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# Structure and Finances of U.S. Farms

## Family Farm Report, 2007 Edition

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**Robert A. Hoppe, Penni Korb, Erik J. O'Donoghue, and David E. Banker**

## Abstract

U.S. farms are diverse, ranging from small retirement and residential farms to enterprises with annual sales in the millions. Nevertheless, most U.S. farms—98 percent in 2004—are family farms. Even the largest farms tend to be family farms. Large-scale family farms and nonfamily farms account for 10 percent of U.S farms, but 75 percent of the value of production. In contrast, small family farms make up most of the U.S. farm count, produce a modest share of farm output, and receive substantial off-farm income. Many farm households have a large net worth, reflecting the land-intensive nature of farming.

**Keywords:** Contracting, family farms, farm businesses, farm financial performance, farm operator household income, farm operators, farm structure, farm type, million-dollar farms, small farms.

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**See the companion brochure, *America's Diverse Family Farms, 2007 Edition* (EIB-26)**

# Contents

# Summary

U.S. farms are diverse, ranging from very small retirement and residential farms to enterprises with annual sales in the millions of dollars. Farms are operated by individuals on a full- and part-time basis, by multiple generations of a family, by multiple families, and by managers of nonfamily corporations. Some specialize in a single product, while others produce a wide variety of products. Some have full control over their farming processes while others produce commodities under contract to strict specifications. But despite their diversity, most U.S. farms are family farms.

## What Is the Issue?

Agricultural policymakers require information on how U.S. farming is organized. USDA's Economic Research Service (ERS) produces a periodic report with that information. The *Family Farm Report, 2007 Edition* is the most recent in the series, providing agricultural policymakers with an accurate, detailed, and unbiased source of information on how farming in the United States is organized, including the relationship of farm size and type to agricultural production, financial performance, sources of farm household income, and the extent of off-farm work. The report provides a sense of the financial position of family farms in general and for different types of family farms.

## What Are the Major Findings?

Most U.S. farms—98 percent in 2004—are family farms, defined as operations organized as proprietorships, partnerships, or family corporations that do not have hired managers. Nonfamily corporations make up a small and stable share of farm numbers and sales, accounting for less than 1 percent of farms and 6-7 percent of farm product sales in each agricultural census since 1978.

**Distribution of farms, total production, and assets, 2004**

| Farm type | Farms | Value of production | Farm assets |
|---|---|---|---|
| | | *Percent of U.S. total* | |
| Small family farms:[1] | | | |
| Limited-resource | 9.4 | 1.0 | 5.5 |
| Retirement | 16.1 | 2.0 | 11.3 |
| Residential/lifestyle | 39.7 | 5.3 | 23.7 |
| Farming-occupation | | | |
| Low-sales | 18.8 | 5.5 | 16.9 |
| Medium-sales | 6.3 | 10.8 | 10.3 |
| Large-scale family farms:[1] | | | |
| Large family farms | 4.1 | 14.8 | 9.1 |
| Very large family farms | 3.4 | 45.4 | 16.1 |
| Nonfamily farms[1, 2] | 2.2 | 15.2 | 7.1 |

[1]Small farms have sales less than $250,000; large-scale farms have sales of $250,000 or more; no sales limit for nonfamily farms.

[2]Nonfamily farms include those organized as nonfamily corporations or cooperatives, as well as any other farms operated by hired managers. Also includes farms held in estates or trusts.

Source: USDA, ERS, 2004 Agricultural Resource Management Survey, Phase III.

**Small family farms account for most U.S. farms and farm assets.** Small family farms (sales less than $250,000) accounted for 90 percent of U.S. farms in 2004. They also held about 68 percent of all farm assets, including 61 percent of the land owned by farms. As custodians of the bulk of farm assets—including land—small farms have a large role in natural resource and environmental policy. Small farms accounted for 82 percent of the land enrolled by farmers in the Conservation Reserve and Wetlands Reserve Programs (CRP and WRP).

**Large-scale family farms and nonfamily farms produce the largest share of agricultural output.** Large-scale family farms, plus nonfamily farms, made up only 10 percent of U.S. farms in 2004, but accounted for 75 percent of the value of production. Nevertheless, small farms made significant contributions to the production of specific commodities, including hay, tobacco, wheat, corn, soybeans, and beef cattle.

**The number of larger farms is growing.** The number of farms with sales of $250,000 or more grew steadily between the 1982 and 2002 Censuses of Agriculture, with sales measured in constant 2002 dollars. The growth in the number of these larger farms was accompanied by a shift in sales in the same direction. The most rapid growth was for farms with sales of $1 million or more. By 2002, million-dollar farms alone accounted for 48 percent of sales, compared with 23 percent in 1982.

**For the most part, large-scale farms are more viable businesses than small family farms.** The average operating profit margin and rates of return on assets and equity for large and very large family farms were all positive in 2004, and most of these farms had a positive operating profit margin. Small farms were less viable as businesses. Their average operating profit margin and rates of return on assets and equity were negative. Nevertheless, some farms in each small farm group had an operating margin of at least 20 percent. In addition, a majority of each small farm type had a positive net farm income, although the average net income for each small-farm type was low compared with large-scale farms.

**Small farm households rely on off-farm income.** Small farm households typically receive substantial off-farm income and do not rely primarily on their farms for their livelihood. Most of their off-farm income is from wage-and-salary jobs or self-employment. Because of their off-farm work, small farm households are affected significantly by the nonfarm economy. Households operating retirement or limited-resource farms, however, receive well over half of their income from such sources as Social Security, pensions, dividends, interest, and rent, reflecting the ages of operators on such farms.

**Payments from commodity-related programs and conservation programs go to different types of farms.** The distribution of commodity-related program payments is roughly proportional to the harvested acres of program commodities. As a result, medium-sales ($100,000-$249,999) and large-scale farms received 78 percent of commodity-related government payments in 2004. In contrast, CRP, which pays the bulk of environmental payments, targets environmentally sensitive land rather than commodity production. Retirement, residential/lifestyle, and low-sales small farms received 62 percent of conservation program payments in 2004. However,

most farms—61 percent in 2004—receive no government payments and are not directly affected by farm program payments.

**A growing number of farms operate under production and marketing contracts to guarantee an outlet for their production.** About two-fifths of U.S. agricultural production is produced or marketed under contract, although the share varies by commodity and type of farm. Relatively few small family farms use production and marketing contracts, while 64 percent of very large family farms use contracts and, as a group, produce 61 percent of the value of production grown under contract.

## How Was the Study Conducted?

The 2004 Agricultural Resource Management Survey (ARMS) is the main source of data in the *Family Farm Report, 2007 Edition*. ARMS is an annual survey designed and conducted by ERS and USDA's National Agricultural Statistics Service (NASS). Various censuses of agriculture, ERS estimates of farm productivity, NASS estimates of the number of farms, and labor force data from the Bureau of Labor Statistics are also used in this report, particularly for long-term trends. The report uses the farm classification system (see table, p. iii) developed by ERS to examine farm structure in the United States.

# Introduction

Farming in the United States is very diverse, ranging from very small retirement and residential farms to enterprises with annual sales in the millions of dollars. Farms are operated by individuals on a part-time basis, by multiple generations of a family, and by managers of nonfamily corporations. Some specialize in a single product; others produce a wide variety of products.

The *Family Farm Report, 2007 Edition* presents comprehensive information about the structure and finances of the various types of family farms in the United States. This report covers the following aspects of farm structure:

- The number, size distribution, and tenure of U.S. farms.
- The specialization and diversification of farms.
- Farm operator demographics, including age, education, gender, and race/ethnic origin.
- The sources and levels of operator household income and wealth.
- The share of farms receiving government payments and the distribution of government payments by type of farm.
- The business organization of farms—whether they are organized as proprietorships, partnerships, or corporations.

ERS developed a farm classification (see box, "Farm Types, 2004") to group farms into more homogeneous categories, based primarily on annual gross sales of the farm and major occupation of the operator. By using these homogeneous groups in this report, a clearer picture emerges of the status of farms in the United States today.

As in recent years, the Agricultural Resource Management Survey (ARMS)—an annual survey—is the main source of data in the *Family Farm Report, 2007 Edition*. The ARMS is jointly designed and conducted by USDA's Economic Research Service (ERS) and National Agricultural Statistics Service (NASS).[1] The report also draws on various censuses of agriculture, ERS estimates of farm productivity, NASS annual estimates of the number of farms, and Bureau of Labor Statistics (BLS) labor force data. These additional sources of data are particularly useful when following trends over long periods of time.

This report depicts farm structure and financial status as of 2004, the most recent year for which ARMS data were available at the time of writing, and 2004 was atypical year for farming. Net farm income was $83 billion in 2004 (fig. 1), much higher than in 2003 ($61 billion), the annual average during the previous 10 years ($55 billion), and the previous peak in 1996 ($69 billion). Net farm income is expressed in 2004 dollars here, using the GDP chain-type price index to adjust for price changes.

[1]Differences between ARMS-based estimates are stressed in this report only when the estimates are significantly different at the 95-percent confidence level or more.

## Farm Types, 2004

This farm classification focuses on the "family farm" or any farm organized as a sole proprietorship, partnership, or family corporation. Family farms exclude farms organized as nonfamily corporations or cooperatives, as well as farms with hired managers

### Small family farms (gross sales less than $250,000)[1]

**Limited-resource farms.** Farms with gross sales less than $100,000 in 2003 and less than $105,000 in 2004.[2] Operators of limited-resource farms must also receive low household income in both 2003 and 2004. Household income is considered low in a given year if it is less than the poverty level for a family of four, or it is less than half the county median household income. Operators may report any major occupation except hired manager.

**Retirement farms.** Farms whose operators report they are retired.[3]

**Residential/lifestyle farms.** Farms whose operators report a major occupation other than farming.[3]

**Farming-occupation farms.** Farms whose operators report farming as their major occupation.[3]

- **Low-sales farms.** Gross sales less than $100,000.
- **Medium-sales farms.**[4] Gross sales between $100,000 and $249,999.

### Large-scale family farms (gross sales of $250,000 or more)

**Large family farms.** Gross sales between $250,000 and $499,999.

**Very large family farms.** Gross sales of $500,000 or more.

### Nonfamily farms

**Nonfamily farms.** Farms organized as nonfamily corporations or cooperatives, as well as farms operated by hired managers. Also includes farms held in estates or trusts.

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Note: A farm is defined as any place that produced and sold—or normally would have produced and sold—$1,000 worth of agricultural products during a given year (USDA, NASS, 2005, p. 3-1).

[1]The National Commission on Small Farms selected $250,000 in gross sales as the cutoff between small and large farms (U.S. Dept. Agr., Nat'l. Comm. on Small Farms, 1998, p. 28).

[2]The original gross sales cutoff was established at $100,000 for 2003. The cutoff for subsequent years is adjusted by the index of prices paid by farmers.

[3]Excludes limited-resource farms whose operators report this occupation.

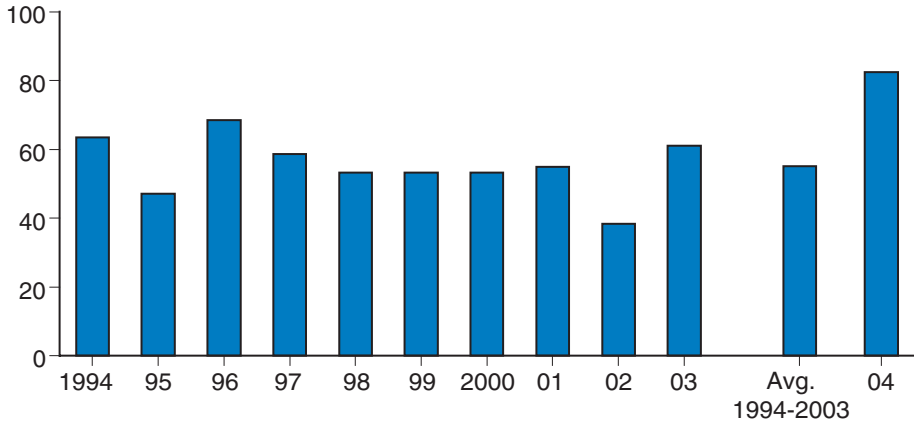
[4]This type was called "high-sales" farms in earlier publications.

The *Family Farm Report* series features a special topic each year, starting with the previous edition of the report (Hoppe and Banker, 2006). The special feature this year is "The Shift to Larger Farms," which examines changes in the distribution of farm and gross farm sales (by constant dollar sales classes) between the 1982 and 2002 Censuses of Agriculture.

Figure 1

**Real net farm income, 1994 to 2004**

*In 2004, net farm income was 50 percent higher than the average for the previous 10 years*




[1]Deflated with the GDP chain-type price index.

Source: USDA, Economic Research Service, U.S. and State Farm Income Data.

# U.S. Farms: Numbers, Size, and Ownership

In the 1930s, two important longrun trends began that affected the number of U.S. farms. First, nonagricultural employment resumed growing after the 1933 low point of the Great Depression (fig. 2). Second, farm productivity began to increase steadily (fig. 3), starting about 1937 (Cochrane, 1993, pp. 360-363). Productivity growth led to excess capacity in agriculture, farm consolidation, and farm operators and laborers leaving farming to work in the growing nonfarm economy. The decline in farm numbers slowed in the 1980s and nearly stopped in the 1990s. By 2005, about 2.1 million farms remained, and less than 2 percent of U.S. workers were employed in agriculture. The remaining farms, however, vary in size and their share of total production.

