated among "full-time commercial farms," defined here as farms with sales of $50,000 or more and an operator whose major occupation was farm or ranch work (or hired manager) and who worked at least 2,000 hours per year on the farm. Full-time commercial farms made up only 21 percent of all farms, but accounted for 76 percent of the value of gross sales in 1993 (fig. 15).

Age

Farm operators have a relatively older age structure than other workers, with 72 percent 45 years of age or older and 49 percent age 55 or older (table 8). In comparison, 46 percent of all self-employed workers in nonagricultural industries in 1993 were age 45 or older, and only 22 percent were age 55 or older (U.S. Dept. Labor, 1994, p. 211). About 27 percent of all farm operators

Figure 15
Share of farms and gross farm sales for full-time commercial farms and other farms, 1993

Full-time commercial farms account for 21 percent of farms, but 76 percent of sales

Note: Full-time commercial farms have sales of $50,000 or more and an operator whose major occupation is farming or hired manager and who worked at least 2,000 hours on the farm.

Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey.

Table 9—Selected characteristics of farm operators by major occupation, 1993

Item	Farming		Hired manager		Other		Retired		All operators	
	Estimate	*RSE*[1]	*Estimate*	*RSE*[1]	*Estimate*	*RSE*[1]	*Estimate*	*RSE*[1]	*Estimate*	*RSE*[1]
Number of operators	922,140	2.4	18,281	21.1	771,245	4.4	351,634	7.3	2,063,300	2.3
Mean age (years)	53	0.7	48	4.0	48	0.9	71	0.8	54	0.6
Percent with commercial farm	52.7	2.4	46.8	21.8	6.3	10.2	1.7	23.5	26.6	2.8
Mean hours worked onfarm per year	2,492	1.3	1,582	17.8	895	3.0	685	5.7	1,579	1.6
Percent who worked 2,000 or more hours per year onfarm	65.2	2.1	44.1	22.3	6.2	12.7	5.1	24.1	32.7	2.8
Percent who worked off-farm	19.9	8.3	na	na	100.0	1.0	11.5	20.1	48.8	2.9
Mean hours worked off-farm per year per reporting operator	1,362	5.6	na	na	2,327	1.4	1,013	16.2	2,097	1.7
Percent of operators reporting off-farm work who worked 2,000 or more hours per year off-farm	33.9	12.5	na	na	90.2	1.4	17.8	33.9	76.9	2.2

Note: na=not available.

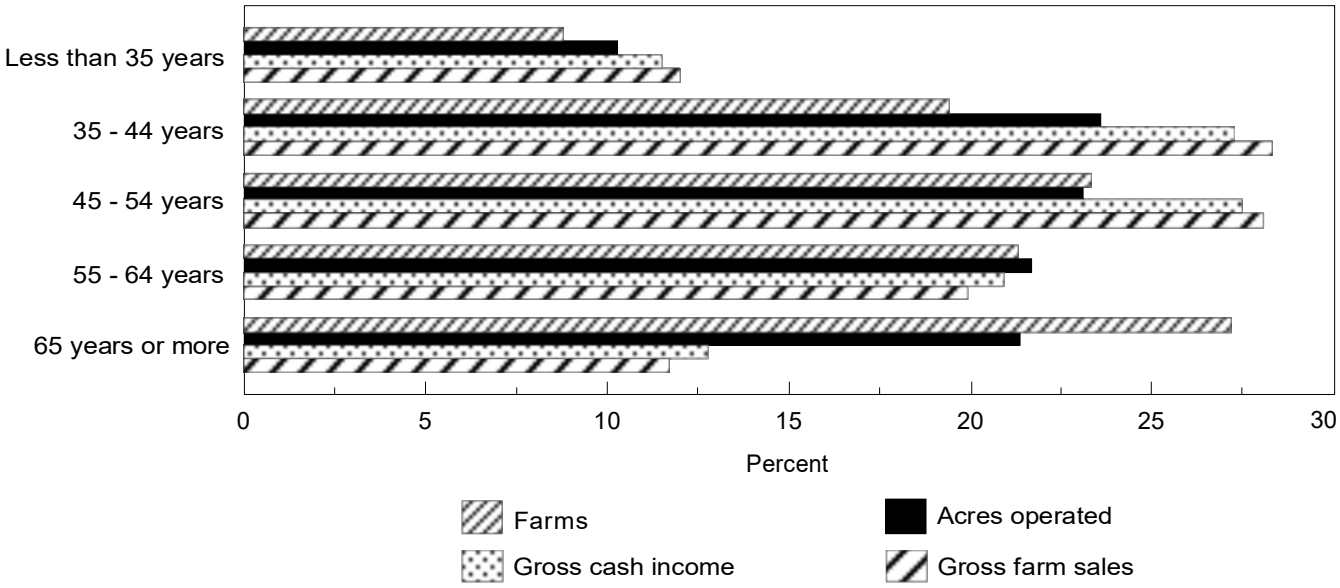
[1]The relative standard error (RSE) provides the means of evaluating the survey results. A smaller RSE indicates greater reliability of the estimate. For more information, see the box on data sources or appendix B.

Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey (Farm Operator Resource version for data on off-farm work; all versions for remaining items).

Figure 16

Distribution, by age of operator, of farms, acres operated, gross cash income, and gross sales, 1993

Young and elderly operators account for the smallest shares of gross cash income and sales



Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey.

were at least 65 years old in 1993, according to the FCRS, compared with only 7 percent of the nonfarm self-employed.

Young operators (less than 35 years of age) account for the smallest share of farms (fig. 16). Young operators and elderly operators (65 years of age or older) accounted for similar shares of gross cash income and gross sales. The elderly, however, controlled a larger share of acres than young operators. The elderly tended to farm on a smaller scale than other operators. They had farms with smaller average acres, smaller average gross sales, and smaller average gross cash income than the other age groups (table 8).

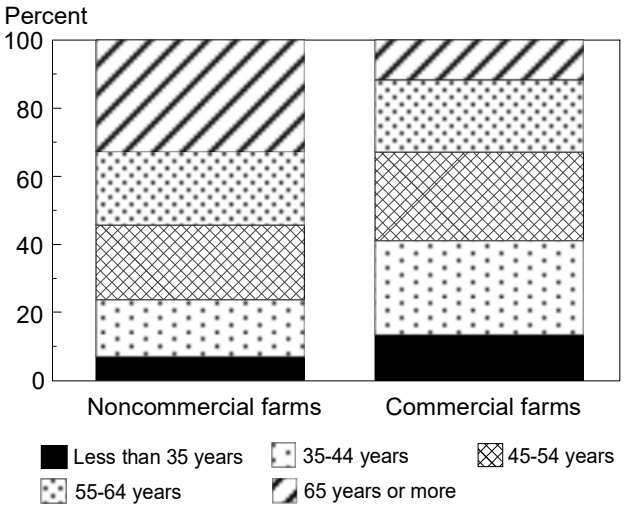
"Elderly" and "retired" are not synonymous, as far as farm operators are concerned. Not all farmers age 65 years and above are retired, and elderly operators who are not retired still work a substantial number of hours on their farms. Nonretired elderly operators numbered 282,000 in 1993, and they worked an average of 1,685 hours per year onfarm. Approximately 21 percent of retired operators were younger than 65, and retired operators worked an average of only 685 hours onfarm per year (Hoppe, 1996b, p. 3).

Operators of commercial farms tended to be younger than operators of noncommercial farms. Forty-one percent of commercial farm operators were less than 45 years of age, compared with only 24 percent of operators of noncommercial farms (fig. 17). Conversely, only 12 percent of commercial farm operators were age 65 or older, compared with 33 percent of operators of noncommercial farms.

Figure 17

Age of operators by sales class, 1993

Operators of commercial farms tend to be younger



Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey.

Education

Smaller farms tended to be operated by individuals with lower levels of education. Operators with less than a high school education had the smallest average acres operated, average gross cash income, and average gross sales (table 8). About 85 percent of operators with less than a high school education ran noncommercial farms, compared with about 70 percent of each of the other educational groups. Low educational attainment was closely related to age. About half of operators with less than a high school education were at least 65 years old (fig. 18).

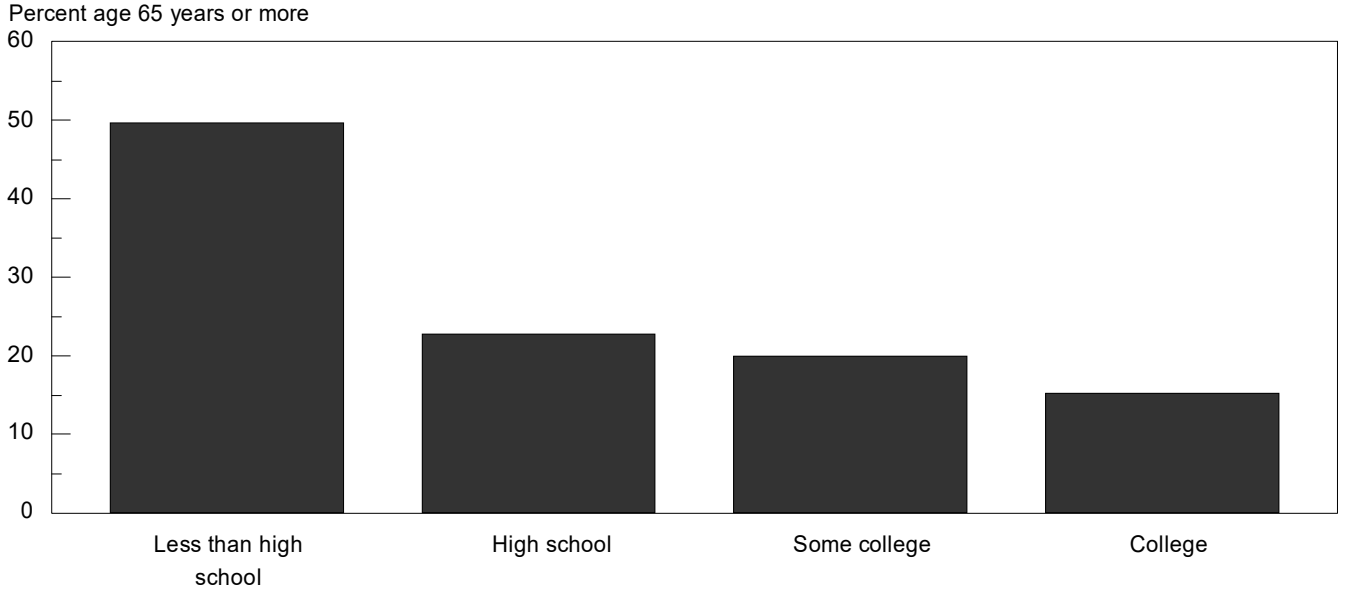
High school graduates accounted for more of the operators (41 percent), acres operated (37 percent), gross cash income (37 percent), and gross sales (37 percent) than any of the other educational groups. College graduates, 16 percent of the total, operated the fewest number of farms. However, college graduates and operators with some college had the largest farms in terms of average acreage, average gross cash income, and average gross sales (table 8).

Education will become even more important in the future for those who want to succeed in farming. In the past, farm operators were less likely to graduate from high school than the U.S. population in general. The gap in high school graduation between farm operators and the U.S. population has largely disappeared, but a smaller percentage of farm operators are college graduates (Bellamy, 1992, p. 37).

Figure 18

Percent of operators age 65 years and more by educational attainment, 1993

Operators with less than a high school education are most likely to be elderly



Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey.

Farm Operator Household Dependence on Farming

Farm operator households typically receive income from several sources, and 88 percent of their total household income came from off the farm in 1993. Off-farm income is critical to the financial well-being of many farm households, offsetting some of the low average farm income discussed above. The relative importance of farm and off-farm income, however, varies widely among different types of farm households. This section of the report examines how farm households' income levels and dependence on farming vary by farm and operator characteristics. A brief discussion of FCRS household data appears in the box below.

Level and Sources of Household Income

In 1993, the average income of farm operator households from all sources ($40,200) was similar to the average for all U.S. households ($41,400). However, there was much variation in the level of income among individual farm households, just as there was for all U.S. households. For example, 19 percent of farm operator households reported a household income of less than $10,000 in 1993, as did 14 percent of all U.S. households (fig. 19). At the other extreme, 25 percent of farm operator households reported household income of $50,000 or more. Approximately 29 percent of all U.S. households had incomes in that range.

For most farm operator households, off-farm income was the major source of income. Farm operator households received an average of only $4,800 from farming in 1993, while off-farm sources averaged $35,400 (fig. 20). Off-farm wage and salary jobs were the single most important source of off-farm income, accounting for 46 percent of total farm operator household income during the year. Dependence on off-farm income, however, differed by farm and operator characteristics.

Variation by Farm Characteristics

Sales class of farm. The 1.5 million households associated with noncommercial farming operations pull down the average income from farming (table 10 and fig. 21). Households with noncommercial farms had, on average,

FCRS Household Data

The FCRS collects information about farm operator households, including their farm and off-farm income. Farms not closely held by the operator and members of the operator's household (nonfamily corporations, cooperatives, and farms with a hired manager) are excluded from the household data. Thus, the information presented in this section of the report represents only the households of operators with farms organized as individual operations, partnerships, and family corporations. These households operated 99 percent of all U.S. farms in 1993.

As discussed earlier, the FCRS collects information only for the primary operator in cases where the farm has more than one operator. Similarly, household income data is available only for the households of primary operators. Any other households associated with the farm are excluded.

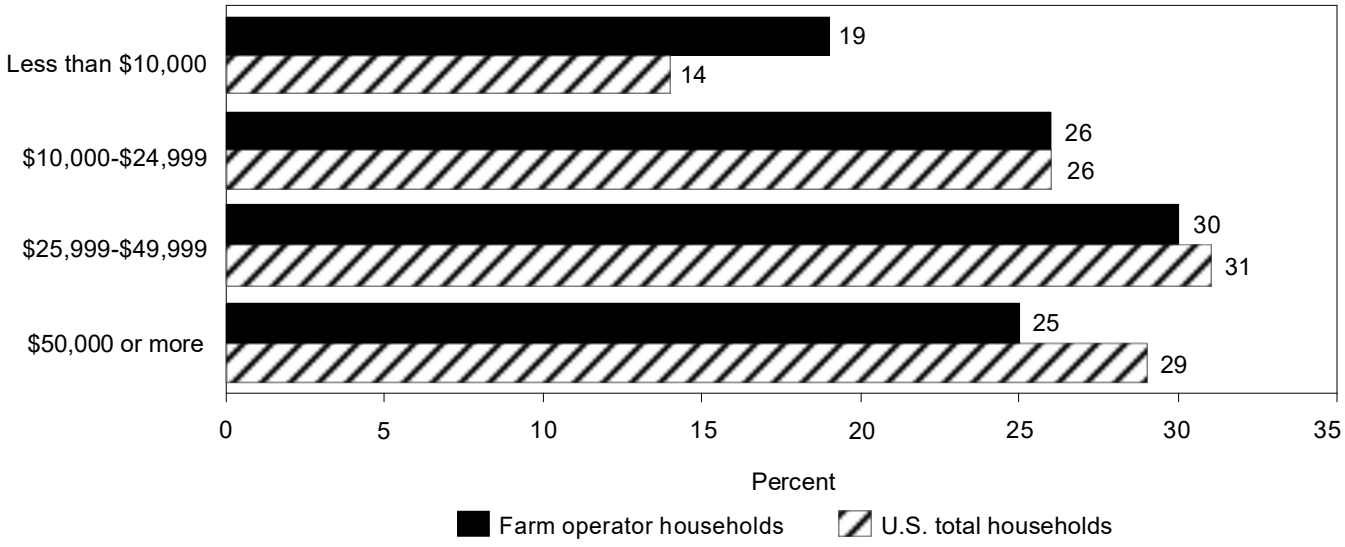
Farm income received by the household is defined in the FCRS as net cash farm income (less depreciation) adjusted for the share of income received by the operator's household in the case of multiple-household farms. This definition is consistent with the Census Bureau's definition of self-employment income, which allows comparing incomes of farm operator households and other U.S. households.

Total operator household income includes all the income that all household members receive from all sources, both farm and off-farm. Using only farm income would understate the farm household's income for comparison with other households. Off-farm income includes off-farm wages and salaries, the net income of any nonfarm business, interest and dividends, and any other cash off-farm income received by household members. A more detailed discussion of operator household income appears in appendix A.

Figure 19

Distribution of farm operator households and total U.S. households, by total household income category, 1993

Farm households and households in general have similar income distributions

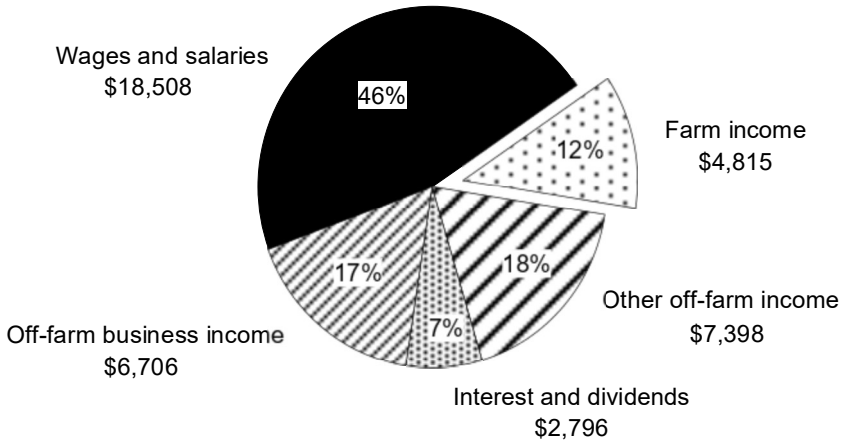


Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey.

Figure 20

Sources of income for average farm operator household, 1993

Because so many farm households depend on off-farm jobs and income, average farm income accounts for only 12 percent of total household income



Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey.

Table 10—Farm operator households and household income, by selected characteristics, 1993

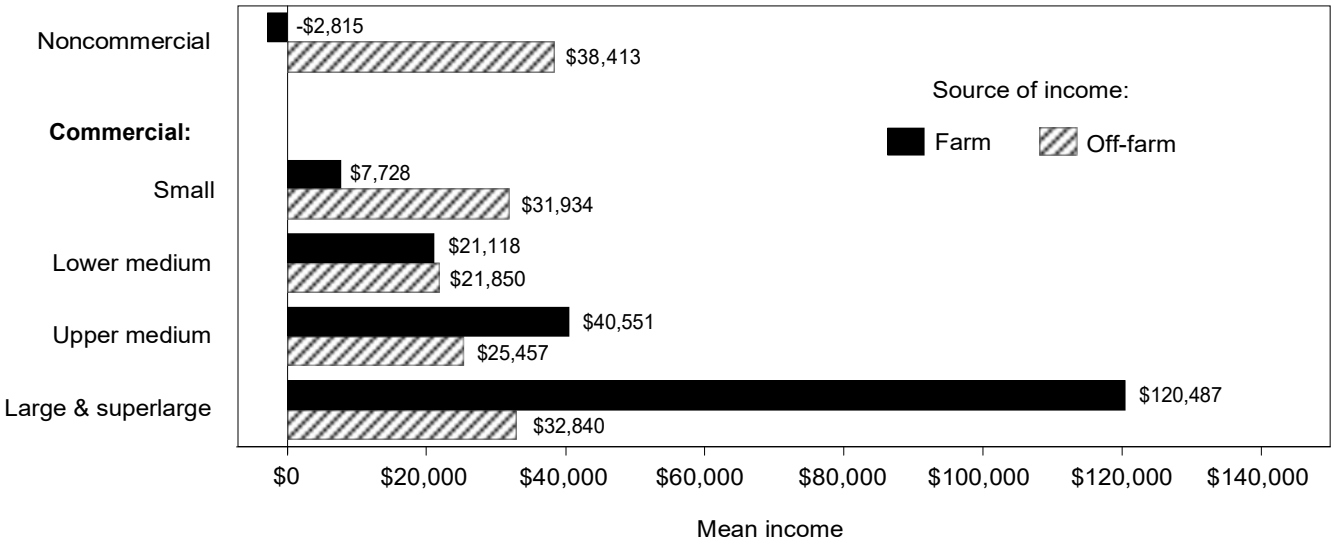
Item	Households		Mean household income		Share from off-farm sources[1]		Percent of U.S. average household income[2]
	Number	*RSE*[3]	*Dollars*	*RSE*[3]	*Percent*	*RSE*[3]	*Percent*
All operator households	2,035,692	2.3	40,223	2.8	88	1.4	97
Sales class of farm:							
Noncommercial	1,498,460	3.1	35,597	3.3	108	1.0	86
Commercial	537,232	2.1	53,124	5.2	51	5.2	128
Small	206,402	4.8	39,662	15.1	81	4.7	96
Lower medium	221,184	3.3	42,968	4.9	51	6.0	104
Upper medium	68,278	5.3	66,008	6.3	39	9.3	159
Large and superlarge[4]	41,368	5.7	153,328	10.3	21	13.1	370
Organization of farm:							
Individual	1,859,231	2.5	38,530	3.1	91	1.3	93
Partnership	124,399	6.9	54,094	7.7	71	5.4	131
Family corporation	52,062	9.3	67,546	13.3	54	13.4	163
Type of farm:[5]							
Cash grains	348,418	3.9	38,682	4.1	74	3.3	93
Other crops	486,896	5.5	46,420	6.1	85	3.0	112
Beef, hogs, or sheep	957,000	3.7	36,958	3.7	100	1.7	89
Dairy	138,466	4.9	40,191	6.7	37	8.0	97
Other livestock	104,911	11.6	46,397	24.7	107	5.1	112
Major farming region:							
Northeast	142,268	6.3	35,388	5.6	95	3.4	85
Lake States	217,029	7.3	35,029	7.3	86	5.0	85
Corn Belt	414,888	4.8	38,586	4.5	82	2.7	93
Northern Plains	186,629	7.8	36,373	8.3	74	5.5	88
Appalachian	297,925	6.2	38,603	11.7	97	1.9	93
Southeast	153,015	7.0	46,972	12.9	95	4.9	113
Delta	113,563	9.5	34,833	11.8	100	7.3	84
Southern Plains	249,758	7.3	43,313	7.9	96	3.7	105
Mountain	114,644	9.3	39,977	7.7	84	4.9	96
Pacific	145,973	12.4	57,564	8.3	77	7.6	139
Operator's occupation:							
Farming	919,044	2.4	36,117	3.4	61	3.3	87
Other occupation	769,237	4.4	51,322	4.7	107	1.0	124
Retired	347,410	7.3	26,507	7.6	101	1.7	64
Operator's age:							
Less than 35 years	180,401	7.0	33,085	8.0	77	6.6	80
35-44 years	394,137	4.8	41,934	4.1	81	3.6	101
45-54 years	471,458	5.1	52,125	7.0	91	2.5	126
55-64 years	433,343	5.0	45,390	4.9	87	2.7	110
65 years or older	556,352	5.0	27,214	5.2	96	2.1	66
Operator's education:							
Less than high school	472,721	5.4	24,548	6.3	92	3.6	59
High school	840,573	3.6	36,819	3.1	86	2.0	89
Some college	412,779	5.9	47,833	7.5	86	2.9	115
College	309,618	5.1	63,250	6.2	90	3.1	153