## Share of Farms, Production, and Assets

Ninety-eight percent of U.S. farms are family farms. The remaining 2 percent are nonfamily farms, which produce 15 percent of the value of agricultural output (fig. 4).[2] Two features of family farms stand out. First, there are many small family farms (< $250,000 annual sales), making up 90 percent of all U.S. farms. Second, large-scale family farms account for 60 percent of all production.

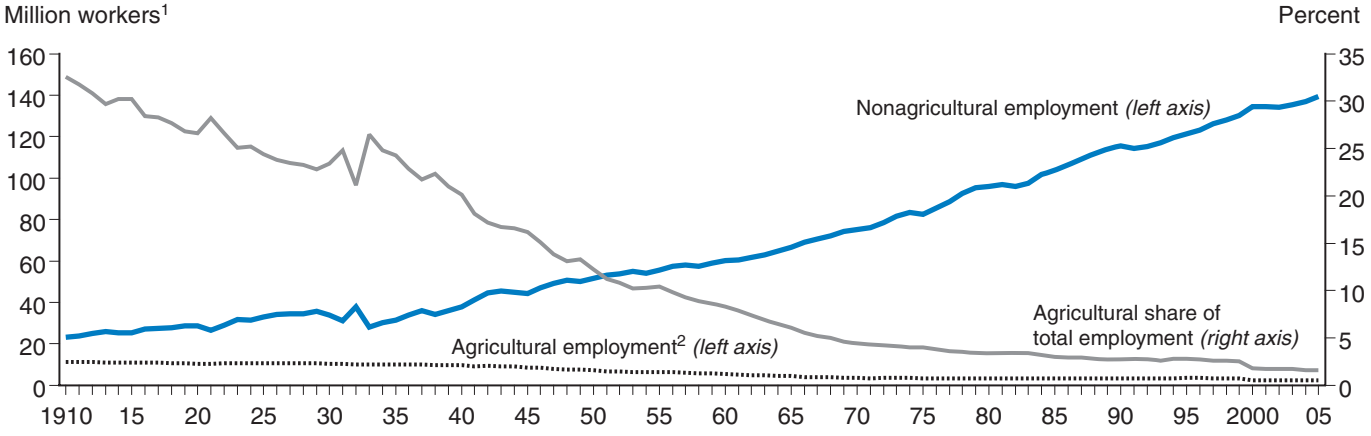
Nevertheless, small farms make significant contributions to the value of production for specific commodities (fig. 5), including wheat, corn, soybeans, hay, tobacco, beef, and "other livestock." At the other extreme, small farms contribute a minuscule share to the value of production for hogs and poultry. The largest share of small farm production occurs among medium-sales farms ($100,000-$249,999), which account for 11 percent of total U.S. production.

[2]Nonfamily farms' share of production increased by 1.5 percentage points between 2003 and 2004 (from 13.7 percent to 15.2 percent). This change, however, was not statistically significant.

Figure 2

**Agricultural and nonagricultural employment, 1910 to 2005**

*Agriculture's share of total U.S. ermployment has fallen to less than 2 percent*




[1]Persons at least 14 years old prior to 1947; persons at least 16 years old in 1947 and later years.

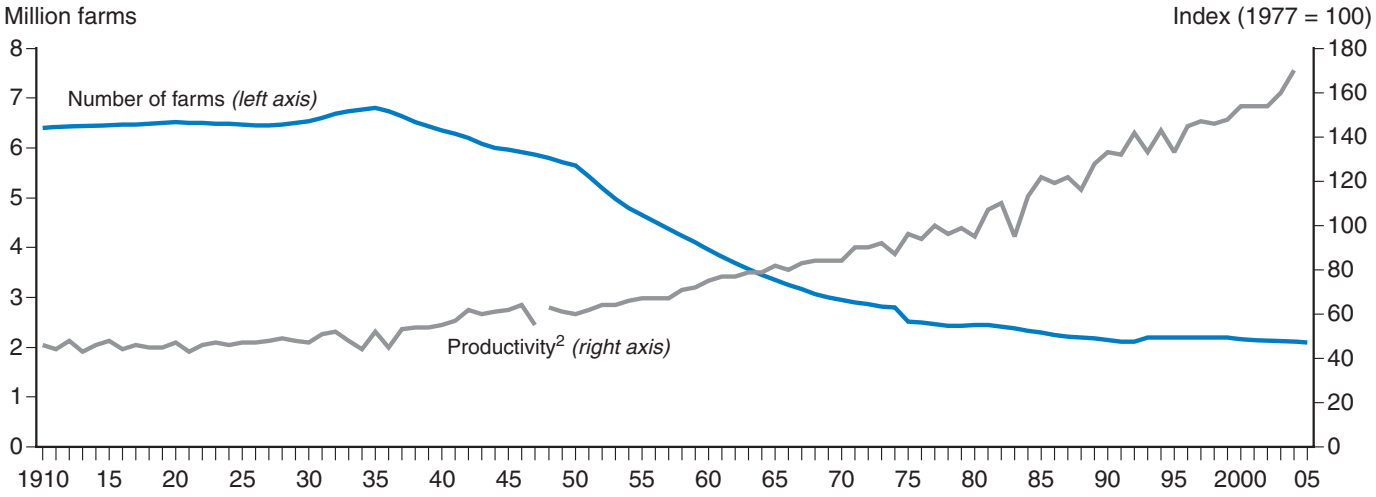
[2]From 2000 onward, estimates of agricultural employment actually are for "agricultural and related industries." For more information, see the U.S. Department of Labor, Bureau of Labor Statistics (2003, p. 20).

Source: USDA, Economic Research Service, compiled from Bureau of Labor Statistics data (U.S. Office of the President, 2006, pp. 324-325; U.S. Department of Commerce, 1975, p. 126).

Figure 3

**Farm productivity[1] and number of farms, 1910 to 2005**

*The number of farms declined as productivity increased*




[1]Farm output per unit of total factor input (total factor productivity), available through 2004.

[2]The break in the productivity line reflects the introduction of new methodology beginning with the 1948 estimate. The new methods had minor impacts on the estimates. For more information, see Ahearn et al. (1998, pp. 15-21).

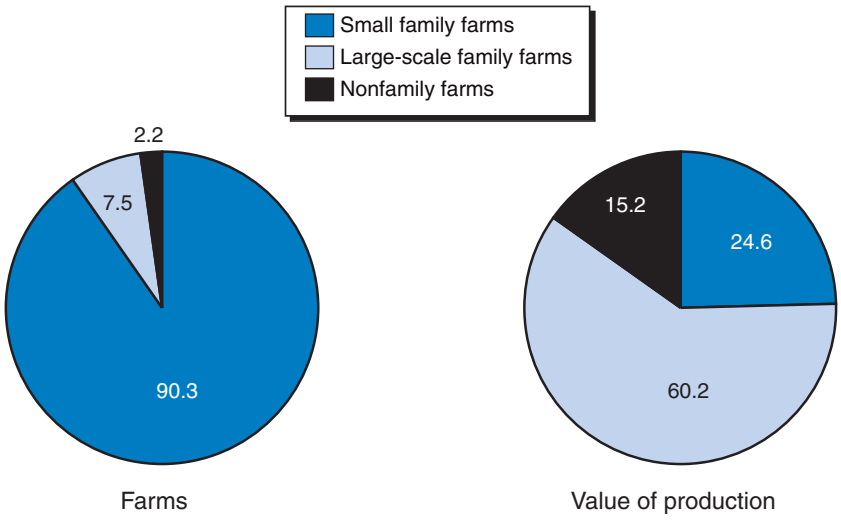
Source: USDA, Economic Research Service, compiled from National Agricultural Statistics Service annual estimates of the number of farms from the June Agricultural Survey and from ERS estimates of farm productivity. ERS productivity indices prior to 1948 came from Johnson (1990).

Figure 4

**Share of total farms and value of production, 2004**

*Large-scale family farms account for 60 percent of production*

*Percent of U.S. farms or production*

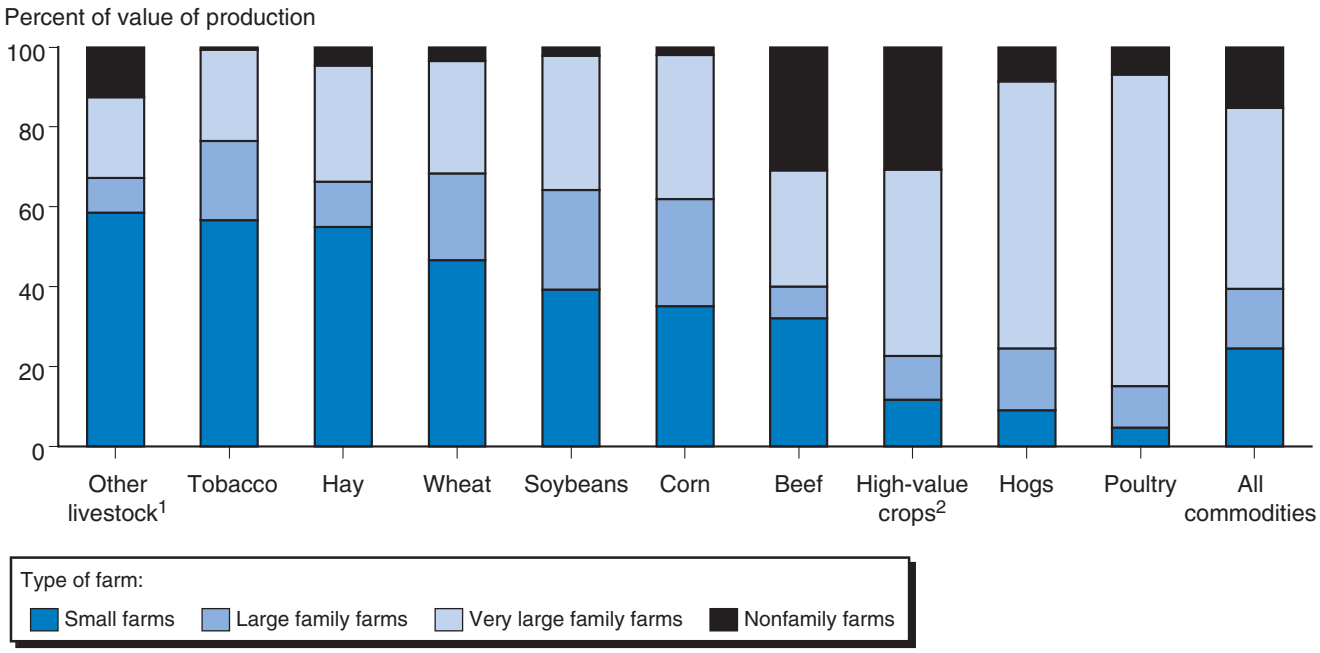



Source: USDA, Economic Research Service, 2004 Agricultural Resource Management Survey, Phase III.

Figure 5

**Distribution of the value of production for selected commodities, 2004**

*Small farms produce a substantial share of several commodities*




[1]Sheep, lambs, wool, goats, goats' milk, mohair, horses, ponies, mules, donkeys, bees, honey, aquaculture, mink, rabbits, other fur bearing animals, bison, deer, elk, llamas, etc.

[2]Vegetables, fruits and tree nuts, and nursery and greenhouse products.

Source: USDA, Economic Research Service, 2004 Agricultural Resource Management Survey, Phase III.

The share of assets and land held by small farms is substantially more than indicated by their 25-percent share of production. Small farms hold about 68 percent of all farm assets, including 61 percent of the land owned by farms (fig. 6). Because of their large land holdings—in aggregate—small farms are important in conservation efforts. Small farms account for 82 percent of the land farmers enrolled in the Conservation Reserve Program (CRP) and Wetlands Reserve Program (WRP).

## Farm Size and Tenure

Variation in size—measured in sales, acres, and labor use—helps explain the distribution of agricultural production. The 1.4 million limited-resource, retirement, and residential/lifestyle farms account for only 8 percent of production because most of these farms are very small (table 1). Roughly three-fourths of the farms in each of the three groups have annual gross sales of less than $10,000. The average acreage operated for farms in these three groups is also small, ranging from 163 to 212 acres.