[1]Income from off-farm sources can be more than 100 percent of total household income if farm income is negative.
[2]Mean household income divided by U.S. mean household income ($41,428) from the Current Population Survey (U.S. Dept. Comm., Bur. Cen., 1995).
[3]The relative standard error (RSE) provides the means of evaluating the survey results. A smaller RSE indicates greater reliability of the estimate. For more information, see the box on data sources or appendix B.
[4]The large and superlarge categories were combined due to sample size considerations.
[5]Five categories were used rather than ten due to sample size considerations.
Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey. Data are from the farm operator household subset of the FCRS. See text for more information.

Figure 21

Mean income by source for farm operator households, by farm size category, 1993

On average, households with small farms are very dependent on off-farm income, while households with large farms depend more on farm income



Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey.

negative farm income, and off-farm income accounted for 108 percent of total income. These generally were not low-income households, because their average household income was 86 percent of U.S. average household income in 1993.

For households with commercial operations, farm income made an important positive contribution to total household income, accounting for half of total household income. The average income of $53,100 for commercial farm households in 1993 was significantly higher than the average of $35,600 for noncommercial farm households, and the average of $41,400 for U.S. households overall.

Among households with commercial farms, dependence on off-farm income decreased as farm size increased. Households running large and superlarge farms had the highest average household income at $153,300, and only 21 percent of their household income was from off-farm sources. Households with farms in the upper medium category had the next highest average household income, with farm income the dominant source. Most of the apparent differences in average household income among farms in the smaller commercial and noncommercial size categories were not statistically significant.

Organization of farm. About 91 percent of farm operator households were associated with farms legally organized as individual proprietorships. Households associated with partnerships (6 percent) or family corporations (3 percent), however, had significantly higher average household income, reflecting differences in farm size (table 10). Average household income for both of these groups also exceeded the U.S. average for 1993.

Households in all three groups had, on average, similar amounts of off-farm income. But, off-farm income represented only 54 percent of total household income for operator households with family corporations, and only 71 percent for operator households with partnerships, compared with 91 percent for households with individual proprietorships.

Type of farm. Average household income did not vary significantly among the different farm types, except that households with farms in the "other crop" category had higher average household income than households with beef, hog, or sheep farms (table 10). However, dependence on off-farm income varied among farm types,[12]

[12] Percent of income from off-farm sources did not differ by a statistically significant amount between beef, hog, or sheep farms and other livestock farms

because different types of farms have different labor and management requirements.

Households with dairy farms, for example, were the least dependent on off-farm income. Dairy farms are labor-intensive, limiting the hours that operators and other household members can devote to off-farm jobs (fig. 22). In 1993, dairy farms had the highest average hours worked by both operators and their spouses.

Other commodity specializations require less labor. For example, almost half of farm operator households had beef, hog, or sheep farms, which are generally less labor intensive. On average, off-farm income accounted for all of these households' income in 1993 (table 10). As mentioned earlier, the beef, hog, or sheep category is largely made up of cattle farms, which often have relatively flexible labor requirements that fit well with an off-farm job or retirement.

Region. Farm operator households in every region relied heavily on off-farm income. Differences in average farm operator household income among the 10 major farming regions were not significantly different, with the exception of the comparatively high average for the Pacific Region (table 10).[13] The average income of $57,600 for farm households in the Pacific Region was also significantly higher than the average for operator households overall.

[13]The difference between the Pacific Region and the Southern Plains was significant at the 90-percent level.

Variation by Operator Characteristics

Operator's occupation. Approximately 45 percent of operators reported farm or ranch work as their major occupation in 1993 (table 10). Their average household income was lower than the average for farm households overall, and their share of income from off-farm sources was lower.

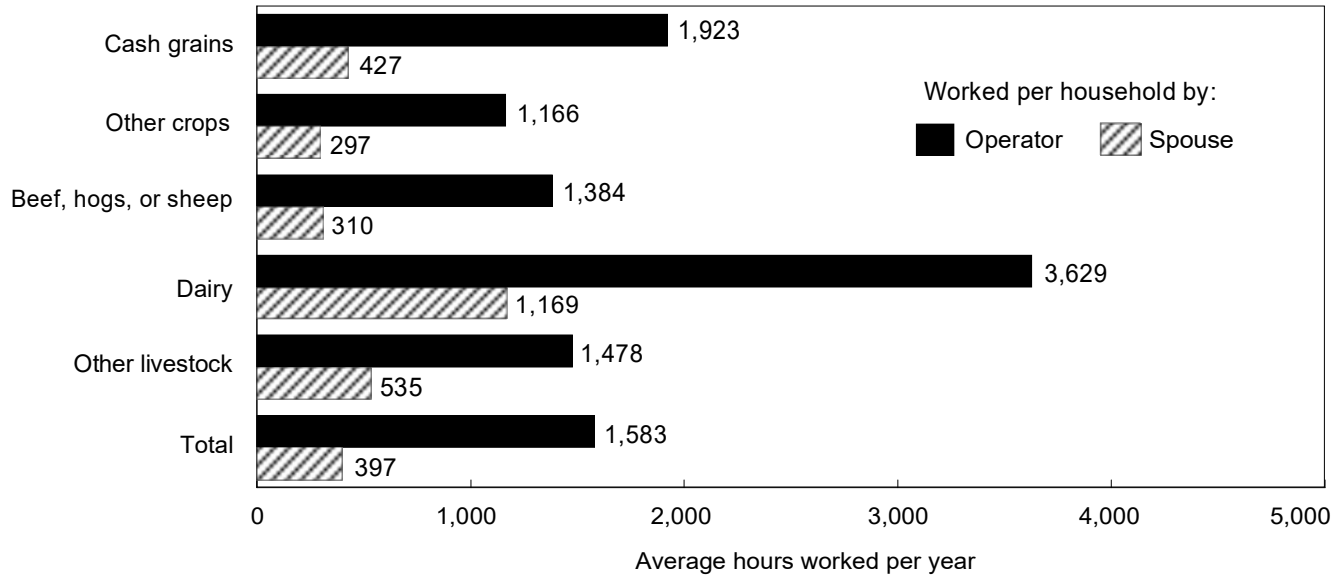
The comparatively low average household income for operators reporting farm or ranch work as their major occupation resulted more from low off-farm income than from low farm income. Average income from farming for these households was $13,900, while operators reporting they were retired or had another occupation lost money farming. However, income from off-farm sources offset negative farm income for those two groups. As a result, more than 100 percent of their household income came from off-farm sources.

Among the occupational categories, operators in the "other occupation" category had the highest average household income. This was the only occupational category for which average household income exceeded the average for all U.S. households.

Figure 22

Average hours worked per year onfarm by farm operators and their spouses, by type of farm, 1993

Average hours worked for both operators and spouses was highest on dairy farms



Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey, Farm Operator Resource version.

Operator's age. As with all U.S. households, the average income of farm operator households varied with householder age (table 10). Average income for farm households, however, was similar to the corresponding average for U.S. households with heads the same age. For example, farm households with an operator at least 65 years old had an average household income of $27,200, which was similar to the $26,000 average for all U.S. households with a householder the same age.

Farm operators, were, on average, older (54 years) than the average householder (48 years), reflecting the higher percentage of operators over the age of 65. Twenty-seven percent of operators were 65 years old or older in 1993, compared with only 21 percent of all U.S. householders. Because farm operators do not generally have a required retirement age, older operators often choose to reduce their farming activities and farm on a smaller scale, thus delaying full retirement. This is reflected in the composition of these households' income, 96 percent of which came from nonfarm sources.

Operator's education. Average household income tends to increase with the level of education attained by the household head. Households of farm operators who reported some college or a college education had average income above that of all operator households, while those with high school or less had below-average incomes (table 10). These differences related mostly to differences in average off-farm income, which increased consistently with education.

Only 15 percent of the farm operators reported obtaining a 4-year college degree, compared with 24 percent of all U.S. householders. Their average household income, however, was comparable to that of similarly educated U.S. householders.

Farm Dependency Categories

To summarize the variation that exists in farm households' dependence on farming, farm operator households were grouped into categories based on the ratio of their farm income to total household income. Six categories of farm operator households were created: five with positive household income and a sixth with negative household income (table 11).

Based on this classification, most households were not heavily dependent on farm income and the largest number of households were classified in the lowest farm dependency category, with positive household income and a loss from farming. These households had an average household income of $38,500 in 1993.

Households most dependent on farm income, those with 75 percent or more of their income from farming, accounted for only 11 percent of farm households. These households had the highest average household income, $68,600.

Households with negative household income accounted for 7 percent of the households, and their average household income was -$28,400. The farms operated by these households were generally larger than average in terms of average gross cash income and average acres operated (app. tables 19 and 20). Large farms can have a bad year.

Table 11—Farm operator households and household income, by farm dependency category, 1993

Farm dependency category	Households		Mean household income		Percent of U.S. average household income[1]
	Number	*RSE*[2]	*Dollars*	*RSE*[2]	*Percent*
All operator households	2,035,692	2.3	40,223	2.8	97
Positive household income and:					
Loss from farming	981,229	4.0	38,460	4.1	93
0-24 percent from farming	400,130	5.4	49,574	7.0	120
25-49 percent from farming	158,635	6.1	44,617	5.5	108
50-74 percent from farming	112,684	6.6	50,248	4.4	121
75 percent or more from farming	231,340	4.0	68,611	4.5	166
Negative household income	151,674	7.0	-28,383	8.6	nc

Note: nc=not computed.
[1]Mean household income divided by U.S. mean household income ($41,428).
[2]The relative standard error (RSE) provides the means of evaluating the survey results. A smaller RSE indicates greater reliability of the estimate. For more information, see the box on data sources or appendix B.
Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey. Data are from the farm operator household subset of the FCRS. See text for more information.