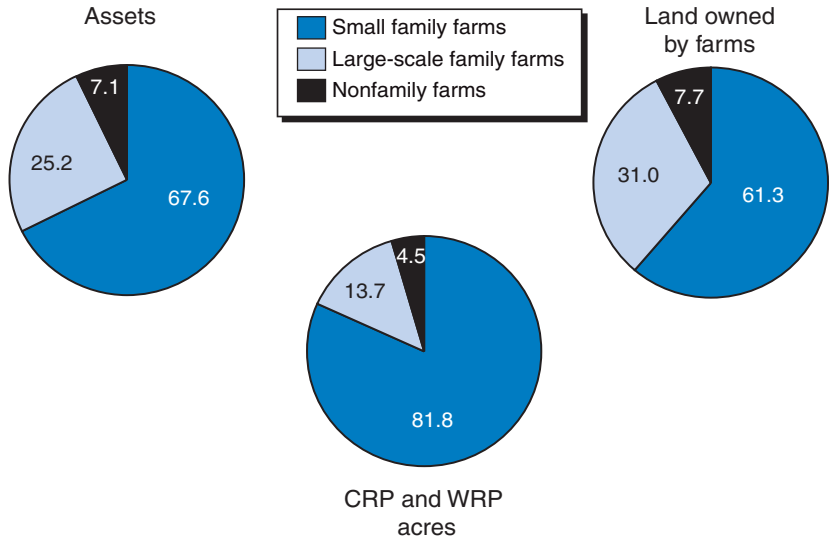
**Median acres operated.** Average (or mean) acreage operated may not best indicate the size of a typical farm in a group because a few high-acreage farms may raise the average well above the acreage operated on most farms. Median acreage operated—the midpoint of the distribution of farms by acres operated—is a better indicator. Median acreage operated ranges from 60 to 80 acres for limited-resource, retirement, and residential/lifestyle

Figure 6

**Share of farm business assets, acres owned, and acres enrolled in the Conservation Reserve Program and Wetlands Reserve Program, 2004**

*Small farms account for most farm assets*

*Percent of U.S. farm assets, acres owned, or program acres*




Source: USDA, Economic Research Service, 2004 Agricultural Resource Management Survey, Phase III.

farms, which means the typical farm in each of these groups is even smaller than suggested by the group's average acreage.

Although only half of low-sales farms (< $100,000) have gross sales of less than $10,000, three-fourths have gross sales of less than $50,000. Median acres operated was 145 acres per low-sales farm, roughly double the medians for limited-resource, retirement, or residential/lifestyle farms. Median acreage is much larger for medium-sales small farms and large-scale farms, ranging from 530 to 1,055 acres.

The high average acreage for nonfamily farms, more than 1,200 acres, reflects a small share of farms in the group with very large acreages. In contrast, the median is just 173 acres, which is more consistent with the 40-percent share of nonfamily farms with gross sales less than $10,000. Most of these very small nonfamily farms (77 percent) are classified in the "other" category of business organization, which includes farms in estates or trusts and farms organized as cooperatives. Very small nonfamily farms in the other organization category are more likely to be in estates and trusts than to be cooperatives. (Business organization is discussed in more detail later in this report.)

**Million-dollar farms.** Forty-two percent of very large family farms ($500,000 or more annual sales) and 9 percent of nonfamily farms have gross sales of at least $1 million. These "million-dollar" farms make up less than 2 percent of all U.S. farms, but they account for 45 percent of the value of production. The number of million-dollar farms increased by 22 percent

Table 1

**Farm size, tenure, and labor, by farm type, 2004**

| Item | Small family farms | | | | | Large-scale family farms | | Nonfamily farms | All farms |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Farming-occupation | | | | | |
| | Limited-resource | Retirement | Residential/lifestyle | Low-sales | Medium-sales | Large | Very large | | |
| | | | | | *Number* | | | | |
| Total farms | 197,734 | 338,671 | 837,542 | 395,781 | 133,299 | 86,087 | 71,708 | 47,103 | 2,107,925 |
| | | | | | *Percent of U.S. total* | | | | |
| Distribution of: | | | | | | | | | |
| Farms | 9.4 | 16.1 | 39.7 | 18.8 | 6.3 | 4.1 | 3.4 | 2.2 | 100.0 |
| Value of production | 1.0 | 2.0 | 5.3 | 5.5 | 10.8 | 14.8 | 45.4 | 15.2 | 100.0 |
| | | | | | *Percent of group* | | | | |
| Sales class: | | | | | | | | | |
| Less than $10,000 | 76.2 | 72.6 | 71.6 | 47.1 | na | na | na | 39.5 | 57.0 |
| $10,000 to $49,999 | 19.2 | 18.6 | 20.9 | 29.4 | na | na | na | 18.1 | 19.0 |
| $50,000 to $99,999 | 4.0 | 6.3 | 5.2 | 23.5 | na | na | na | *9.6 | 8.1 |
| $100,000 to $174,999 | d | *1.9 | 1.8 | na | 59.4 | na | na | *6.8 | 5.0 |
| $175,000 to $249,999 | na | *0.6 | 0.6 | na | 40.6 | na | na | *4.1 | 3.0 |
| $250,000 to $499,999 | na | na | na | na | na | 100.0 | na | 5.9 | 4.2 |
| $500,000 to $999,999 | na | na | na | na | na | na | 57.8 | 7.0 | 2.1 |
| $1,000,000 or more | na | na | na | na | na | na | 42.2 | 8.9 | 1.6 |
| | | | | | *Acres per farm* | | | | |
| Acres operated: | | | | | | | | | |
| Mean (average) | 167 | 212 | 163 | 413 | *1,170 | 1,700 | *3,138 | 1,232 | 470 |
| Median[1] | 60 | 80 | 67 | 145 | 530 | 834 | 1,055 | 173 | 100 |
| | | | | | *Annual person equivalents of labor per farm* | | | | |
| Average person equivalents of labor[2, 3] | 0.997 | 0.928 | 0.782 | 1.500 | 2.580 | 3.265 | 8.156 | 5.385 | 1.529 |
| | | | | | *Percent of total hours* | | | | |
| Share of hours worked by:[4] | | | | | | | | | |
| Principal operator[3] | 71.7 | 67.0 | 63.5 | 65.4 | 59.7 | 47.5 | 19.2 | 19.1 | 51.4 |
| Spouse[3] | 12.2 | 17.2 | 18.6 | 16.1 | 12.2 | 10.9 | 4.5 | *2.1 | 12.4 |
| Hired labor | 2.5 | 2.2 | 2.5 | 5.1 | #10.8 | 21.8 | 55.5 | 61.6 | 19.8 |
| | | | | | *Percent of group* | | | | |
| Tenure: | | | | | | | | | |
| Full owner | 68.3 | 79.5 | 67.2 | 60.3 | 20.5 | 19.1 | 26.1 | 72.1 | 61.8 |
| Part owner | 25.7 | *19.1 | 27.6 | 32.8 | 68.1 | 66.5 | 60.3 | 18.4 | 32.1 |
| Tenant[5] | *6.0 | *1.3 | 5.2 | 6.9 | #11.4 | 14.3 | 13.6 | 9.5 | 6.1 |

d = Data suppressed due to insufficient observations.

na = Not applicable.

* = Standard error is between 25 percent and 50 percent of the estimate.

# = Standard error is greater than 75 percent of the estimate.

[1]Midpoint of the distribution of farms by acres operated. Half the farms in a group operate more acres than the median, while the other half operate fewer acres than the median.

[2]One annual person equivalent equals 2,000 hours of labor, or 50 weeks per year times 40 hours per week.

[3]Includes paid and unpaid hours.

[4]Shares worked by other operators, unpaid workers, and contract labor are not shown separately.

[5]Farms that rent all the land they operate. Also includes farms owning less than 1 percent of the land they operate.

Source: USDA, Economic Research Service, 2004 Agricultural Resource Management Survey, Phase III.

between 2003 and 2004, from 28,300 to 34,500, as 2004 was a very good year for the farm sector.

**Labor hours.**[3] One measure of annual labor use is the "person equivalent," defined as 2,000 hours, or 40 hours of work per week for 50 weeks per year. Residential/lifestyle, retirement, and limited-resource farms use the least labor of all the farm types, 1 person equivalent or less. Labor use jumps to 1.5 person equivalents for low-sales farms and increases with sales to 8.2 person equivalents for very large farms. Nonfamily farms use 5.4 person equivalents, on average. This estimate, however, reflects heavy labor use by relatively few farms. Only 20 percent of nonfamily farms use more than 5 person equivalents of labor, while 46 percent use less than 1.

The labor used on farms can come from a variety of sources: operators and their spouses, secondary operators, unpaid workers, hired labor, and contract labor. Nevertheless, operators are a significant source of labor for most farm types. The operator provides 60 to 70 percent of the labor for each type of small farm, and nearly 50 percent for large family farms ($250,000-$499,999 annual sales). Operators supply only 19 percent of labor on very large family farms and nonfamily farms.

**Tenure.** Renting land is a way to expand by controlling additional land without the debt and commitment of capital associated with ownership (Reimund and Gale, 1992, pp. 7-8). About two-thirds of medium-sales and large-scale farms are part owners, meaning that they own part of the land they operate and rent the rest. In addition, 14 percent of large-scale farms—versus 6 percent of all farms—are tenants that own none of the land they farm. About three-quarters of large-scale tenants specialize in crops, compared with two-fifths of farms in general.

## Specialization

Specialization varies by farm size. Small farms tend to specialize in raising beef cattle, other grazing livestock, or a variety of field crops (table 2). Poultry, hogs, and high-value crops tend to be produced on large-scale farms. Medium-sales farms and large family farms are most likely to specialize in grain.

**Beef cattle.** Beef cattle are a common specialization among small farms, accounting for 34 to 41 percent of limited-resource, retirement, residential/lifestyle, and low-sales farms. Beef cattle—commonly cow-calf enterprises in the case of small farms—offer three advantages to operators of small farms. First, cattle are less labor-intensive than many other enterprises, which may be attractive to an operator who is retired or holds a full-time job off the farm (Cash, 2002, p. 21). Second, cattle enterprises tend to be low-cost, which limits cash requirements. Third, under the existing tax code, losses from farming can be written off against income from other sources (Freshwater and Reimer, 1995, p. 220). Producing calves allows farmers to group their expenses and sales in different years to generate small profits in some years and large losses in others (Hoppe and Banker, 2006, p. 14).

**Other specializations.** Two other specializations were common among limited-resource, retirement, residential/lifestyle, and low-sales farms. About

[3]ARMS collects the number of hours worked on farm by the principal operator, the spouse of the principal operator, other operators, and unpaid workers. The survey does not collect hours worked by hired or contract labor, however. Hours of hired and contract labor are estimated by dividing hired labor and contract labor expense by the State-specific wage rate for farm labor.

Table 2

**Farm specialization and diversification, by farm type, 2004**

| Item | Small family farms | | | | | Large-scale family farms | | Nonfamily farms | All farms |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Farming-occupation | | | | | |
| | Limited-resource | Retirement | Residential/lifestyle | Low-sales | Medium-sales | Large | Very large | | |
| | | | | | *Number* | | | | |
| Total farms | 197,734 | 338,671 | 837,542 | 395,781 | 133,299 | 86,087 | 71,708 | 47,103 | 2,107,925 |
| | | | | | *Percent* | | | | |
| Commodity specialization:[1] | | | | | | | | | |
| Cash grain[2] | 11.4 | 8.2 | 11.3 | 14.3 | 38.7 | 42.0 | 24.5 | *9.9 | 14.8 |
| Other field crops[3] | 23.2 | 27.8 | 23.8 | 19.6 | 10.9 | 11.2 | 9.9 | 33.9 | 22.0 |
| High-value crops[4] | *9.5 | 5.7 | **3.3 | 9.1 | 5.9 | 9.6 | 12.6 | 23.4 | 6.5 |
| Beef | 34.3 | 40.5 | 37.9 | 34.0 | 20.0 | 11.9 | 12.1 | 23.9 | 33.9 |
| Hogs | d | d | *1.1 | *0.6 | *3.5 | 4.2 | 9.2 | 1.1 | 1.6 |
| Dairy | d | d | d | 3.0 | 16.2 | 13.0 | 11.3 | 2.1 | 2.9 |
| Poultry | d | d | **0.9 | d | *2.2 | 6.5 | 18.1 | #1.2 | **1.6 |
| Other livestock[5] | 18.5 | 15.9 | *21.3 | 19.1 | #2.6 | 1.7 | *2.2 | *4.4 | 16.7 |
| | | | | | *Number* | | | | |
| Average number of commodities[6] | 1.6 | 1.4 | *1.4 | 1.9 | 3.5 | 3.4 | 3.2 | 1.4 | 1.8 |
| | | | | | *Percent* | | | | |
| Number of commodities:[6] | | | | | | | | | |
| None[7] | 14.8 | 18.6 | 17.7 | 13.0 | 0.0 | 0.0 | d | *23.2 | 14.4 |
| One | 42.4 | 38.0 | 40.5 | 33.5 | 14.2 | 13.7 | 20.4 | 41.1 | 35.6 |
| Two | 25.4 | 33.8 | 28.9 | 31.4 | 24.4 | 22.7 | 19.1 | *22.4 | 28.8 |
| Three | *9.9 | *6.9 | #7.8 | 10.0 | 17.2 | 22.4 | 23.1 | *5.9 | 9.9 |
| Four or more | 7.4 | #2.7 | #5.1 | 12.1 | 44.2 | 41.2 | 37.4 | 7.4 | *11.4 |

d = Data suppressed due to insufficient observations.

* = Standard error is between 25 percent and 50 percent of the estimate.

** = Standard error is between 51 percent and 75 percent of the estimate.

# = Standard error is greater than 75 percent of the estimate.

[1]Commodity that accounts for at least half of the farm's value of production.

[2]Includes wheat, corn, soybeans, grain sorghum, rice, and general cash grains, where no single cash grain accounts for the majority of production.

[3]Tobacco, peanuts, cotton, sugar beets, sugar cane, corn for silage, sorghum for silage, hay, canola, and general crops, where no single crop accounts for the majority of production. Also includes farms with all cropland in the Conservation Reserve or Wetlands Reserve Programs (CRP or WRP).