Economic Satisfaction

In the 1993 survey, farm operators were asked about their levels of satisfaction with four components of their income and their overall standard of living:

- Farming/ranching as a source of income
- Off-farm work as a source of income
- Other off-farm income, such as pensions, Social Security, investment income, etc.
- Standard of living (housing, car, furniture, recreation, etc.).

Responses were coded on a scale of 1 to 5:
1 = Very satisfied
2 = Somewhat satisfied
3 = Undecided
4 = Somewhat dissatisfied
5 = Very dissatisfied.

The average total score for all farm operators was 2.3, indicating that farmers were slightly less than "somewhat satisfied" (table 12). At the U.S. level, farm operators expressed the highest levels of satisfaction with their standard of living, with an average score of 1.7. Of those responding, 48 percent indicated that they were very satisfied, and 39 percent indicated that they were somewhat satisfied with their standard of living (fig. 23).

The highest levels of dissatisfaction were expressed with farming/ranching as a source of income, with an average score of 2.8 (table 12) and with more than one-third of the respondents indicating that they were either very or somewhat dissatisfied (fig. 23). The next highest levels of dissatisfaction were with off-farm work and other off-farm income as a source of income, which received average scores of 2.2 and 2.5, respectively (table 12). But, only a small share of respondents expressed dissatisfaction with either component (fig. 23).

Farm operators in the highest farm dependency and negative household income categories expressed higher than average levels of overall dissatisfaction with their overall economic situation (table 12). Farmers in the negative household income category expressed significantly higher levels of dissatisfaction than average with off-farm work as a source of income and with their overall standard of living. Farmers in the highest dependency categories reported above-average levels of satisfaction with farming as a source of income. But, they were significantly more dissatisfied with off-farm work as a source of income.

Making a Living Farming

The majority of farm operator households do not make enough farm income to rely on it alone for a comfortable living. However, some operator households receive farm income near or above the average household income for all U.S. households. Examining the characteristics of these operator households gives an idea of the types of farms that can provide an income equal to the average for all U.S. households, without reliance on off-farm jobs or income (table 13).

Three groups were defined according to whether the household's income from farming alone in 1993 was below, about equal to, or above the average U.S. household income for the year. "About equal to the U.S. average" was defined as $35,000 to $49,999. This income range was selected because it was consistent with published Census Bureau income categories, and because it included the U.S. average household income of $41,400 for 1993.

In 1993, there were approximately 64,000 farm operator households (3.1 percent of all farm operator households) whose farm income alone was about equal to the average U.S. total household income. These farm operator households' average total household income was almost $60,000, because they received substantial amounts of off-farm income in addition to their large farm income. An additional 5 percent of farm operator households had income in excess of $49,999.

Farm operator households in the two groups with farm income more than $35,000 were associated with medium- to large-size commercial farms. These farms were more likely to be partnerships or family corporations than the farms of households with less than $35,000 in farm income. Farm operator households with farm income in excess of $35,000 were also more likely to operate cash grain and dairy farms, and less likely to operate beef, hog, or sheep farms.

There also were regional differences among the three groups. Farm operator households with farm income about equal to the U.S. average household income were more likely to be located in the Lake States than households in the other two groups. Farm operator households with farm income below the U.S. average household income were more likely than households in the other two groups to be in the Appalachian Region, while those with farm income above the U.S. average were more likely than households in the other two groups to be in the Pacific Region.

Table 12—Operator satisfaction with household economic situation, by farm dependency category, 1993

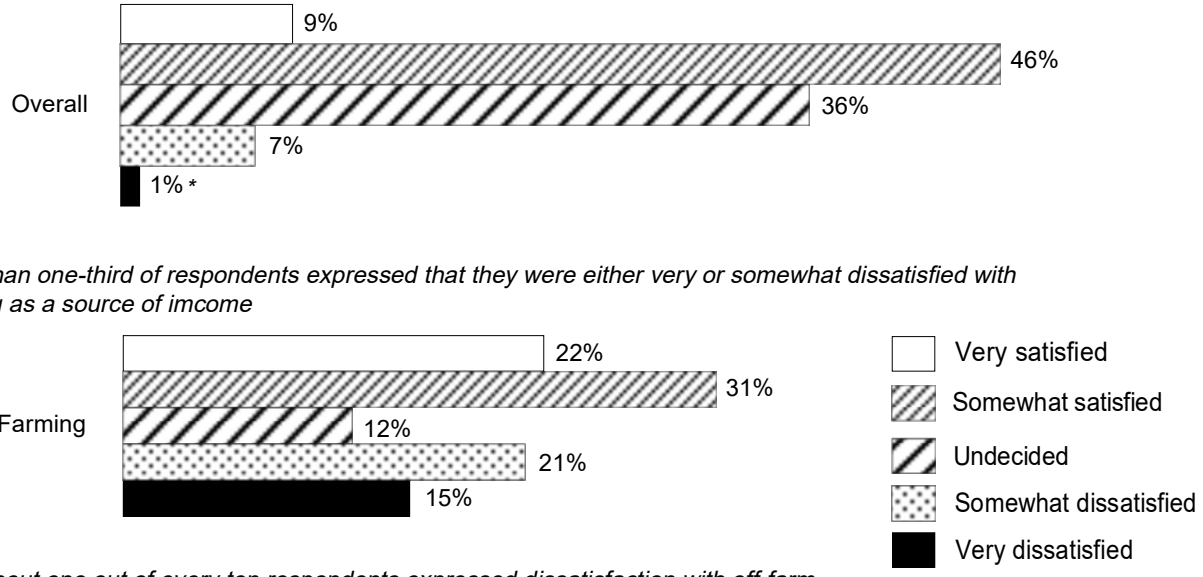
Farm dependency category	Farming as source of income		Off-farm job as source of income		Other off-farm income		Standard of living		Total score	
	Average score[1]	*RSE*[2]	*Average score*[1]	*RSE*[2]	*Average score*[1]	*RSE*[2]	*Average score*[1]	*RSE*[2]	*Average score*[1]	*RSE*[2]
All operator households	2.8	1.5	2.2	1.4	2.5	1.2	1.7	1.7	2.3	0.9
Positive household income and:										
Loss from farming	3.0	2.0	2.0	2.3	2.5	1.8	1.7	2.4	2.3	1.4
0-24 percent from farming	2.8	3.2	2.2	3.2	2.4	2.9	1.7	3.5	2.3	2.1
25-49 percent from farming	2.4	5.9	2.6	4.3	2.6	3.6	1.7	7.1	2.3	3.8
50-74 percent from farming	2.4	5.7	2.6	3.9	2.4	4.7	2.0	10.5	2.3	3.5
75 percent or more from farming	2.3	4.2	2.7	2.4	2.8	2.4	1.9	3.4	2.4	2.1
Negative household income	2.9	5.8	2.5	4.5	2.6	3.9	2.1	6.1	2.6	3.8

[1]Computed as the average of scores ranging from 1 (very satisfied) to 5 (very dissatisfied).
[2]The relative standard error (RSE) provides the means of evaluating the survey results. A smaller RSE indicates greater reliability of the estimate. For more information, see the box on data sources or appendix B.
Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey. Data are from the farm operator household subset of the FCRS. See text for more information. Only the Farm Operator Resource version collected information on operator satisfaction.

Figure 23

Levels of satisfaction with income components, 1993

The largest share of respondents to all four questions relating to satisfaction with their income components was, overall, somewhat satisfied



More than one-third of respondents expressed that they were either very or somewhat dissatisfied with farming as a source of imcome

Only about one out of every ten respondents expressed dissatisfaction with off-farm work as a source of income

Dissatisfaction with other off-farm income, such as pensions, Social Security, and investments was also comparatively low

Satisfaction with standard of living, considering such items as housing, car, furniture, and recreation, was expressed by most respondents

*Relative standard error is greater than 25 percent.

Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey, Farm Operator Resource version.

Table 13—Household income and selected characteristics, for farm operator households receiving farm income below, about equal to, or above the average income for all U.S. households, 1993[1]

Item	Farm income to the household					
	Below U.S. average		About equal to U.S. average ($35,000 - $49,999)		Above U.S. average	
	Estimate	*RSE[2]*	*Estimate*	*RSE[2]*	*Estimate*	*RSE[2]*
Number of operator households	1,867,742	2.6	63,979	6.9	103,971	4.9
Percent of operator households	91.7	2.6	3.1	6.9	5.1	4.9
			Dollars per household			
Operator household income	33,203	3.5	59,601	3.0	154,403	3.7
Farm income	-3,280	10.4	41,384	0.7	127,726	4.0
Off-farm income	36,483	3.2	18,217	9.6	26,677	9.6
			Percent of households			
Households with off-farm income	95.6	0.3	87.6	2.4	81.1	2.4
Sales class of farm:						
Noncommercial	79.6	3.1	d	na	d	na
Commercial	20.4	2.9	d	na	d	na
Small	9.8	5.2	d	na	d	na
Lower medium	8.0	4.3	49.8	8.9	37.6	8.4
Upper medium	1.7	7.7	14.0	15.1	26.9	8.9
Large and superlarge[3]	0.8	11.3	4.6	21.1	22.3	6.8
Organization of farm:						
Individual	92.5	2.7	82.3	7.9	75.3	5.8
Partnership	5.5	8.1	10.5	18.2	13.9	12.0
Family corporation	1.9	12.0	7.2	21.2	10.8	17.0
Type of farm:[4]						
Cash grains	15.7	4.6	36.0	12.3	30.2	8.6
Other crops	23.9	5.9	15.6	16.3	30.2	10.0
Beef, hogs, or sheep	49.3	3.9	23.3	15.4	21.3	12.6
Dairy	5.8	6.1	21.6	14.4	16.0	7.9
Other livestock	5.4	12.1	3.5	25.1	2.3	26.9
Major farming region:						
Northeast	7.2	6.8	4.8	19.4	5.0	13.2
Lake States	10.6	7.9	17.5	19.0	8.4	13.9
Corn Belt	20.0	5.4	26.7	14.4	23.5	10.0
Northern Plains	8.8	8.9	18.7	16.2	10.5	12.6
Appalachian	15.3	6.4	7.3	21.9	6.3	13.7
Southeast	7.7	7.4	3.8	23.8	7.3	23.3
Delta	5.7	10.2	3.2	31.2	4.9	15.4
Southern Plains	12.6	7.8	6.4	25.5	9.5	17.4
Mountain	5.5	10.4	6.6	23.5	8.1	13.8
Pacific	6.7	14.2	4.9	30.8	16.4	16.0

Note: d=Data insufficient for disclosure. In some categories with sufficient data, estimates are not provided to prevent disclosure in categories with insufficient data. na=not applicable.

[1]In this table, farm operator households are classified by their farm income relative to U.S. mean household income ($41,428) from the Current Population Survey (U.S. Dept. Comm., Bur. Cen., 1995). See text for more detail.

[2]The relative standard error (RSE) provides the means of evaluating the survey results. A smaller RSE indicates greater reliability of the estimate. For more information, see the box on data sources or appendix B.

[3]The large and superlarge categories were combined due to sample size considerations.

[4]Five categories were used rather than ten because of sample size considerations.

Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey. Data are from the farm operator household subset of the FCRS. See text for more information.

Farm Operators and Their Communities

One linkage between operator households and their communities is the income received by farm households from off-farm sources, just discussed above. Another linkage is farm and operator household purchases. This section examines the distance that members of operator households travel when they make purchases. Later, operators' satisfaction with their communities is examined.

Distance to Sources of Purchases

The long-term decline in farm numbers and expansion of farm size may have affected local purchases by farms and farm households in two ways. First, with fewer farms and fewer farm households, total spending in local communities may have declined, if no other industries expanded as the number of farms declined. Second, larger farms and their households may trade with more distant suppliers.

The 1993 FCRS addressed the second point by collecting data on where farm operators purchased various items. In particular, the FCRS asked farm operators how many miles it was between their house and where they bought:

- Household supplies (groceries, clothes, supplies for the home, etc.)
- Durables (cars, trucks, furniture, and household appliances)
- Farm machinery (excludes trucks, but includes implements)
- Farm supplies (seed, feed, chemicals, parts, fuels, and other farm-related goods and services, excluding farm machinery).

The FCRS data suggest that operators generally do not travel particularly long distances to make purchases. Fears that large numbers of farm operators bypass local suppliers may be exaggerated, at least according to the FCRS.

At the U.S. level, the average distances to sources of household supplies (12 miles) and farm supplies (13 miles) were less than the average distances to sources of durables (20 miles) and farm machinery (21 miles) (table 14). Many smaller towns have stores where operators can buy household and farm supplies. Farm operators may have to go farther to find towns selling the more expensive (and less frequently purchased) durables and farm machinery. Regardless of type of purchase, however, most purchases are made fairly close to home.

The same pattern—smaller distances for household and farm supplies and longer distances for durables and farm machinery—generally prevailed when operators were categorized by various characteristics. However, some differences between the average for farm supplies and the averages for durables and farm machinery were significant only at the 90-percent level. And, some differences for operators with a corporation or a partnership were not significant at either the 95-percent or the 90-percent levels.

Retired operators tended to spend closer to home. They traveled shorter distances to buy household supplies and farm machinery than operators reporting farming or another major occupation. Retired operators also traveled shorter distances to buy farm supplies than operators reporting farming as their major occupation.

At the other extreme, operators reporting farming as their major occupation traveled greater distances than the two other occupation groups for all four categories of purchases. Half of the differences between operators reporting farming as their major occupation and the other occupational groups were significant only at the 90-percent level, however.

Operators of commercial farms traveled greater distances than operators of noncommercial farms, on average, for all four categories of purchases. Average distance did not vary by organization for any purchase category. On the other hand, nonfamily corporations were excluded from table 14, and they may have purchased more from distant suppliers.

Operators traveled longer distances for household supplies and durables in nonmetro than in metro areas. The longer distances in nonmetro areas may reflect the lower population densities in nonmetro areas (22 persons per square mile) compared with metro areas (291 persons per square mile)[14] Low population densities indicate less dense settlement patterns and greater distances to suppliers. Metro-nonmetro distance differences for purchases of farm machinery and farm supplies were not statistically significant, however.

[14]Population densities are from the 1990 Census of Population.

Table 14—Distance to sources of purchases, by selected farm, farm operator, and county characteristics, 1993

Item	Distance to main sources of:							
	Household supplies		Durables		Farm machinery		Farm supplies	
	Mean miles	*RSE*[1]	*Mean miles*	*RSE*[1]	*Mean miles*	*RSE*[1]	*Mean miles*	*RSE*[1]
All farms and operators	12	2.7	20	2.7	21	3.2	13	3.4
Major occupation:								
Farming	14	4.3	21	3.8	23	4.5	14	3.9
Other occupation	11	3.7	19	4.2	21	5.0	13	6.7
Retired	9	6.2	18	7.6	16	7.2	12	7.9
Farm size category:								
Noncommercial	11	3.0	19	3.2	19	3.6	13	4.3
Commercial	14	5.5	23	4.8	26	5.9	15	5.1
Farm organization:								
Individual	12	2.8	20	2.9	21	3.4	13	3.7
Partnership	13	12.3	18	9.3	20	10.5	13	7.5
Family corporation	10	12.2	18	14.2	20	14.4	13	14.6
Metro-nonmetro status:								
Metro	10	3.6	16	4.0	20	5.1	13	4.4
Nonmetro	13	3.5	22	3.3	22	4.0	14	4.5
Adjacent	12	4.8	21	4.5	19	5.4	12	5.1
Not adjacent	14	5.1	23	4.9	24	5.7	15	7.3
County type:								
Farming-dependent	14	8.3	26	7.3	23	9.4	14	9.3
Other nonmetro	13	3.8	21	3.8	21	4.4	13	5.2
Metro	10	3.6	16	4.0	20	5.1	13	4.4

[1]The relative standard error (RSE) provides the means of evaluating the survey results. A smaller RSE indicates greater reliability of the estimate. For more information, see the box on data sources or appendix B.
Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey. Data are from the farm operator household subset of the FCRS. See text for more information. Only the Farm Operator Resource version collected information on distance to sources of purchases.

As expected, nonmetro operators traveled longer distances for all four types of purchases in nonadjacent counties than in adjacent counties. (Adjacent-nonadjacent differences for durables and farm supplies were significant only at the 90-percent level.) Nonmetro counties adjacent to metro areas are closer to suppliers in metro areas. In addition, adjacent counties have a higher population density (35 persons per square mile) than nonadjacent counties (15 persons per square mile).

Population density was much less in farming-dependent counties (8 persons per square mile) than in other nonmetro counties (27 persons per square mile). Nevertheless, the only statistically significant difference between farming-dependent and other nonmetro counties was for durables.

Community Satisfaction

During the 1993 FCRS, operators were asked about their satisfaction with different aspects of their communities. Specifically, operators were asked questions about their satisfaction with:

- Their community as a place to live
- Their housing
- Their involvement with farming/ranching
- Off-farm job opportunities.

As with the questions about economic satisfaction, responses were coded on a scale of 1 to 5 with 1 being "very satisfied" and 5 being "very dissatisfied." Results are presented by operator household dependence on farming (table 15), to be consistent with the information presented earlier for economic satisfaction. In addition, satisfaction is also presented by metro-nonmetro status and county type, to see if satisfaction differs by type of community.

Farm operators generally were satisfied with their communities. About 33 percent of all operators were "very satisfied" and another 56 percent were "somewhat satisfied" with their communities overall (fig. 24). Operators

Table 15—Community satisfaction of farm operators, by dependency on farming and county characteristics, 1993

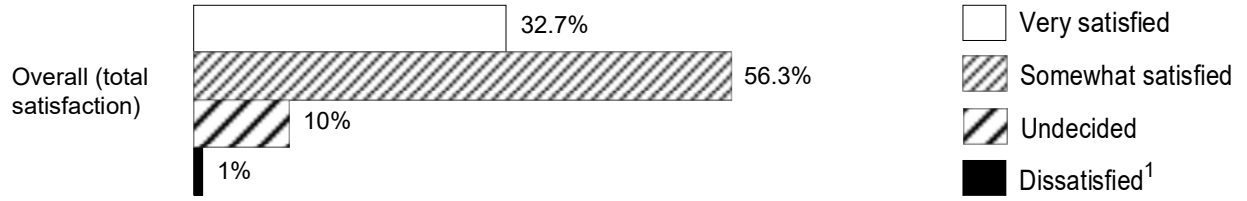
Item	Community as a place to live		Housing		Involvement in farming		Off farm job opportunities		Total satisfaction	
	Average score[1]	*RSE*[2]	*Average score*[1]	*RSE*[2]	*Average score*[1]	*RSE*[2]	*Average score*[1]	*RSE*[2]	*Average score*[1]	*RSE*[2]
All farm operators	1.3	1.7	1.4	1.8	1.7	1.8	2.3	1.4	1.7	1.0
Farm operator household farm dependency category:										
Positive household income and:										
Loss from farming	1.3	2.6	1.4	2.1	1.7	2.3	2.1	2.3	1.6	1.5
0-24 percent from farming	1.3	3.9	1.5	5.4	1.8	4.7	2.3	3.4	1.7	2.8
25-49 percent from farming	1.3	5.2	1.3	4.3	1.9	7.3	2.5	5.4	1.8	4.1
50-74 percent from farming	1.4	6.3	1.3	4.8	1.4	5.9	2.5	4.8	1.7	3.7
75 percent or more from farming	1.2	3.1	1.4	6.3	1.4	3.4	2.6	2.6	1.7	2.2
Negative household income	1.4	4.5	1.5	6.2	1.6	6.7	2.7	4.2	1.8	3.4
Metro-nonmetro status:										
Metro	1.4	2.9	1.4	2.6	1.7	3.3	2.2	2.8	1.7	2.0
Nonmetro	1.3	2.0	1.4	2.3	1.6	2.2	2.3	1.6	1.7	1.2
Adjacent	1.3	2.5	1.4	2.3	1.6	2.6	2.3	2.5	1.7	1.5
Not adjacent	1.3	3.2	1.4	4.2	1.7	3.4	2.4	2.4	1.7	1.9
County type:										
Farming-dependent	1.3	3.9	1.5	6.5	1.7	5.6	2.6	3.3	1.8	2.8
Other nonmetro	1.3	2.3	1.4	2.3	1.6	2.3	2.2	1.9	1.6	1.3
Metro	1.4	2.9	1.4	2.6	1.7	3.3	2.2	2.8	1.7	2.0

[1]Computed as the average of scores ranging from 1 (very satisfied) to 5 (very dissatisfied).
[2]The relative standard error (RSE) provides the means of evaluating the survey results. A smaller RSE indicates greater reliability of the estimate. For more information, see the box on data sources or appendix B.
Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey. Data are from the farm operator household subset of the FCRS. See text for more information. Only the Farm Operator Resource version collected information on operator satisfaction.