[4]Vegetables, fruits and tree nuts, and nursery and greenhouse products.

[5]Includes sheep, lambs, wool, goats, goats' milk, mohair, horses, ponies, mules, donkeys, bees, honey, aquaculture, mink, rabbits, other fur-bearing animals, bison, deer, elk, llamas, etc. Also includes farms where no single livestock species accounts for the majority of production.

[6]Based on 26 commodities or commodity groups: barley, oats, wheat, corn for grain, corn silage, soybeans, sorghum for grain, sorghum silage, canola, fruits, vegetables, nursery products, peanuts, sugar cane, sugar beets, rice, potatoes, cotton, tobacco, hay, other crops, cattle, hogs, dairy, poultry, and other livestock.

[7]Includes farms with no production due to drought, other adverse weather, crop and livestock disease, etc. Also includes farms with all cropland in CRP and WRP.

Source: USDA, Economic Research Service, 2004 Agricultural Resource Management Survey, Phase III.

one-quarter of the four groups specialized in "other field crops," which also includes farms with all their crop acres in the CRP and WRP. Another fifth of each group specialize in "other livestock," which includes grazing livestock other than cattle (namely horses, sheep, and goats.)

Some specializations are more common among family farms with gross sales greater than $100,000 (medium-sales and large-scale farms). Farms specializing in cash grains account for about 40 percent of medium-sales and large family farms, while 11-16 percent of medium-sales and large-scale farms specialize in dairy (versus 3 percent of farms in general). Very large family farms are at least twice as likely as any other type to specialize in poultry or hogs, accounting for three-fourths of poultry production and two-thirds of hog production (fig. 5).

**High-value crops.** Production of high-value crops is heavily concentrated among very large family farms and nonfamily farms, which together account for 78 percent of the total. No more than 10 percent of any small farm type specializes in these crops (table 2). High-value crops can generate large sales per acre, but they can require much more labor than cattle and they may require more marketing expertise.

## Diversification

Family farms become more diversified as their size increases. Many small family farms specialize in a single commodity or produce nothing at all. Farms with no production include those with all their cropland in the CRP or WRP, as well as farms experiencing crop failure or loss of livestock from disease or other causes. Medium-sales and large-scale farms are more likely to produce multiple commodities: three-fifths of farms in these groups produce three or more commodities.

# Operator Demographics

Every farm has at least one operator, or a farmer who makes day-to-day decisions about the farm business. However, some farms—particularly the larger ones—have more than one operator who makes decisions. In such cases, one operator is designated as the principal operator, the one who is most responsible for running the farm. The others are designated as secondary operators.[4]

## Principal Operators

Principal farm operators are largely White and male. Minorities account for 5 percent of all principal operators, and a similar percentage for each farm type except for limited-resource farms (table 3). About 12 percent of limited-resource farms had a minority operator, more than double the rate for all farms. Women make up 16 percent of operators on limited-resource farms, nearly double their 9-percent share of all farms.[5] Men operate virtually all family farms with sales of $100,000 or more (medium-sales, large, and very large farms).

**Education.** Educational attainment varies sharply by type of farm. One-fourth of principal operators of limited-resource farms attended or completed college, compared with half the operators of residential/lifestyle or medium-sales farms. Educational attainment also increases with farm size. About 38 percent of low-sales operators attended or completed college, a number that jumps to 60 percent for operators of very large farms. Thirty-five percent of limited-resource farmers had less than a high-school education, about three times the percentage for all operators.

**Operator age.** One of the most striking characteristics of U.S. agriculture is the advanced age of principal farm operators compared with other self-employed workers. About 27 percent of farm operators reported their age as 65 or older in 2004. In contrast, the Bureau of Labor Statistics (BLS) estimates that only 8 percent of self-employed workers in nonagricultural industries were that old (U.S. Dept. of Labor, 2005, p. 220). Each farm type—except residential/lifestyle farms—had a larger share of operators who were at least 65 than was true for the nonfarm self-employed. Retired operators were most likely to be 65 or more, as one would expect, but nearly 60 percent of limited-resource operators were also that old.

The age gap between farm operators and other self-employed workers has increased in recent decades (fig. 7). In 1969, 17 percent of farm operators were at least 65 years old, or 6 percentage points more than the estimate for the nonagricultural self-employed. By 2002, the difference had increased to 19 percentage points, largely due to a growing share of older farm operators.

The advanced age of farm operators is understandable, given that the farm is the home for most farmers and that farmers can phase out of farming gradually over a decade or more (Ahearn et al., 1993, p. 7). Younger farmers enter the business at a very slow rate, which tends to increase the average age for farmers as a whole. Improved health and advances in farm equipment have

[4]Traditionally, farm data sources in the United States assumed each farm had only one operator. The "one farm, one operator" assumption was dropped when the census of agriculture and ARMS collected data for 2002. Both the census and ARMS now count all operators—principal and secondary—and ask for detailed information on up to three operators.

[5]Approximately 17 percent of the operators of nonfamily farms were women, but the difference between that estimate and the 9-percent estimate for all farms is not statistically significant.

Table 3

**Selected characteristics of principal operators, by farm type, 2004**

| Item | Small family farms | | | | | Large-scale family farms | | Nonfamily farms | All farms |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Farming-occupation | | | | | |
| | Limited-resource | Retirement | Residential/lifestyle | Low-sales | Medium-sales | Large | Very large | | |
| | | | | | *Number* | | | | |
| Total principal operators | 197,734 | 338,671 | 837,542 | 395,781 | 133,299 | 86,087 | 71,708 | 47,103 | 2,107,925 |
| | | | | | *Percent of group* | | | | |
| Race or ethnic origin of principal operator: | | | | | | | | | |
| White, not Hispanic | 88.2 | 95.5 | 95.7 | 95.8 | 98.0 | 96.7 | 96.4 | 96.1 | 95.2 |
| Minority[1] | 11.8 | 4.5 | 4.3 | *4.2 | *2.0 | #3.3 | 3.6 | #3.9 | 4.8 |
| Gender of principal operator: | | | | | | | | | |
| Male | 83.6 | 90.4 | 91.3 | 89.0 | 97.9 | 98.4 | 97.5 | 83.1 | 90.7 |
| Female | 16.4 | 9.6 | **8.7 | 11.0 | 2.1 | 1.6 | 2.5 | *16.9 | *9.3 |
| Education of principal operator: | | | | | | | | | |
| Some high school or less | 35.5 | 14.0 | 5.9 | 11.2 | 7.1 | 8.9 | 5.3 | *2.2 | 11.1 |
| Completed high school | 40.6 | 38.1 | 39.1 | 50.6 | 42.3 | 38.3 | 35.2 | 32.4 | 41.1 |
| Some college | 17.5 | 24.0 | 26.5 | 18.9 | 29.2 | 29.2 | 28.5 | 21.6 | 24.0 |
| Completed college | *6.4 | 24.0 | 28.6 | 19.3 | *21.3 | 23.6 | 31.1 | 43.7 | 23.8 |
| | | | | | *Years* | | | | |
| Average age of principal operator | 65 | 68 | 51 | 57 | 52 | 52 | 52 | 56 | 56 |
| | | | | | *Percent of group* | | | | |
| Age of principal operator: | | | | | | | | | |
| Younger than 35 years | *2.6 | d | 6.0 | 4.1 | 7.3 | 6.5 | 4.9 | 2.6 | 4.4 |
| 35 to 44 years | *4.7 | d | 19.3 | 9.7 | 18.9 | 17.9 | 18.9 | 15.0 | 13.0 |
| 45 to 54 years | 15.4 | 5.5 | 37.0 | 20.5 | 34.4 | 35.3 | 37.6 | 21.2 | 26.3 |
| 55 to 64 years | 19.3 | 24.8 | 30.7 | 40.5 | *24.0 | 26.9 | 26.5 | 38.1 | 29.9 |
| 65 years or older | 58.3 | 68.7 | 7.0 | 25.3 | 15.5 | 13.4 | 12.1 | 23.1 | 26.5 |

d = Data suppressed due to insufficient observations.

* = Standard error is between 25 percent and 50 percent of the estimate.

**Standard error is between 51 percent and 75 percent of the estimate.

# = Standard error is greater than 75 percent of the estimate.

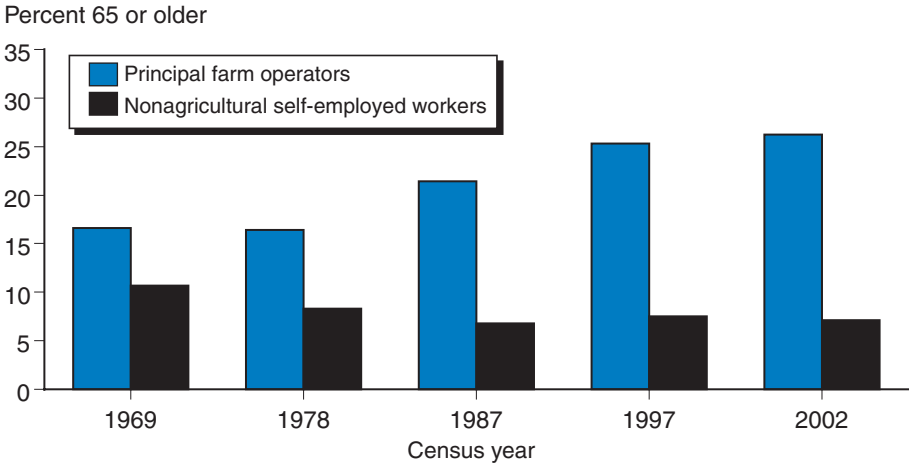
[1]Includes American Indians or Alaska Natives, Asians, Blacks or African Americans, Hispanics or Latins, and Native Hawaiians and other Pacific Islanders. Also includes operators who reported more than one racial or ethnic group. Small sample size for individual minority groups prevents separate estimates for each group.

Source: USDA, Economic Research Service, 2004 Agricultural Resource Management Survey, Phase III.

Figure 7

**Principal farm operators and self-employed workers in nonagricultural industries who were at least 65 years old, selected census years, 1969-2002**

*Principal farm operators are increasingly likely to be at least 65 years old*




Source: USDA, Economic Research Service, compiled from agricultural census data and from Bureau of Labor Statistics data published in various January issues of *Employment and Earnings*.

also allowed farmers to farm later in life than in previous generations (Mishra et al., 2005, p. 14).

The advanced age of farmers raises concerns about a mass exit of farmers from agriculture in the near future (Gale, 2002, p. 30) and finding younger farmers to replace them. Finding replacement operators, however, may not be as hard as it seems (Hoppe and Banker, 2006, p. 36). Older farmers can be replaced with younger farmers producing more on larger farms, and some replacement farmers already work as secondary operators on their families' farms. In addition, about one-fifth of farm operators report they are retired. Any replacement of these operators by younger operators has already occurred.

## Secondary Operators and Their Farms

In addition to principal farm operators, there are secondary operators on 967,730 multiple-operator farms (table 4). Because farms are generally family businesses, one would expect family members to serve as secondary operators. In fact, 65 percent of the secondary operators—720,000 out of 1.1 million—are spouses.

The number of operators per farm tends to increase with size. Commercial-sized farms often require more management and labor than an individual can provide. The number of operators per farm reaches 1.9 operators—on average—for very large family farms. Sixty-five percent of farms that size have two or more operators, versus 46 percent for all U.S. farms. About 16 percent of all multiple-operator farms are multiple-generation farms, with at least 20 years' difference between the ages of the oldest and youngest operators.

Table 4

**Multiple-operator farms, by farm type, 2004**

| Item | Small family farms | | | | | Large-scale family farms | | Nonfamily farms | All farms |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Farming-occupation | | | | | |
| | Limited-resource | Retire-ment | Residential/ lifestyle | Low-sales | Medium-sales | Large | Very large | | |
| | | | | | *Number* | | | | |
| Total operators | 273,308 | 511,094 | *1,268,612 | 590,099 | 204,683 | 146,199 | 136,763 | 89,290 | 3,220,048 |
| Principal operators[1] | 197,734 | 338,671 | 837,542 | 395,781 | 133,299 | 86,087 | 71,708 | 47,103 | 2,107,925 |
| Secondary operators | 75,574 | 172,423 | *431,070 | 194,318 | 71,384 | 60,112 | 65,055 | 42,187 | 1,112,123 |
| Spouses | 53,754 | 110,054 | *314,752 | 134,549 | 45,415 | 26,804 | 23,946 | *10,542 | 719,816 |
| Other | *21,820 | *62,369 | *116,318 | 59,769 | 25,968 | 33,308 | 41,109 | 31,645 | 392,307 |
| Operators (principal and secondary) per farm | 1.4 | 1.5 | 1.5 | 1.5 | 1.5 | 1.7 | 1.9 | 1.9 | 1.5 |
| Multi-operator farms[2] | 71,347 | 142,740 | *392,904 | 176,010 | 62,327 | 48,332 | 46,841 | 27,230 | 967,730 |
| | | | | | *Percent of group* | | | | |
| Multiple-operator farms as share of all farms | 36.1 | 42.1 | 46.9 | 44.5 | 46.8 | 56.1 | 65.3 | 57.8 | 45.9 |
| | | | | | *Number* | | | | |
| Multi-generation farms[3] | *13,524 | **33,892 | *41,879 | 19,004 | 11,855 | 13,447 | 12,487 | *5,936 | *152,025 |
| | | | | | *Percent of group* | | | | |
| Multiple-generation farms as share of multiple-operator farms | *19.0 | *23.7 | 10.7 | 10.8 | 19.0 | 27.8 | 26.7 | 21.8 | 15.7 |

Note: ARMS counts all operators—principal and secondary—and asks for detailed information on up to three operators.