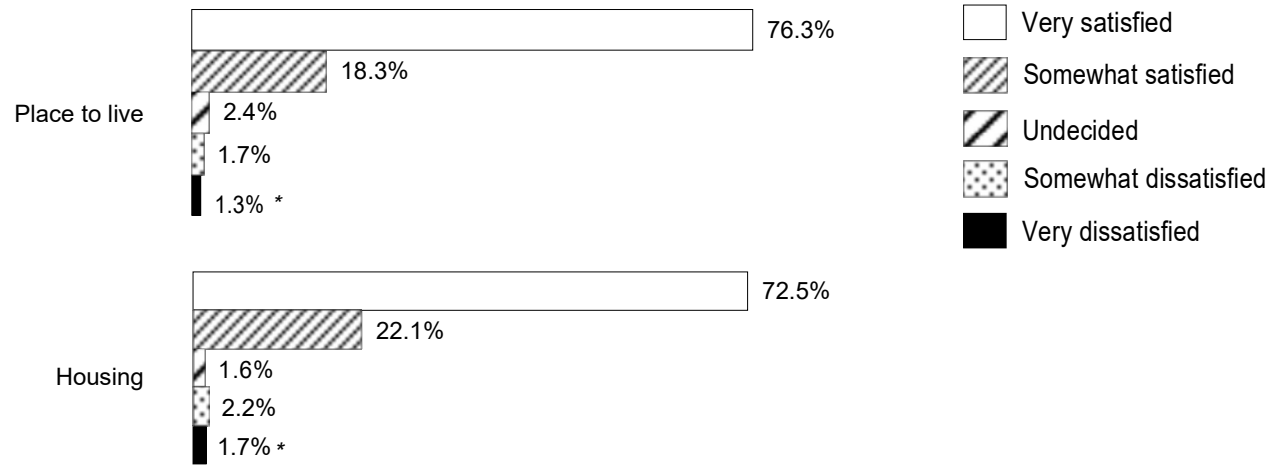
Figure 24

Levels of operator satisfaction with the community, 1993

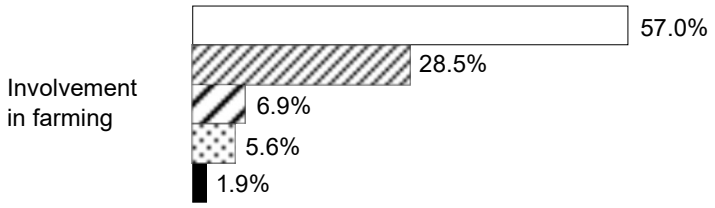
Most farm operators were very satisfied or somewhat satisfied with their communities overall



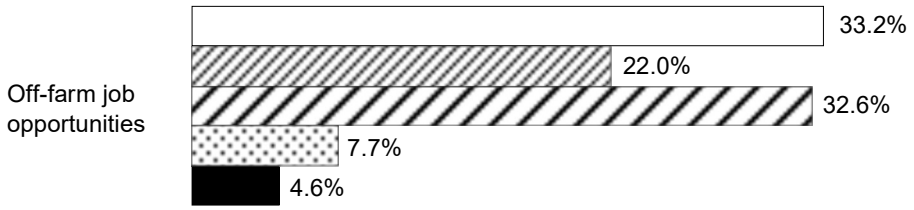
About three-fourths of operators were very satisfied with their communities as places to live and with their housing



About 86 percent of farm operators were very satisfied or somewhat satisfied with their involvement in farming



Most operators were very satisfied or somewhat satisfied with off-farm job opportunities. But, one-third were undecided



*Relative standard error is greater than 25 percent.

[1]"Somewhat dissatisfied" and "very dissatisfied" were collapsed into one category due to sample size considerations.

Source: Economic Research Service, compiled from the 1993 Farm Costs and Returns Survey, Farm Operator Resource version.

were actually more satisfied with their communities than with their economic situation. The average total score for economic satisfaction was 2.3 (table 12), which is between "somewhat satisfied" and "undecided," while the average total score for community satisfaction was 1.7 (table 15), which falls between "very satisfied" and "somewhat satisfied."

At the U.S. level, farmers were more satisfied with their community as a place to live (average score of 1.3) and with their housing (average score of 1.4) than with their involvement in farming (average score of 1.7). Still, over half (57 percent) of operators were "very satisfied" with their involvement in farming (fig. 24). Operators were also more satisfied with their involvement with farming (table 15) than with farming as a source of income (table 12).

U.S. operators were least satisfied with off-farm job opportunities (average score of 2.3), regardless of dependence on farm income and location (table 15). The relatively high score for off-farm job opportunities resulted more from a large percentage answering "undecided" rather than large percentages expressing dissatisfaction (fig. 24).

Only three statistically significant patterns appeared in the variation of the components of satisfaction by farm dependency or location (table 15). First, the two groups receiving at least 50 percent of their income from farming were slightly more satisfied with their involvement with farming than were the other dependency categories.[15] This seems reasonable, since these groups were the most involved in farming, as far as the origin of their income was concerned. Second, operators with either a loss from farming or between 0 and 24 percent of total household income from farming were more satisfied with off-farm job opportunities than were the other income dependency categories. (Some of these differences were significant only at the 90-percent level.) Operators in these dependency categories were the most likely to have a nonfarm major occupation. Third, operators in farming-dependent counties were less satisfied with off-farm job opportunities than were their counterparts in other nonmetro counties or in metro counties.

[15]The difference between the 50 to 74 percent and negative income categories was not statistically significant, however.

Discussion and Implications

The information presented above has four major implications important to understanding farms and farm operator households today and in the future:

- U.S. farms are diverse, and much variation within the industry is hidden by U.S. averages.
- Production of farm products is more concentrated than in the past, but concentration is not entirely a recent development.
- The share of operators at least 65 years old is large, but finding replacement farmers may not be as severe a problem as suggested by operator age statistics.
- Farm operator households, on average, depend heavily on off-farm income, but dependence on off-farm income varies by farm and operator characteristics.

U.S. Versus Group Averages

One should be cautious when using broad descriptions of farm businesses based on U.S. averages, which can hide much variation among various groups of farms. For example, U.S. farms averaged $73,700 in gross sales in 1993. But, the averages for farms run by operators reporting farming or hired manager as their major occupation ($135,000 and $546,300, respectively) were much more than the averages for farms run by operators reporting another occupation or retired ($19,300 and $7,600, respectively) (table 8). Operators reporting farming or hired manager as their major occupation also accounted for 88 percent of U.S. gross sales (fig. 14).

Using U.S. averages makes sense for some purposes. When following trends in farm size, for example, examining changes in U.S. average gross sales (or average acres) over time is reasonable. For other purposes, however, focusing on a particular group may be more appropriate.

Which group should be the focus depends on the topic under consideration. Farm policy discussions, for example, may focus on the farms that produce the bulk of farm output, such as farms whose operators report farming as their major occupation, commercial farms, or full-time commercial farms. This does not mean that smaller farms should be ignored. Separate information for other groups of farms can also be presented.

Concentration and Industrialization

In farm structure discussions, concentration of production is now a bigger issue than the declining number of farms (Stanton, 1993b). Compared with earlier years, farm production has become much more concentrated. As shown by census of agriculture data, 17 percent of U.S. farms produced 50 percent of farm sales in 1900 (Peterson and Brooks, 1993, pp. 3-5), compared with only 3 percent of farms in 1992 (U.S. Dept. Comm., Bur. Cen., 1994a, p. 47). The FCRS and census of agriculture are consistent with each other regarding the current level of concentration, measured as smallest share of farms necessary to account for 25 percent, 50 percent, and 75 percent of agricultural production.

Industrialization of agriculture is one facet of the increasing concentration in farming, and the FCRS provides current data about one aspect of industrialization: contracting. Farms with contracts produce a disproportionately large share of U.S. agricultural output. Farms with production or marketing contracts accounted for 40 percent of gross sales in 1993, which is disproportionately large, considering their 11-percent share of farms (fig. 7).

The industrialization of agriculture, including the increasing use of contracts, is likely to continue. Among the possible positive effects of industrialized farming are more efficient production, less dependence on government assistance, and greater global competitiveness. Possible adverse effects include further depopulation of rural areas still dependent on farming, damage to the environment (especially in the case of livestock production), reduction in the family farm's independence, abuses of market power, and the disappearance of open market price signals (Drabenstott, 1994; Erin and Smith, 1994; Hamilton, 1994; Council on Food, Agricultural and Resource Economics, 1994). In addition, teaching and research institutions serving agriculture may need to adapt in order to survive as the number of farms declines (Stauber, 1994).

The ultimate effects of concentration and industrialization will be clearer in the future. In the meantime, examining historical data and reviewing changes in other industries help keep discussions of present or future concentration in perspective. The 17 percent of U.S. farms that produced 50 percent of U.S. production in 1900 indicates that some concentration already existed nearly 100 years ago. In addition, farming is still much less concentrated than other industries. As pointed out by Stanton (1993b, p. 66):

> The current policy debate about farm structure in part relates to how rapidly the largest farm units will come to dominate production and marketing of key commodities within commercial agriculture. It is important to remember that the competitive structure of agriculture, characterized by many thousands of farms, stands in stark contrast to most industries in the United States, including those that sell inputs to farmers on one side and those that buy farm products on the other. Structural change, so important in farming, is still modest when compared to the changes in farm machinery, meat packing, or the grain trade.

Elderly Operators and Their Replacements

Some analysts express concern over the high percentage of operators over age 65 (table 8) and worry about replacement farmers. Eventual replacements for operators currently reporting farming as their major occupation are particularly important, since these farmers account for most of gross sales (fig. 14).

Some replacements could come from the pool of operators with a major occupation other than farming. Switching their major occupation to farming would only be a temporary solution to the shortage of younger farmers, however, for operators reporting a nonfarm occupation could hardly be described as young. Their average age was 48 years in 1993, only 5 years younger than that of operators reporting farming as their major occupation (table 9). In any event, few operators with a nonfarm major occupation are likely to switch occupations, because these operators currently have adequate income from off-farm sources (table 10). Few are likely to be interested in a greater commitment to farming.

The traditional pool of replacement farmers has been young people raised on farms (Gale, 1994, pp. 6-7). Beginning full-time farmers are generally limited to people raised on farms, because much of the knowledge necessary to farm can be gained by growing up on a farm. The pool of people raised on farms has declined because of off-farm migration and declining number of children born to farm women during recent decades. Nevertheless, finding replacement operators may not be a real problem, according to Gale (RDP, p. 22):

> Although farm production will likely continue to grow at a modest pace, fewer farm operators will be needed to produce any given amount of food and fiber. The large number of farmers who are 65 or over can be adequately replaced with a smaller number of new young farmers, because older farmers generally have smaller farms and produce less than younger farmers.

Gale concluded that the number of farms will continue to drop modestly and gradually without large increases in agricultural prices (1994, p. 34). Relatively stable demand for food and growing productivity will keep agricultural prices low and continue to force some producers out.

Finding replacements may be less of a problem than suggested by operator age statistics. Retired farm operators do not need to be replaced as they leave farming. They already have left farming. These operators classify themselves as retired and account for very little production (fig. 14), but they still are counted as farmers because of the $1,000 cutoff. Any replacement of these operators by younger operators has already happened.

In addition, U.S. farm statistics undercount the number of young operators. Information is collected about only one operator per farm. At least some replacement farmers are currently working alongside older operators.

Operator Household Income

Most operator households rely heavily on off-farm income (table 11). About 48 percent of operator households had positive household income in 1993 but a loss from farming. Another 20 percent had positive household income but received less than 25 percent of their total household income from farming. Off-farm income allows many farm operator households to maintain an adequate total income and remain in farming.

Depending on off-farm income means that operator households have an interest in the nonfarm economy. The health of the local economy, nonfarm job growth, and the level of nonfarm wages are vital to many operator households. The status of retirement programs and returns on investments are also important to retired operators.

Dependence on off-farm income, however, varies with farm and operator characteristics. Households that depend the least on off-farm income have: larger commercial farms, operators reporting farming as their major occupation, farms organized as family corporations, and dairy farms (table 10). For these households, commodity prices and other factors affecting farm business income are important. Farm programs may also be

important to these households, if their farm businesses produce commodities covered by the programs.