* = Standard error is between 25 percent and 50 percent of the estimate.

** = Standard error is between 51 percent and 75 percent of the estimate.

[1]The number of principal operators equals the number of farms. Each farm has one principal operator.

[2]Mulitiple-operator farms report more than one operator.

[3]Farms reporting a difference of at least 20 years between the ages of the youngest and oldest operators.

Source: USDA, Economic Research Service, 2004 Agricultural Resource Management Survey, Phase III.

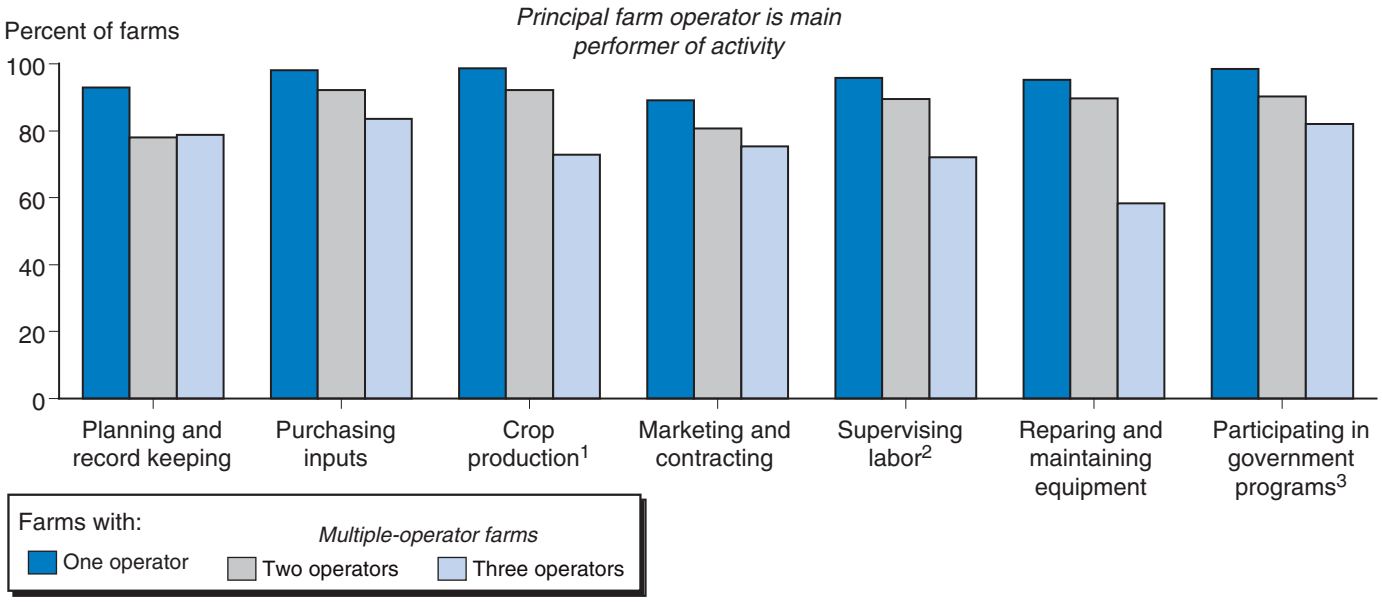
The tasks that principal operators perform—like buying inputs, marketing, and maintaining equipment—change as the number of operators increases (fig. 8). When there is only one operator on large-scale farms, that operator is the main performer of each activity for 89 to 99 percent of the farms. As the number of operators increases, the percentages fall. For farms with three operators, the principal operator is the main performer for only 58 to 84 percent of the farms, depending on the activity.

As more operators are added, individual operators can specialize in different activities. Or, older operators can scale back and allow younger operators to assume more responsibilities. This appears to be the case on large-scale farms with three operators. The average age of the principal operator on these farms is 59, and 74 percent of the farms are multiple-generation.

Figure 8

**Principal farm operators' responsibility for selected activities on large-scale family farms, by number of operators, 2004**

*Principal operators' responsibilities lessen on multiple-operator farms*




Note: The Agricultural Resource Management Survey collects detailed information on up to three farm operators for each farm.

[1]Estimated only for farms producing crops.

[2]Estimated only for farms hiring labor.

[3]Estimated only for farms receiving government payments.

Source: USDA, Economic Research Service, 2004 Agricultural Resource Management Survey, Phase III, version 1.

# Farm Income and Financial Performance

Profitability measures are strongly associated with farm size. The average operating profit margin and average rates of return on assets and equity are negative for small farms, but positive for large-scale and nonfamily farms (table 5). These ratios are higher for very large farms than for large farms, reflecting very large farms' higher level of sales.

Average profit measures, however, obscure the wide variation in financial performance among farms, including small farms. Although nearly half or more of the farms in each small farm type had a negative operating profit margin in 2004, other small farms were much more profitable (fig. 9). For example, between 15 percent and 28 percent of each small farm type had an operating profit margin of at least 20 percent. Nevertheless, an even greater share of large-scale family farms had profit margins that high—36 percent for large family farms and 42 percent for very large family farms. In addition, most of the farms in both of these groups had a positive operating profit margin.

A large majority of each small farm type generated a positive net farm income, although average net farm income was low compared with large and very large family farms (table 5). Overall, net farm income averaged $25,000 per farm in 2004—up 37 percent from the previous year—reflecting a good year for the farm sector. Seventy percent of farms in 2004 earned positive net farm income, and these profitable farms accounted for the bulk of agricultural activity. They generated 81 percent of the total value of production and operated 66 percent of the land in farms.

## Selected Financial Ratios

On average, both limited-resource and residential/lifestyle farms had an operating expense ratio greater than 100 percent in 2004. In other words, operating expenses exceeded gross cash farm income. The remaining categories of small farms—retirement, low-sales, and medium-sales—generated enough income to cover expenses. Large-scale family farms and nonfamily farms each had an operating expense ratio of about 70 percent, similar to that of medium-sales farms. Such a ratio provides a more comfortable margin between expenses and income than that experienced by smaller farms.

Family farms with annual gross sales of at least $100,000—medium-sales, large, and very large farms—have a higher debt/asset ratio than smaller family farms. As a result, they are also more likely to be marginally solvent (positive net farm income, but with a debt/asset ratio above 40 percent).[6] In contrast, limited-resource, residential, and low-sales small farms are more likely to fall in the marginal-income category (negative net farm income, but with a debt/asset level of no more than 40 percent). This reflects their higher operating expense ratios, which means they are more likely to generate negative net income. Vulnerable farms—with negative net income and a debt/asset ratio above 40 percent—are rare in all farm types, and amount to less than 3 percent of all farms. Residential/lifestyle farms make up 56

[6]In the late 1980s, ERS developed a measure of financial position that considered both income and solvency. Under this classification system, farms were classified as being in one of four financial categories: favorable, marginal-income, marginal-solvency, or vulnerable. For definitions of the four categories, see footnote 6 in table 5.

Table 5

**Selected performance measures, by farm type, 2004**

| Item | Small family farms | | | | | Large-scale family farms | | Nonfamily farms | All farms |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Farming-occupation | | | | | |
| | Limited-resource | Retirement | Residential/lifestyle | Low-sales | Medium-sales | Large | Very large | | |
| | | | | | *Number* | | | | |
| Total farms | 197,734 | 338,671 | 837,542 | 395,781 | 133,299 | 86,087 | 71,708 | 47,103 | 2,107,925 |
| | | | | | *Percent* | | | | |
| Profitability measures: | | | | | | | | | |
| Rate of return on assets[1] | -4.0 | *-1.5 | -2.0 | -2.7 | #-0.4 | 2.5 | 6.8 | 7.1 | **0.5 |
| Rate of return on equity[2] | -4.4 | -1.7 | -2.8 | -3.2 | **-1.3 | *1.8 | 6.7 | 7.1 | #-0.1 |
| Operating profit margin[3] | -86.7 | *-27.8 | -35.5 | -36.1 | #-2.4 | 10.8 | 18.3 | 23.8 | **3.0 |
| | | | | | *Dollars per farm* | | | | |
| Income measures: | | | | | | | | | |
| Net farm income | **1,812 | 9,655 | 4,544 | 9,098 | 39,084 | 87,499 | 287,921 | 175,795 | 25,003 |
| | | | | | *Percent* | | | | |
| Farms with positive net farm income | 66.7 | 79.5 | 62.8 | 68.7 | 76.9 | 82.2 | 83.8 | 72.2 | 69.6 |
| Financial efficiency measure: | | | | | | | | | |
| Operating expense ratio[4] | 143.3 | 83.7 | 106.8 | 89.8 | 74.0 | 69.1 | 70.2 | 70.4 | 75.3 |
| Solvency measure: | | | | | | | | | |
| Debt/asset ratio[5] | *3.9 | 2.5 | 8.0 | *5.4 | 10.8 | 13.1 | 16.7 | 7.2 | 8.8 |
| Solvency and income measure: | | | | | | | | | |
| Financial position—[6] | | | | | | | | | |
| Favorable | 65.9 | 79.1 | 60.0 | 67.0 | 71.6 | 71.8 | 69.2 | 69.4 | 66.7 |
| Marginal income | 32.3 | 19.4 | 33.1 | 28.9 | 19.8 | 15.3 | 11.3 | 26.1 | 27.6 |
| Marginal solvency | d | d | *2.8 | *1.7 | 5.3 | 10.4 | 14.6 | *2.8 | 2.9 |
| Vulnerable | d | d | 4.0 | #2.4 | *3.3 | 2.5 | 4.9 | *1.7 | 2.8 |

d = Data suppressed due to insufficient observations.

* = Standard error is between 25 percent and 50 percent of the estimate.

** = Standard error is between 51 percent and 75 percent of the estimate.

# = Standard error is greater than 75 percent of the estimate.

[1]Return on assets = 100% X (net farm income + interest paid - charge for unpaid operators' labor and management ) / total assets.

[2]Return on equity = 100% X (net farm income - charge for unpaid operators' labor and management ) / net worth.

[3]Operating profit margin = 100% X (net farm income + interest paid - charge for unpaid operators' labor and management ) / gross farm income.

[4]Operating expense ratio = 100% X total cash operating expenses / gross cash farm income.

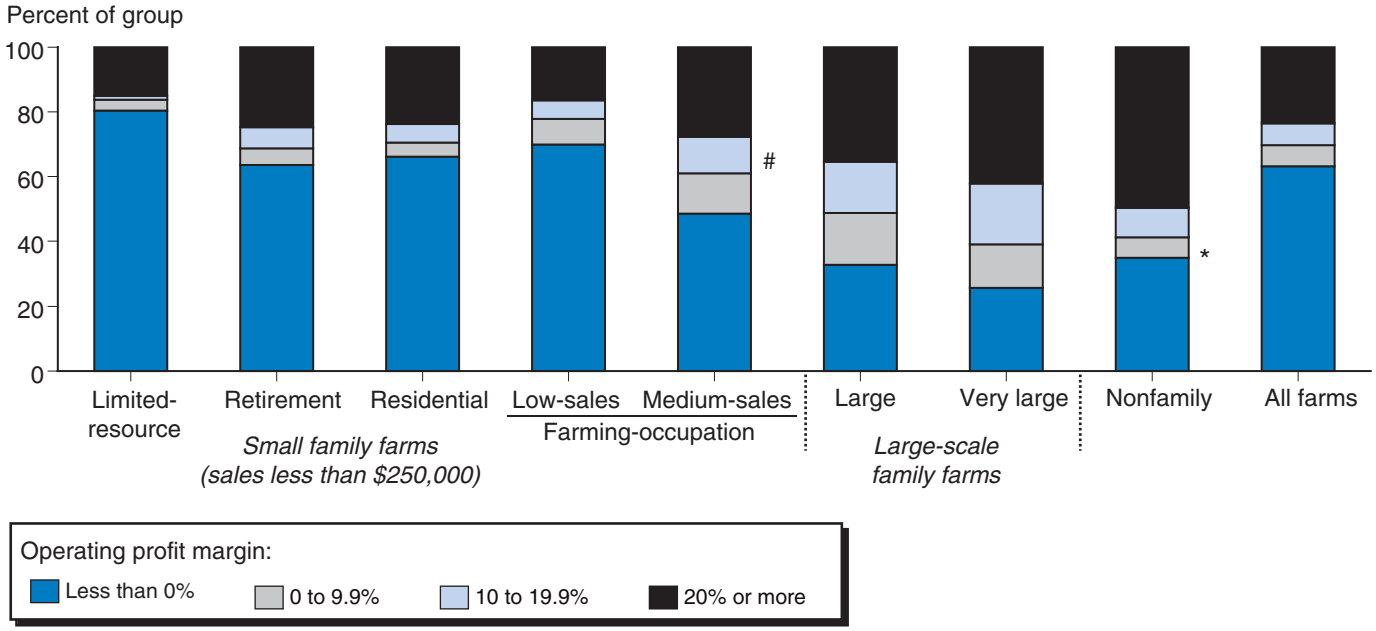
[5]Debt/asset ratio = 100% X total liabilities/total assets.