The current farm definition—a place that sells (or normally would sell) at least $1,000 of agricultural products—ensures that most farm households receive little (or negative) farm income. Only 8 percent of operator households have farms that generate $35,000 in household income, an amount similar to or above the average total income for all U.S. households (table 13).

The small number of farms producing $35,000 or more in household income may help explain why farm operators express relatively low satisfaction with farming as a source of income (table 12). Nevertheless, farm operators apparently got more from farming than just income. Regardless of their dependence on farm income, operators expressed more satisfaction with their involvement with farming (table 15) than with farming as a source of income (table 12).[16]

[16]The difference between satisfaction with involvement in farming and satisfaction with farming as a source of income was significant only at the 90-percent level for operators receiving 25 to 49 percent of their income from farming.

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Appendix A: Definitions of Terms

Farm

Farm: Any establishment from which $1,000 or more of agricultural products were sold or would normally be sold during the year under consideration.

Point farm: If an operation did not have $1,000 in agricultural sales, points were assigned for acres of various crops and head of various livestock species to estimate a normal level of sales. Point farms had less than $1,000 of sales, but points worth $1,000, and were counted as farms. Both the Farm Costs and Returns Survey (FCRS) and census of agriculture use the point system.

Land in Farms

Total acres operated: Agricultural land owned, plus land rented in, less land rented out, plus land both used and rented out. Rentals may be for cash, for a share of production, or free-of-charge.

Owned: Total acres owned by the farm operation.

Rented in for cash or shares: Acreage rented from others during the year for cash or for a share of crop or livestock production. Excludes land rented in on an animal-unit-month (AUM) basis.

Rented in free-of-charge: Acreage provided to an operation without charge. Because of the small amount of acreage involved, this category does not appear separately in the tables, but the acreage is added when calculating total acres operated.

Rented out for cash or shares: Acreage provided to other farm operations for cash or for a share of crop or livestock production.

Rented out free-of-charge: Acreage provided to other farm operations without charge. Because of the small amount of acreage involved, this category does not appear separately in the tables, but the acreage is deducted when calculating total acres operated.

Used and rented out: Acreage used for crops or livestock during a part of the year and rented to another operation for crop or livestock production during another part of the year. Because of the small amount of acreage involved, this category does not appear separately in the tables, but the acreage is added when calculating total acres operated.

Cropland Removed from Production

Land diverted from production in compliance with government agricultural programs including:

Set-aside: Land idled from production under annual commodity acreage adjustment programs and devoted to conservation uses. Includes acres set aside during the year through the Acreage Reduction Program (ARP) or 0/85-92 Program.

Conservation Reserve Program (CRP): Highly erodible cropland taken out of production under 10- to 15-year contracts and planted in protective cover crops or reforested for conservation purposes.

All other Federal or State programs.

(Land in summer fallow was excluded from land removed from production.)

Geographic Units

Major Farming Regions:

Northeast: Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont.

Lake States: Michigan, Minnesota, Wisconsin.

Corn Belt: Illinois, Indiana, Iowa, Missouri, Ohio.

Northern Plains: Kansas, Nebraska, North Dakota, South Dakota.

Appalachian: Kentucky, North Carolina, Tennessee, Virginia, West Virginia.

Southeast: Alabama, Florida, Georgia, South Carolina.

Delta: Arkansas, Louisiana, Mississippi.

Southern Plains: Oklahoma, Texas.

Mountain: Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, Wyoming.

Pacific: California, Oregon, Washington.

(Alaska and Hawaii are not covered by the FCRS and are excluded from this report.)

Metro-nonmetro counties:

Metro counties: Counties in Metropolitan Statistical Areas (MSA's), as defined by the Office of Management and Budget. Each MSA is a county or group of contiguous counties that contains either: (1) at least one central city with a population of at least 50,000 or (2) an urbanized area of at least 50,000 with a total population of at least 100,000. Additional counties may be included in the MSA if they have strong ties to the MSA. This report uses the MSA's designated as of 1993.

Urbanized area: An urbanized area consists of one or more central places and adjacent densely settled areas that together have a minimum population of 50,000. "Densely settled" is defined here as at least 1,000 persons per square mile.

Nonmetro counties: Counties outside MSA's. (See "metro counties," defined above.) Nonmetro counties are frequently categorized into two groups, adjacent and not adjacent.

Adjacent counties: Nonmetro counties that are physically adjacent to one or more MSA and have at least 2 percent of their employed labor force commuting to the central counties of the MSA.

Not adjacent counties: Nonmetro counties that do not meet the criteria to be adjacent counties.

Economic specialization: The Economic Research Service (ERS) categorized nonmetro counties according to their economic specialization. The typology identifies six mutually exclusive groups of counties:[1]

Farming-dependent counties: Farming accounted for at least 20 percent of earned income over the 3 years from 1987 to 1989.

Manufacturing-dependent counties: Manufacturing accounted for at least 30 percent of earned income over the 3 years from 1987 to 1989.

Services-dependent counties: Services accounted for at least of 50 percent of earned income over the 3 years from 1987 to 1989.

Government-dependent counties: Government employment accounted for at least 25 percent of earned income over the 3 years from 1987 to 1989.

Mining-dependent counties: Mining accounted for at least 15 percent of earned income over the 3 years from 1987 to 1989.

Nonspecialized counties: Counties not classified as a specialized economic type.

Gross Farm Sales

Gross farm sales (or gross sales): Gross farm sales is used primarily as an indication of farm size. It is a measure of what the farm produces, measured in dollars, regardless of who has a claim on that production. Gross sales is calculated as the operation's crop and livestock sales plus the shares of production received by any share landlords and production contractors the operation may have. Gross sales also includes all government payments received by the operation and share landlord(s).

Farm Structural Characteristics

Sales class: Based on gross sales. Two major classes, noncommercial and commercial, were constructed. The commercial class was divided further into five additional classes.

Noncommercial farms: Farms with gross sales of less than $50,000 during the year.

Commercial farms: Farms with gross sales of $50,000 or more during the year.

Small: Farms with gross sales of $50,000 to $99,999 during the year.

Lower medium: Farms with gross sales of $100,000 to $249,999 during the year.

Upper medium: Farms with gross sales of $250,000 to $499,999 during the year.

[1]The classification excludes 17 nonmetro counties that could not be categorized due to data suppression.

Large: Farms with gross sales of $500,000 to $999,999 during the year.

Superlarge: Farms with gross sales of $1,000,000 or more during the year.

Acreage class: Based on acres operated. Five classes were constructed: 49 or fewer acres, 50-179 acres, 180-499 acres, 500-999 acres, and 1,000 or more acres.

Type of farm: Farm operators were asked to identify the farm production specialty classification that represented the largest portion of gross sales from their farm operation. Possible responses included the following:

Cash grains: Largest portion of gross sales from corn, soybeans, other grains (such as wheat, oats, barley, rye, and sorghum), dry edible beans and peas, and/or rice.

Tobacco: Largest portion of gross sales from tobacco.

Cotton: Largest portion of gross sales from cotton and cottonseed.

Other field crops: Largest portion of gross sales from peanuts, Irish potatoes, sunflowers, sweet potatoes, sugarcane, broomcorn, popcorn, sugar beets, mint, hops, seed crops, hay, silage, forage, and/or any remaining field crops. Also includes farms entirely in the CRP.

Vegetables, fruits, or nuts: Largest portion of gross sales from vegetables, fruits, tree nuts, and/or berries.

Nursery or greenhouse: Largest portion of gross sales from nursery and/or greenhouse products. Also includes farms entirely in Christmas trees.

Beef, hogs, or sheep: Largest portion of gross sales from cattle (except dairy breeding stock), hogs, pigs, sheep, goats, wool, mohair, and/or lambs.

Poultry: Largest portion of gross sales from broilers, other chickens, turkeys, other poultry, and/or eggs.

Dairy: Largest portion of gross sales from milk and dairy products.

Other livestock: Largest portion of gross sales from mules, horses, foals and ponies, fur-bearing animals, bees and honey, fish, minnows, or any remaining livestock.

Tenure: Based on questions about owned and operated farmland. Defined as acres owned as a percentage of land operated. Tenure groupings include: full-owner operations (own all of the land operated), part-owner operations (own at least 1 percent of the land operated and rent the rest), and tenant operations (own less than 1 percent of the land operated).

Rental arrangements: Based on questions about rental of land (for cash or a share of production), vehicles, machinery, equipment, and livestock. Rental arrangement categories include: no rentals, land rentals only, land and other rentals, other rentals only (no land rented).

Farm organization: Respondents were asked to identify their farm operation as an individual operation (sole proprietorship), a legal partnership, a family-held corporation, a nonfamily corporation, or a cooperative. (For more details, see the text.) Cooperatives were dropped from the tabulations pertaining to farm organization, due to sample size considerations.

Type of sales: These categories were based on whether the farm produced commodities to satisfy production or marketing contracts in 1993. If a farm produced nothing under contract in 1993, it was assumed to have only cash sales. The two major type-of-sales categories were: farms with cash sales only and farms with contracts (with or without cash sales). Farms with contracts were further categorized as to whether they had production or marketing contracts. The last two categories were not mutually exclusive, because a farm may have both types of contracts. (See "contract," defined below.)

Contract: An agreement, especially a legally binding agreement, between two or more parties to do something. In the FCRS, a contract must be agreed to prior to harvest or storage to be counted as a contract. Farms frequently enter into two types of contracts:

Production contract: Under a production contract, the contractor arranges to have the farm produce a specific quality and quantity of a commodity. The contractor usually owns the commodity being produced and makes most of the production decisions. The farm provides a service and supplies a small portion of the inputs. The farm receives a service fee that does not reflect the full market value of the

commodity, because the farm does not own the commodity.

Marketing contract: Under a marketing contract, the contractor buys a known quantity and quality of a commodity from a farm for a negotiated price. The farm has a buyer and price before the commodity is produced. The contractor does not own the commodity until delivery, and has little influence over production decisions. The farm owns the commodity while it is being produced, makes most of the production decisions, supplies most of the inputs, and receives a price reflecting the value of the commodity.

Financial Characteristics

Financial measures are based on information provided by farm and ranch operations about their farm businesses. Estimates relate strictly to the farm business (operators, partners, and shareholders) and do not include other participants in the farm sector (such as share landlords and contractors).

Gross cash farm income (or gross cash income): The sum of four components:

Livestock sales: Gross value of all livestock items sold from the farm or ranch, net of marketing charges. Includes sales of livestock and livestock products under marketing contracts. Payments received in the current year for livestock items produced in previous years are included.

Crop sales: Gross value of all crop items sold from the farm or ranch. Includes sales of crops under marketing contracts. Also includes net Commodity Credit Corporation (CCC) loans (value of crops placed under CCC loans during the year less the value of CCC loans repaid). Payments received in the current year for crops produced in previous years are included.

Government farm payments: Gross value of direct payments by the Federal Government (excluding wool and unshorn lamb wool payments) received during the calendar year.