[6]Financial performance classification based on farm income and debt/asset ratio:

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

Source: USDA, Economic Research Service, 2004 Agricultural Resource Management Survey, Phase III.

Figure 9
**Farms by operating profit margin, 2004**
*Small family farms are more likely to have a negative operating profit margin*




Note: Operating profit margin = 100% X (net farm income + interest paid – charge for unpaid operators' labor and management)/gross farm income.

* = Standard error is between 25 percent and 50 percent of the estimate.

# = Standard error is greater than 75 percent of the estimate.

Source: USDA, Economic Research Service, 2004 Agricultural Resource Management Survey, Phase III.

percent of the vulnerable group, but their operators are unlikely to depend on the farm for their livelihood.

Most U.S. farms have a favorable financial position, which means they generate positive returns and have a debt/asset ratio no more than 40 percent. Two out of three U.S. farms and at least 60 percent of each farm type were classified as such in 2004.

## Loans and Lenders

Many farmers operate with seasonal production loans that are taken out and repaid within the same calendar year, but 41 percent of farms reported outstanding loans as of December 31, 2004 (table 6). This relatively low incidence of debt contributes to the small share of farms with a vulnerable or marginally solvent financial position. Operations with year-end loan balances ranged from one-fifth for retirement farms to three-fourths or more for medium-sales, large, and very large farms. This suggests that the farms most likely to be in debt are larger and most likely to benefit from using credit as a source of capital.

Average debt levels also varied with size, ranging from just over $200,000 for medium-sales farms to nearly $600,000 for very large farms. Smaller family farms averaged less than $100,000 in outstanding debt. Regardless of farm type, real estate and other long-term loans accounted for most debt. Real estate

Table 6

**Farms reporting outstanding loans, by lender and farm type, 2004**

| Item | Small family farms | | | | | Large-scale family farms | | Nonfamily farms | All farms |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Farming-occupation | | | | | |
| | Limited-resource | Retirement | Residential/lifestyle | Low-sales | Medium-sales | Large | Very large | | |
| | | | | | *Number* | | | | |
| Total farms[1] | #178,433 | 322,856 | 824,579 | #419,662 | 138,390 | 100,870 | 82,585 | 40,004** | 2,107,377 |
| | | | | | *Percent* | | | | |
| Share of farms reporting outstanding loans[2] | #26.2 | 17.0 | 41.4 | #41.0 | 74.4 | 73.0 | 82.3 | *32.9 | **41.4 |
| | | | | | *Dollars per farm* | | | | |
| **For farms with outstanding loans:** | | | | | | | | | |
| Average debt[3] | #50,551 | 63,154 | 82,030 | #84,908 | 210,957 | *265,223 | 594,084 | *364,334 | **153,557 |
| | | | | | *Percent* | | | | |
| Type of debt:[3] | | | | | | | | | |
| Short-term debt | #9.7 | **17.9 | *5.9 | *14.4 | 21.9 | *19.0 | 26.1 | *16.8 | *18.0 |
| Real estate | **63.3 | 68.8 | 83.6 | 65.4 | 55.7 | 54.1 | 51.7 | 60.4 | 62.0 |
| Other long-term debt | #27.0 | *13.3 | 10.4 | *20.2 | 22.4 | *26.9 | 22.2 | *22.7 | 20.0 |
| Debt-asset ratio[3] | #10.6 | 11.1 | 17.5 | **12.8 | 18.7 | 20.6 | **21.2 | 16.5 | *17.8 |
| | | | | | *Billion dollars* | | | | |
| Outstanding loan balances[2] | #2.3 | *3.3 | 30.5 | #14.3 | 19.2 | *18.0 | 39.2 | *4.7 | *131.6 |
| | | | | | *Percent of group* | | | | |
| Outstanding loans, by lender:[2] | | | | | | | | | |
| Farm Credit System | #27.0 | **6.6 | 11.4 | **10.3 | *27.1 | *29.6 | 37.1 | *32.7 | *24.6 |
| Commercial banks | #37.0 | 66.1 | 57.4 | **54.3 | *44.7 | *48.0 | 43.2 | 41.4 | *49.0 |
| Farm Service Agency | #2.2 | d | *2.4 | #6.1 | *5.4 | *2.0 | **2.3 | **1.0 | *3.1 |
| Life insurance companies | d | d | #0.1 | #1.8 | #0.1 | #0.7 | **1.9 | #2.4 | *1.1 |
| Other[4] | #33.8 | 22.2 | *28.7 | #27.5 | 22.7 | *19.6 | *15.5 | *22.5 | #22.2 |
| | | | | | *Percent of U.S. total* | | | | |
| Outstanding loans, by lender:[2] | | | | | | | | | |
| Farm Credit System | 1.9 | *0.7 | 10.8 | 4.6 | 16.1 | 16.4 | 44.7 | 4.8 | 100.0 |
| Commercial banks | 1.3 | 3.4 | 27.2 | 12.1 | 13.3 | *13.4 | 26.3 | 3.0 | 100.0 |
| Farm Service Agency | 1.3 | d | 17.9 | 21.5 | 25.7 | 8.9 | 22.5 | *1.2 | 100.0 |
| Life insurance companies | d | d | d | d | d | d | 53.1 | *7.9 | 100.0 |
| Other[4] | #2.7 | *2.5 | *30.0 | **13.4 | *14.9 | *12.1 | *20.7 | *3.6 | 100.0 |
| All lenders | #1.8 | *2.5 | 23.2 | *10.9 | 14.6 | 13.7 | 29.8 | 3.6 | 100.0 |

d = Data suppressed due to insufficient observations.

* = Standard error is between 25 percent and 50 percent of the estimate.

** = Standard error is between 51 percent and 75 percent of the estimate.

# = Standard error is greater than 75 percent of the estimate.

[1]The number of farms differs from that in previous tables because this table is based only on version 1 of the survey.

[2]Based on the outstanding loan balances for up to five loans that were reported on the survey. Information collected about individual loans included the interest rate, purpose of the loan, and lender (identified from a list of 17 potential lenders).

[3]Includes all debt, not just the balances of the five reported outstanding loans. Note that debt/asset ratios in table 6 are higher than those in table 5, because table 6 excludes farms with no outstanding debt.

[4]Loans from the Small Business Administration, State and county government lending agencies, savings and loan associations, implement dealers, financing corporations, input suppliers, cooperatives and other merchants, contractors, other lenders, individuals, and credit cards.

Source: USDA, Economic Research Service, 2004 Agricultural Resource Management Survey, Phase III, version 1.

debt accounted for 84 percent of total debt for residential/lifestyle farms, compared with just over half of total debt on medium-sales and large-scale farms. This high share of real estate debt for residential/lifestyle farms likely reflects substantial mortgages on farm dwellings.

Farm loans originate from a variety of sources. Commercial banks accounted for about 49 percent of the total outstanding loan balances reported by farm operators at the end of 2004. Banks also accounted for a substantial portion of loan balances (37 to 66 percent) for each farm type. The Farm Credit System (FCS) supplied another 25 percent of loan balances.

The Farm Service Agency (FSA) accounts for only 3 percent of all reported balances. Although it makes loans directly to farmers, FSA also guarantees loans made by other lenders. These loans are excluded from estimates of loans held by FSA, but are included in the estimates of debt held by the lenders who made the loan. FSA's direct loans are targeted at beginning farms and farms with smaller credit needs. FSA appears to be serving smaller farms, with 47 percent of its loans going to small farms where the operators report farming as their major occupation. In contrast, only 21 percent of FCS loans and 25 percent of bank loans go to these operations.

# Sources and Levels of Operator Household Income

Given their negative operating profit margins and low net farm income—on average—how do so many small farms continue to exist? Households operating small farms typically receive substantial off-farm income. Average off-farm income in 2004 ranged from $13,600 for limited-resource households to $96,900 for households operating residential/lifestyle farms (table 7). Most off-farm income is from earned sources, either a wage-and-salary job or self-employment. However, households operating limited-resource or retirement farms receive well over half their off-farm income from unearned sources—such as Social Security, pensions, dividends, interest, and rent—reflecting the advanced age of operators on those farms. (See "Appendix I: Measuring Operator Household Income and Net Worth" for information on how operator household income is defined.)

## Off-Farm Work

Participation in off-farm work varies by farm type. At one extreme, neither the operator nor spouse worked off-farm on 73 percent of limited-resource and 65 percent of retirement farms. At the other extreme, both the operator and a spouse worked off-farm on 64 percent of residential/lifestyle farms. In the remaining farm types, the operator, a spouse, or both worked off-farm in 49 to 62 percent of farm households.

In other words, many farm households are dual-career, holding off-farm jobs as well as farming (Hoppe, 2001, pp. 45 and 49). About 46 percent of all farm households were dual-career, with a spouse working off the farm and the principal operator engaged in farming (with or without off-farm work). According to the Current Population Survey, about 42 percent of all U.S. households had two or more workers in 2004, so farm households are about as likely to be dual-career as U.S. households in general.

Off-farm work is not a recent phenomenon. About 30 percent of principal operators reported off-farm work in the 1930 and 1935 Censuses of Agriculture, generally for fewer than 100 days (fig. 10), with considerable variation by State. For example, in the 1935 Census, the share ranged from 18 percent in Iowa and 21 percent in New Jersey to 57 percent in Utah and 60 percent in South Dakota. The percentage working off farm was only 19 percent for South Dakota in the previous (1930) census, with the 5-year jump in off-farm work reflecting "relief work" taken on during drought (Jenkins and Robison, 1937, pp. 8 and 10).

Since 1969, the share of primary operators working off-farm has stabilized at just over 50 percent nationally. However, the share reporting working 200 days or more—essentially working full-time off the farm—increased steadily from 32 percent in 1969 to 39 percent in 2002.

## Level of Principal Operator Household Income

Average principal operator household income was $81,600 in 2004 (table 7), up from $68,500 in 2003, with farming and off-farm income each

Table 7

**Income and wealth of principal operator households, by farm type, 2004**

| Item | Small family farms | | | | | Large-scale family farms | | All farms |
|---|---|---|---|---|---|---|---|---|
| | | | | Farming-occupation | | | | |
| | Limited-resource | Retirement | Residential/lifestyle | Low-sales | Medium-sales | Large | Very large | |
| | | | | *Number* | | | | |
| Total households | 197,734 | 338,671 | 837,542 | 395,781 | 133,299 | 86,087 | 71,708 | 2,060,822 |
| | | | | *Dollars per household* | | | | |
| Mean household income | 7,680 | 62,468 | 96,515 | 63,043 | 70,365 | 125,120 | 272,527 | 81,596 |
| Farm earnings[1] | -5,902 | *4,128 | #-365 | **4,925 | *34,354 | 80,250 | 225,094 | 14,317 |
| Off-farm income | 13,582 | 58,339 | 96,879 | 58,118 | 36,011 | 44,870 | 47,434 | 67,279 |
| Earned[2] | 3,463 | 20,252 | 83,548 | 36,950 | 26,241 | 33,238 | 29,320 | 48,818 |
| Unearned[2] | 10,118 | 38,087 | 13,331 | 21,168 | 9,769 | 11,633 | *18,114 | 18,461 |
| | | | | *Percent* | | | | |
| Share of income from off-farm[3] | 176.8 | 93.4 | 100.4 | 92.2 | 51.2 | 35.9 | 17.4 | 82.5 |
| Off-farm work—principal operator and spouse: | | | | | | | | |
| Only operator[4] | 18.6 | **10.7 | 35.9 | 12.3 | 6.8 | 8.9 | 7.3 | 21.5 |
| Only spouse | *7.2 | 16.7 | 0.0 | 22.5 | 38.5 | 33.4 | 31.8 | 12.8 |
| Neither[5] | 72.6 | 64.8 | 0.0 | 48.0 | 38.5 | 45.9 | 51.1 | 33.0 |
| Both | d | 7.8 | 64.1 | 17.2 | 16.1 | 11.8 | 9.8 | 32.7 |
| Households with: | | | | | | | | |
| Negative farm earnings | 72.1 | 50.8 | 64.4 | 44.4 | 24.6 | 16.8 | 16.3 | 52.8 |
| Negative household income | 19.6 | *1.2 | *0.5 | #5.0 | 13.0 | 10.5 | 12.1 | 5.0 |
| | | | | *Dollars per household* | | | | |
| Mean household net worth | 462,555 | 685,957 | 587,960 | 733,600 | 1,023,428 | 1,413,494 | 2,234,670 | 739,953 |
| Farm net worth | 389,024 | 464,673 | 368,200 | 542,217 | 910,361 | 1,237,765 | 1,975,385 | 546,788 |
| Nonfarm net worth | 73,531 | 221,284 | 219,760 | 191,383 | 113,067 | 175,729 | 259,286 | 193,165 |
| | | | | *Percent* | | | | |
| Share of net worth from the farm | 84.1 | 67.7 | 62.6 | 73.9 | 89.0 | 87.6 | 88.4 | 73.9 |
| Real estate share of farm assets[6] | 84.8 | 87.1 | 83.9 | 80.0 | 70.8 | 68.9 | 67.8 | 77.9 |

Note: Household income and net worth are calculated only for family farms. d = Data suppressed due to insufficient observations. *=Standard error is between 25 percent and 50 percent of the estimate. **Standard error is between 51 percent and 75 percent of the estimate. # = Standard error is greater than 75 percent of the estimate.

[1]Farm earnings in this table and net farm income in table 5 are not directly comparable. Net farm income includes cash and noncash items, is based on accrual accounting, and is calculated for the farm business. Farm earnings—in contrast—are based on cash items only, with the exception of a deduction for depreciation. Farm earnings also exclude the share of net income generated by the farm paid to other households, such as the households of partners. For more information about the definition of farm earnings, see Appendix I.

[2]Earned income comes from off-farm self-employment or wage/salary jobs. Unearned income includes interest and dividends, benefits from Social Security and other public programs, alimony, annuities, net income of estates or trusts, private pensions, regular contributions of persons not living in the household, net rental income from nonfarm properties, and royalties for mineral leases.

[3]Income from off-farm sources can be more than 100 percent of total household income if farm earnings are negative.

[4]Includes households were the operator works off-farm and there is no spouse.

[5]Includes households where the operator does not work off-farm and there is no spouse.

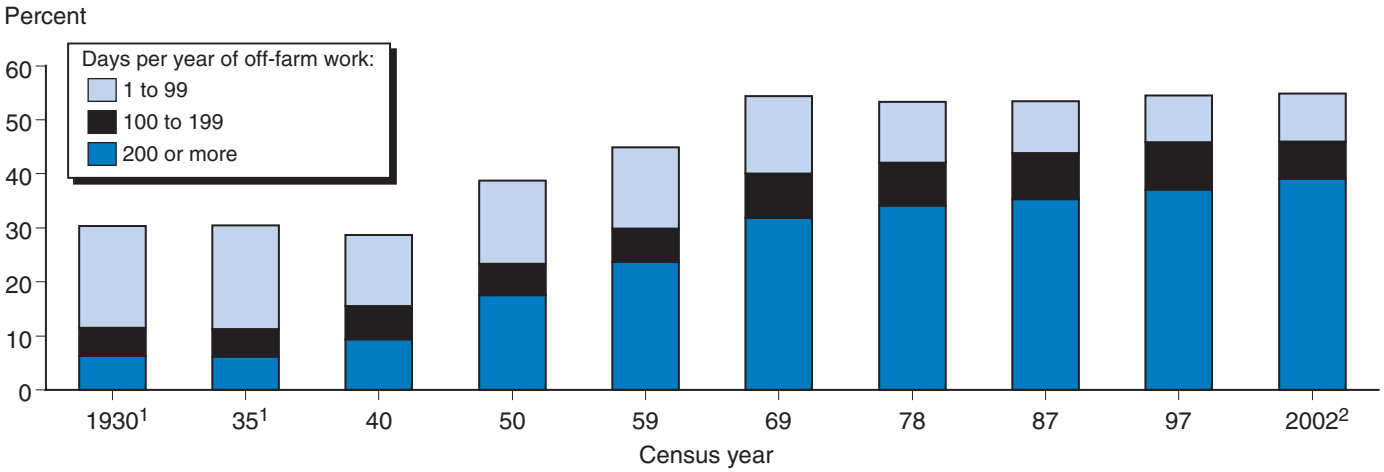
[6]Includes farm business assets held by the principal operator's household and other households.

Source: USDA, Economic Research Service, 2004 Agricultural Resource Management Survey, Phase III.

Figure 10

**Principal farm operators reporting off-farm work, selected census years, 1930 to 2002**

*Principal farm operators have worked off-farm since at least the 1930s*




Note: Includes any day the principal operator worked at least 4 hours off the farm.

[1]Excludes Alaska and Hawaii.

[2]Beginning with the 2002 census, days of off-farm work are imputed if not reported.

Source: USDA, Economic Research Service, compiled from census of agriculture data.

contributing about half of the $13,100 increase. Households operating large and very large farms experienced substantial increases—$22,700 and $58,300, respectively—mostly from farming. Average farm household income was about 35 percent higher than the average for all U.S. households in 2004, as measured by the Current Population Survey.

Mean income may not be the best choice for comparison, because a few very high-income households can raise the mean well above the income received by most households. Nevertheless, using medians still results in higher income for farm households (fig. 11). Median farm-operator household income in 2004 was $53,700, 21 percent higher than the median for all U.S. households. Households operating residential/lifestyle, large, or very large farms had a median household income above the median for all U.S. households. The median for retirement and medium-sales households, in contrast, did not differ from the U.S. median by a statistically significant amount. Only two types of farm households—those operating limited-resource or low-sales farms—received median household income below the U.S. median.

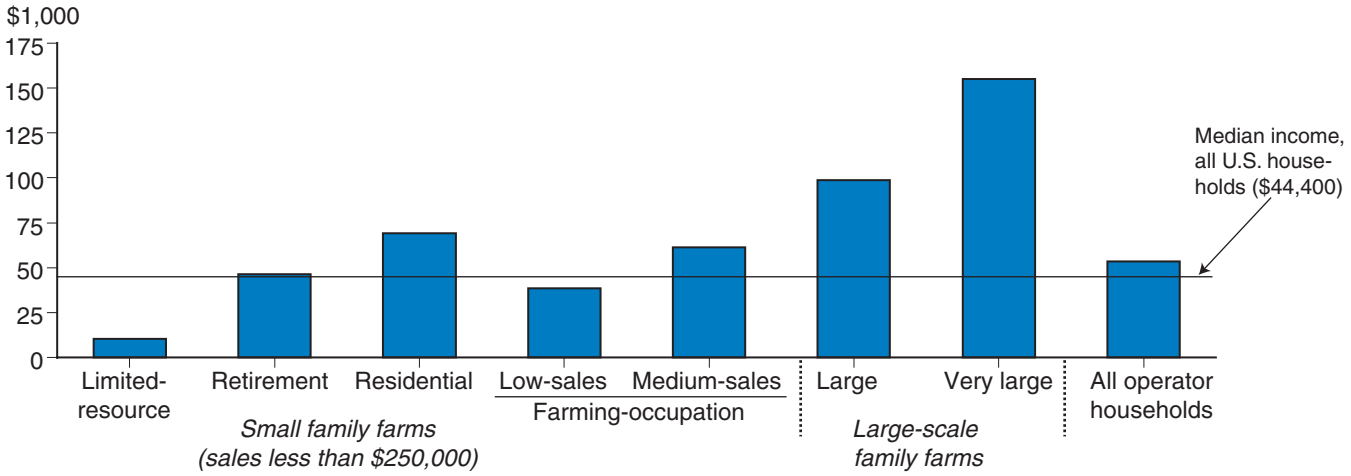
## Net Worth

The income that farm operator households receive from farming does not reflect the large net worth of many farm households. For example, for households on farms with gross sales of at least $100,000, average net worth ranged from $1 million for medium-sales farms to $2.2 million for very large family farms in 2004 (table 7). Virtually all farm households had a net worth greater than the median net worth for all U.S. households, and nearly two-thirds had a net worth greater than the median for U.S. households with a self-employed head (table 8).

Figure 11

**Median income of principal-operator households, 2004**

*Farm households tend to have higher income than U.S. households in general*




Note: Median income falls at the midpoint of the distribution of households ranked by income. Half of the households have income above the median, while the other half have income below that level.

Source: USDA, Economic Research Service, 2004 Agricultural Resource Management Survey, Phase III, for farm households. U.S. Bureau of the Census, 2005 Current Population Survey for all U.S. households.

Table 8

**Net worth for farm households versus all U.S. households, 2004**

| Farm households with a net worth greater than— | All farm households | Limited-resource households |
|---|---|---|
| | *Percent* | |
| Median for all U.S. households ($93,100) | 95.1 | 85.7 |
| Median for all U.S. households with self-employed head ($335,600) | 64.8 | 42.8 |

Source: USDA, ERS, 2004 ARMS for farm households. Federal Reserve Board, 2004 Survey of Consumer Finances (Bucks et al., 2006, p. A8) for net worth of all U.S. households and households with a self-employed head.

Even limited-resource households have a relatively high net worth. Eighty-six percent have a net worth higher than the median for all U.S. households, and 43 percent have a net worth greater than the median for households with a self-employed head. The current limited-resource definition has no constraint on farm assets, instead focusing on low household income and low farm sales over a 2-year period. An earlier definition constrained assets, which resulted in a much lower net worth for limited-resource households. For more information, see "Appendix II: Defining Limited-Resource Farms—Past, Present, and Future".[7]

Unlike income, most of which comes from off-farm sources, net worth from the farm makes up most of the wealth of farm households, regardless of farm type. The farm accounts for 63 to 89 percent of operator household net worth, reflecting the land-intensive nature of farming (table 7). However, much of the net worth of farm households is illiquid—and not available to spend for consumption—because it is largely based on assets necessary to continue farming. Real estate alone amounted to 78 percent of total farm assets.

[7]ERS plans to explore alternate limited-resource definitions to identify different types of limited-resource farms and farmers. It will continue to provide information about limited-resource farms as defined under the current definition, because that definition is used by USDA agencies to administer programs. To facilitate comparing the current and alternate definitions, the limited-resource category will be dropped from the ERS farm classification system. However, there will be more information on counts and characteristics of limited-resource farmers under different definitions.

# Government Payments

Farm program payments can be sorted into two groups—commodity-related and conservation (see box, "Types of Farm Program Payments"). Commodity-related payments in total are much larger than conservation payments, accounting for more than four-fifths of all payments made to farmers in the 2004 ARMS data.[8] About 39 percent of farms received government payments of some type in 2004, but the relative shares of government programs varies widely by farm type (fig. 12). Medium-sales, large, and very large farms were more likely to receive government payments—especially commodity-related payments—than smaller farms.

## Commodity-Related Programs

Commodity programs target specific commodities, largely feed and food grains, cotton, and oilseeds. Payments are tied to the amount of cropland enrolled in programs and yield histories. Specialty crops (except dry peas, lentils, and small chickpeas) and livestock (except dairy, wool, mohair, and honey) are not supported by traditional commodity programs. Producers of nonprogram commodities—as well as producers of program commodities—may also receive disaster assistance and occasional *ad hoc* payments. Farms producing nonprogram commodities may receive substantial payments, if they also produce program commodities or did so in the past.

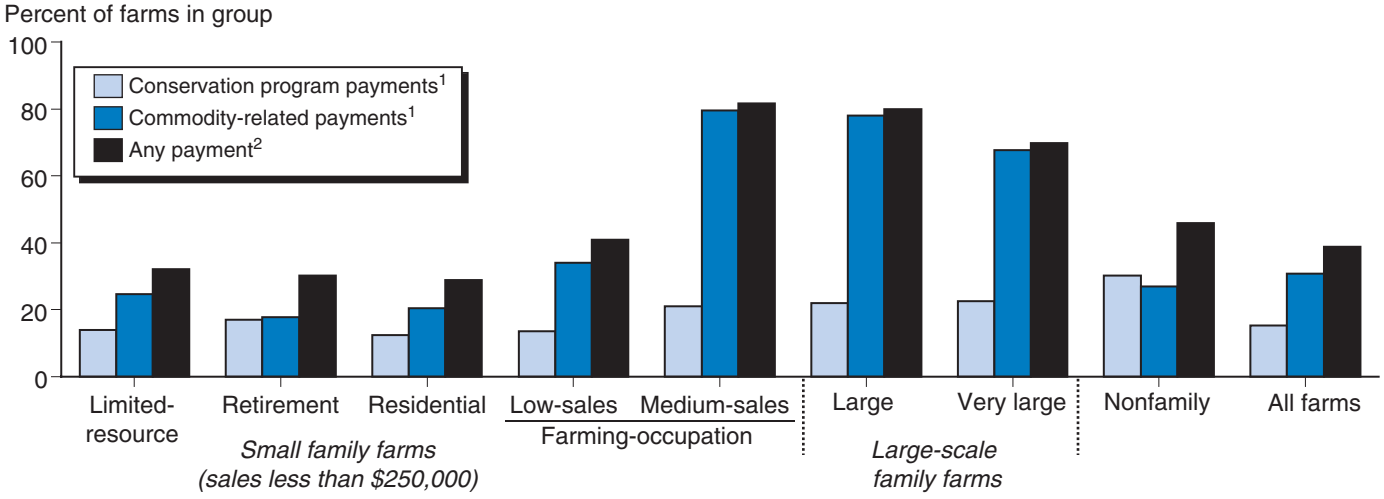
Most medium-sales and large-scale farms—70 to 80 percent—receive commodity-related payments. These farms collectively received 78 percent of commodity program benefits paid to farmers in 2004, roughly propor-

[8]ARMS data rely entirely on the respondent for program-related information. As a result, the survey shows different levels and composition of government payments than do administrative data, which are based on payment records kept by the agencies involved. In addition, ARMS records only the payments received by farmers, while the administrative data include payments received by persons who do not farm, mainly nonoperator landlords.

Figure 12

**Farms receiving payments from conservation or commodity programs, 2004**

*Most medium-sales and large-scale farms receive payments from commodity programs*




[1]For definitions of conservation program payments and commodity-related payments, see box, "Types of Farm Program Payments."