Other farm income: Income from custom work, machine hire, livestock grazing, farmland rental, contract production fees, timber sales, outdoor recreation, hedging profits or losses, tobacco allotment leases, road tax refunds, and any other farm-related income.

Cash expenses: Includes variable expenses for livestock purchases, feed, veterinary services and supplies, other livestock-related expenses, seed and plants, fertilizer and chemicals, labor, fuels and oils, repairs and maintenance, machine-hire and custom work, utilities, and other variable expenses, as well as fixed expenses including real estate and property taxes, interest, insurance, and rent and lease payments.

Net cash farm income: Gross cash income (as defined above) less cash expenses. Represents income available to those who have a stake in the farm business (operators, partners, and shareholders) for living expenses, principal payment, reinvestment in the farm, or other obligations.

Net farm income: Net cash farm income minus depreciation and other nonmoney expenses plus the value of inventory change and nonmoney income. Reflects the return (or loss to) unpaid labor, unpaid management, and equity capital.

Farm Business Assets and Liabilities:

Farm assets: The estimated market value of all capital assets owned by the farm operation on December 31 of the reporting year.

Farm liabilities: Total amount of debt owed by the farm or ranch on December 31 of the reporting year. Includes outstanding principal plus unpaid interest owed to any banks, individuals, co-ops, merchants, or Federal agencies.

Equity: The difference between farm assets and farm liabilities.

Capital investments: Total operator capital expenditures for the reporting year.

Financial position: Farms were classified into one of four categories based on their combined income and solvency status, as defined in the text.

Return on assets: Net farm income plus interest expenses minus estimated charges for unpaid labor and management provided by the operator, divided by total assets. Return on assets shows the rate of return received by the operation for both debt and equity capital invested in the farm.

Operator Characteristics

Operator: The person who runs a farm, making the day-to-day decisions. Information is collected for only one operator per farm. For farms with more than one operator, data are collected only for the primary operator.

Operator age: Farm operators were asked to provide their age. Five age categories were constructed: less than 35 years, 35-44 years, 45-54 years, 55-64 years, and 65 years or older.

Operator education: Operators were asked to provide the highest grade they had completed in school. Four categories were constructed: less than high school, high school, some college, and college.

Operator occupation: Farm operators were asked to identify their major occupation as farm or ranch work, hired manager, something else, or retired.

Farm Operator Households

Farm operator households: The households of operators with farms organized as individual operations, partnerships, and family corporations. Farm operator households exclude households associated with farms organized as nonfamily corporations or cooperatives, as well as households where the operator was a hired manager. For farms with more than one operator, information was obtained only for the households of the primary operator. (See "operator," defined above.)

Farm operator household income: The farm income that accrues to the farm operator's household plus all sources of off-farm income accruing to the household in the reporting year. Both farm income and off-farm income may be negative.

> *Farm operator household farm income*: Net income of the farm operated (defined in the next sentence) times the percent received by the household, plus net income received by the household from other farm businesses, plus wages and salaries paid to the operator and household members by the farm business. The net income of the farm operated is calculated as the net cash income of the farm business, excluding income the business receives from renting out farmland and including farm labor expenses paid to household members as expenses, less depreciation.
>
> *Farm operator household off-farm income*: Includes off-farm wages and salaries of all household members, plus the net income of any nonfarm businesses, interest and dividends, and all other cash off-farm income of household members.

Farm operator household dependency categories: A ratio is calculated to provide information on the components of farm operator household income and their importance. There are six categories of this ratio based on the value of farm operator household income and farm income, as defined in the text.

Appendix B: The Farm Costs and Returns Survey

The 1993 Farm Costs and Returns Survey (FCRS) provided most of the data for this report. The U.S. Department of Agriculture's (USDA) Economic Research Service (ERS) and National Agricultural Statistics Service (NASS) conduct this survey each year. The FCRS is the most comprehensive national annual data source available on farm financial and operating characteristics. A major advantage of the FCRS over other data sources is that details on expenses, income, assets, debt, and many other items can be disaggregated by farming region, farm size, production specialty, and other characteristics. Such detail is essential for a thorough understanding of farming, because farms are such diverse enterprises.

Both NASS and ERS use FCRS data extensively for production expense summaries, financial analyses, publications, and staff work. NASS annually releases FCRS statistics on farm production expenses (U.S. Dept. of Agr., Nat'l. Agr. Stat. Serv., 1994b), while ERS publishes a detailed summary of financial characteristics of U.S. farms (Morehart et al., 1992). ERS also conducts research on the financial status of farms and presents the findings in USDA publications, professional journals, conference presentations, and other outlets.

Data Reliability and Survey Coverage

Approximately 8,000 farm and ranch operators in the 48 contiguous States provided useable data during February and March of 1994 (U.S. Dept. of Agr., Nat'l. Agr. Stat. Serv., 1994b, pp. 23-24). The sample originated from two sources. The first is a list of known operators of farms stratified by farm size and other attributes. That sample, the list frame, contains larger, more specialized operations. Maintaining a current list for smaller operations is difficult. Thus, an area frame is used to compensate for any incompleteness in the list frame. The area frame sample consists of land segments located within the 48 contiguous States stratified by land use. Rigorous procedures are followed to prevent the inclusion of any one operator in both sample frames.

The FCRS is a probability-based survey, where each respondent represents a number of farms of similar size and type. Thus, the sample data can be expanded by using appropriate weights to represent all farms in the 48 contiguous States. Estimates based on the expanded sample differ from what would have occurred if a complete enumeration had been taken. These differences result from sampling and nonsampling variability (Ford et al., 1986).

A measure of sampling variability is available from survey results. The relative standard error (RSE) is the standard error of the estimate expressed as a percentage of the estimate. The RSE, also called the coefficient of variation (CV) when computed for means, is calculated by dividing the standard error of the estimate by the estimate and multiplying the result by 100. Estimates with an RSE exceeding 25 percent should be used with caution, because an RSE that high raises questions about the reliability of the estimate.

Because of space limitations, RSE's are not published for all items in the appendix tables. However, when RSE's not given in the tables exceed 25 percent, indications of their magnitude are provided. An asterisk (*) precedes estimates with an unpublished RSE greater than 25 percent but no more than 50 percent. Two asterisks (**) precede estimates with an unpublished RSE greater than 50 percent but no more than 75 percent. Estimates with RSE's more than 75 percent (with or without a published RSE) are not printed and are denoted with an "r."

The standard error can also be used to calculate a confidence interval around an estimate. For example, the 95-percent confidence interval for average acres operated for all farms is estimated to be between 404 and 468 acres. The standard error of an estimate can also be used to evaluate the statistical significance of differences between groups. For example, the appropriate t-statistic for a comparison between average acres operated by farms in the Northeast and the Lake States can be constructed by taking the difference between the mean of the two groups and dividing by the square root of the sum of the squared standard errors of the two groups. Or:

$$t = (\text{Acres operated}_{\text{Northeast}} - \text{Acres operated}_{\text{Lake States}}) / (\text{Standard error}^2_{\text{Northeast}} + \text{Standard error}^2_{\text{Lake States}})^{0.5}$$
$$= (183 - 266) / (10.49^2 + 17.68^2)^{0.5} = -4.04$$

Although t-statistics are not published in this report, the text makes comparisons between groups only when estimates are significantly different at the 95-percent level, unless noted otherwise.

Survey data are also influenced by nonsampling errors. Data collection procedures are made uniform and con-

sistent across the Nation by extensively training and supervising data collectors. Efforts are also undertaken to minimize other types of potential nonsampling errors by extensive editing. Questionnaires are edited by hand in State offices and by computerized routines in Washington, DC. The extent of nonsampling errors is not known or directly measurable.

NASS personnel in Washington, DC, combine the data collected in the various States and use the reported information to construct farm size, geographic location, and production specialty variables for each farm operation. NASS is also responsible for constructing survey expansion factors, or weights. ERS provides additional information by constructing additional classification variables and by defining aggregated expense, income, asset, and debt categories. ERS also calculates major financial indicators, such as net farm income and the debt/asset ratio for each farm.

Comparability with Other Sources of Agricultural Data

FCRS estimates, for various reasons, often differ from those based on other agricultural data sources. Therefore, direct comparisons between FCRS estimates published in this report and other available data should be made only with careful consideration to sample design, data collection procedures, and underlying variable definitions.

Previous Farm Costs and Returns Survey. The procedures that NASS uses to expand the FCRS sample to create national estimates were rewritten in 1992 to more accurately account for undercoverage and nonresponse. The data for calendar year 1991 were adjusted and resummarized using these new procedures (Dillard, 1993). Earlier estimates from the FCRS did not represent the entire farm population; the number of farms represented in the FCRS was usually between 1.7 and 1.8 million. The new procedures, however, adjust the expanded number of farms to match the official estimates of approximately 2.1 million farms. Estimates since 1991, therefore, are not comparable to those for earlier years.

Census of Agriculture. Both the census of agriculture (U.S. Dept. Comm., Bur. Cen., 1994a) and the FCRS gather economic and physical agricultural data from the same target population: all farms that sold or normally would have sold at least $1,000 worth of agricultural products. Aside from this similarity of purpose, there are several differences that limit comparability of data obtained from these surveys.

The most obvious differences pertain to sample design and data collection procedures. The census of agriculture requires mandatory participation, while the FCRS relies on voluntary response. As a result, the census has a complete enumeration of farms (for most items). The FCRS uses a probability-based, multiframe sampling approach, which provides estimates that are representative of the U.S. population of farms based on a smaller subsample. Questionnaires are mailed to targeted farms and are completed by respondents for the census. FCRS data are collected through personal interviews by trained enumerators. The FCRS is conducted in the 48 contiguous States, while the census includes Alaska and Hawaii. The census of agriculture also includes institutional farms, which are excluded from the FCRS. And, the census of agriculture is conducted every 5 years, while the FCRS is conducted annually.

In many instances, there are also conceptual differences associated with specific pieces of information obtained from these surveys due to the wording of questions asked or the instructions associated with collecting the information. For example, the census obtains a combined estimate of expenses paid by all participants in the farm business, which includes operators, landlords, contractors, and partners. This estimate is subtracted from the estimated total value of products sold to obtain an estimate of the net cash returns to all participants in the business. The FCRS, however, obtains a separate estimate of the cash expenses paid by the farm operator, landlords, and contractors. This allows a separate estimate of the net cash income received by the farm operation to be computed. In other cases, the level of detail may differ between the types of questions asked, which prohibits direct comparisons.

USDA Agricultural Data. Estimates of income, expenses, assets, and debt of the U.S. farm sector reported in Economic Indicators of the Farm Sector (ECIFS) series are not directly comparable with estimates from this report (U.S. Dept. of Agr., Econ. Res. Serv., 1993a; U.S. Dept. of Agr., Econ. Res. Serv., 1994b, Hoppe, 1995). ECIFS estimates represent a combination of several data sources. In many instances, procedures used and assumptions made are dictated by the format of available data. Since the FCRS estimates represent farm operators, these estimates are typically below those of ECIFS, which represent the entire farm sector (farm operators, landlords, contractors, and others). ECIFS estimates also cover all 50 States, compared with the 48 contiguous States covered by the FCRS.