[2]Receives payments from the conservation programs and/or commodity-related programs. Because some farms receive both types of payments, the percentage of farms receiving commodity-related payments plus the percentage of farms receiving conservation payments sums to more than the percentage of farms receiving any government payment.

Source: USDA, Economic Research Service, 2004 Agricultural Resource Management Survey, Phase III.

## Types of Farm Program Payments

The payments covered by the 2004 ARMS are listed below, sorted into two major categories.

**Commodity-related:** Direct payments, countercyclical payments, loan deficiency payments, marketing loan gains, net value of commodity certificates, peanut quota buyout, milk income loss contract payments, agricultural disaster payments, and any other State, Federal, and local payments.

**Conservation:** Payments from the Conservation Reserve Program (CRP), Wetlands Reserve Program (WRP), and Environmental Quality Incentives Program (EQIP).

tional to their share of harvested acres of program crops (fig. 13). Very large family farms alone received 35 percent of commodity-related payments.

## Conservation Programs

Nearly 90 percent of conservation payments going to farmers were paid by CRP. The Environmental Quality Incentives Program (EQIP) has expanded since the 2002 Farm Act (Claassen and Ribaudo, 2006), but it still accounted for only 10 percent of conservation payments in the 2004 ARMS. Medium-sales farms received the largest share of EQIP payments, about 46 percent. WRP contributed about 1 percent of conservation payments.

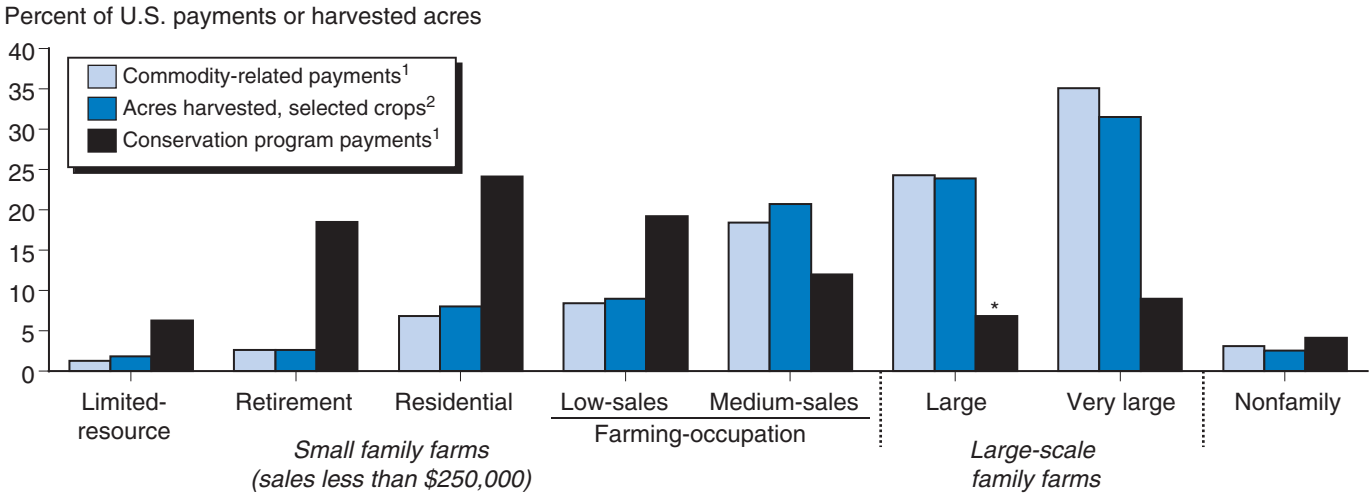
The target of CRP (and WRP) is environmentally sensitive land, rather than the production of specific commodities, so the distribution of conservation payments differs from that of commodity-related payments. Retirement, residential/lifestyle, and low-sales farms received 62 percent of conservation payments in 2004, reflecting their large numbers (75 percent of all farms), their large share of farmland (43 percent of the land owned by farms), and their tendency to enroll large shares of their land in CRP and WRP when they do participate. CRP and WRP enrollments account for 47 percent of the land operated on participating retirement farms, 35 percent on participating residential/lifestyle farms, and 25 percent on participating low-sales farms. In contrast, enrollment ranges from 6 percent to 11 percent for participating medium-sales farms and large-scale farms.

Residential/lifestyle operators' main reported occupation is off the farm, which limits the amount of time they spend farming. Since land enrolled in CRP and WRP requires little labor or capital investment and provides a guaranteed income stream, residential/lifestyle farmers may find the programs financially attractive, particularly if their farms are not highly profitable. Given their age, many retired farmers and older low-sales farmers have land available to put into conservation uses (Lambert et al., 2006, pp. 20-26).

Figure 13

**Distribution of payments from conservation and commodity programs, 2004**

*Acres of program commodities explain the distribution of commodity program payments*




* = Standard error is between 25 percent and 50 percent of the estimate.

[1]For definitions of commodity-related payments and conservation program payments, see box "Types of Farm Program Payments."

[2]Food and feed grains, soybeans, other oilseeds, cotton, and peanuts.

Source: USDA, Economic Research Service, 2004 Agricultural Resource Management Survey, Phase III.

# Special Feature: The Shift to Large Farms

During the past two decades, data from the census of agriculture show a marked increase in the number of farms selling at least $250,000 in farm products. The growth in the number of these large farms was accompanied by a similar shift in production. We sort farms in each of the five censuses of agriculture—1982, 1987, 1992, 1997, and 2002—into sales classes in order to track these changes.

When using agricultural sales to measure trends in farm size over time, it is important to adjust for changes in agricultural prices, which will change revenue without any changes in the physical volume of production. Accordingly, we adjust sales of agricultural products for price changes using the Producer Price Index (PPI) for farm products, which is also the USDA/NASS index of prices received by farmers. Sales classes from the various censuses of agriculture presented here are expressed in 2002 constant dollars.

## Distribution of Farms

The number of farms with sales of at least $250,000 grew steadily from 1982 to 2002 (table 9), increasing from 85,000 to 152,000. The share of all farms in this group grew from 4 percent to 7 percent. Most of these farms had sales between $250,000 and $499,999—even by the end of the period—but the number of farms with sales of at least $500,000 grew more rapidly. The number of farms with sales between $500,000 and $999,999 more than doubled, while the number of million-dollar farms more than tripled.

The number of farms in the other sales classes declined in each of the four intercensus periods, with the exception of farms selling less than $10,000. Farms with sales that low declined during the first two intercensus periods, but increased during the last two periods. The increase during the last two periods was due to growth in "point farms," or farms with sales less than $1,000 that might normally have sales that high and satisfy the criteria necessary to be considered a farm.[9] Because of the growth in point farms, farms with sales less than $10,000 now account for 59 percent of all U.S. farms, up from 49 percent in 1982.

Most of the increase in point farms, however, was due to a minor change in the census farm definition and an adjustment for undercoverage in the census farm count. Beginning in 1997, establishments that enrolled all their cropland in CRP or WRP were counted as farms, even if they did not sell at least $1,000 in farm products (Hoppe and Korb, 2002, p. 25).[10] With the 2002 census, NASS adjusted the census farm count to compensate for undercoverage (Allen, 2004), which had the largest effect on farms near the $1,000 cutoff in the farm definition (USDA, NASS, 2004, p. C-11).[11]

## Distribution of Agricultural Sales

In addition to the shift in the number of farms in the various sales classes, even more dramatic shifts occurred in the distribution of total agricultural

[9]If a place does not have $1,000 in sales, a "point system" assigns values for acres of various crops and head of livestock to estimate normal sales. "Point farms" are farms with less than $1,000 in sales but points worth at least $1,000. See "What is the Definition of a Farm?" on the NASS website (http://www.nass.usda.gov/Census_of_Agriculture/Frequently_Asked_Questions/index.asp#1).

[10]Enrollment in the CRP began in 1986 and enrollment in the WRP began in 1992 (Hellerstein, 2006). Since neither program existed in 1982, the farm count from the 1982 census and the farm counts from the 1997 and 2002 censuses are comparable, as far as the treatment of CRP/WRP farms is concerned.

[11]Undercoverage is much less an issue for sales than for the farm count. The five censuses prior to 2002 included an average of 92 percent of farms but 98 percent of production (USDA, NASS, 1999, p. C-5).

Table 9

**Number of farms by constant-dollar sales class (2002 dollars), 1982 to 2002**

| Constant-dollar sales class (2002 dollars)[1] | Census year | | | | | Intercensus period | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1982 | 1987 | 1992 | 1997 | 2002 | 1982 to 1987 | 1987 to 1992 | 1992 to 1997 | 1997 to 2002 |
| | *Number of farms* | | | | | *Percent change* | | | |
| Total farms | 2,240,976 | 2,087,759 | 1,925,300 | 1,911,859 | 2,128,982 | -6.8 | -7.8 | -0.7 | 11.4 |
| Less than $10,000 | 1,106,092 | 1,016,863 | 927,234 | 1,009,084 | 1,263,052 | -8.1 | -8.8 | 8.8 | 25.2 |
| Point farms[2] | 254,097 | 235,562 | 212,580 | 277,248 | 570,919 | -7.3 | -9.8 | 30.4 | 105.9 |
| Other farms | 851,995 | 781,301 | 714,654 | 731,836 | 692,133 | -8.3 | -8.5 | 2.4 | -5.4 |
| $10,000 to $49,999 | 586,007 | 547,150 | 490,530 | 430,065 | 414,063 | -6.6 | -10.3 | -12.3 | -3.7 |
| $10,000 to $19,999 | 257,391 | 251,361 | 228,504 | 204,384 | 197,967 | -2.3 | -9.1 | -10.6 | -3.1 |
| $20,000 to $24,999 | 79,954 | 76,069 | 68,069 | 58,444 | 58,190 | -4.9 | -10.5 | -14.1 | -0.4 |
| $25,000 to $39,999 | 167,510 | 149,905 | 133,059 | 115,582 | 109,310 | -10.5 | -11.2 | -13.1 | -5.4 |
| $40,000 to $49,999 | 81,152 | 69,815 | 60,898 | 51,655 | 48,596 | -14.0 | -12.8 | -15.2 | -5.9 |
| $50,000 to $99,999 | 250,694 | 217,871 | 187,062 | 157,635 | 140,479 | -13.1 | -14.1 | -15.7 | -10.9 |
| $100,000 to $249,999 | 213,264 | 207,999 | 202,779 | 179,091 | 159,052 | -2.5 | -2.5 | -11.7 | -11.2 |
| $250,000 or more | 84,919 | 97,876 | 117,695 | 135,984 | 152,336 | 15.3 | 20.2 | 15.5 | 12.0 |
| $250,000 to $499,999 | 57,691 | 64,195 | 74,354 | 78,330 | 81,694 | 11.3 | 15.8 | 5.3 | 4.3 |
| $500,000 to $999,999 | 18,242 | 22,058 | 28,583 | 36,469 | 41,969 | 20.9 | 29.6 | 27.6 | 15.1 |
| $1,000,000 to $2,499,999 | 6,494 | 8,409 | 10,634 | 15,448 | 20,724 | 29.5 | 26.5 | 45.3 | 34.2 |
| $2,500,000 to $4,999,999 | 1,448 | 1,811 | 2,392 | 3,386 | 4,611 | 25.1 | 32.1 | 41.6 | 36.2 |
| $5,000,000 or more | 1,044 | 1,403 | 1,732 | 2,351 | 3,338 | 34.4 | 23.4 | 35.7 | 42.0 |

Note: Constant-dollar sales classes cannot be prepared before 1982 due to incomplete census records for individual farms prior to that year.

[1]Sales class is expressed in constant 2002 dollars, using the Producer Price Index for farm products to adjust for price changes.

[2]Point farms have sales of less than $1,000 (current dollars), but are still considered farms because they would be expected to normally sell at least $1,000 of agricultural products. Point farms are defined here in current dollars—rather than constant dollars—because they are identified in each census based on current dollars.

Source: USDA, Economic Research Service, compiled from census of agriculture data.

sales. The share of total sales accounted for by farms with sales of $250,000 or more increased steadily from 47 percent in 1982 to 76 percent in 2002 (fig. 14). Farms with sales of $1,000,000 to $4,999,999 and $5 million or more doubled their share of sales between 1982 and 2002. The two largest sales classes now account for nearly one-fourth of agricultural sales each, although the two groups together make up only 1 percent of farms.

Farms with sales of at least $5 million specialized in relatively few commodities in 2002. About 34 percent specialized in high-value crops, with cattle feedlots (19 percent), dairy (14 percent), and poultry/eggs (14 percent) also common. Farms with sales between $1,000,000 and $4,999,999 tended to specialize in a wider variety of commodities: high-value crops (26 percent), poultry and eggs (19 percent), dairy (13 percent), hogs and pigs (11 percent), grains and oilseeds (9 percent), and field crops other than grain (8 percent).

Larger shares of the two sales classes were located in the Pacific region than in any other region: 22 percent for farms with sales between $1,000,000 and $4,999,999 and 32 percent for farms with sales of $5 million or more (table 10). California alone had 17 percent of the farms in the former sales class and 26 percent of the $5-million-plus farms. About 60 percent of California farms with sales of $1 million or more specialized in high-value crops, and another 24 percent specialized in dairy.

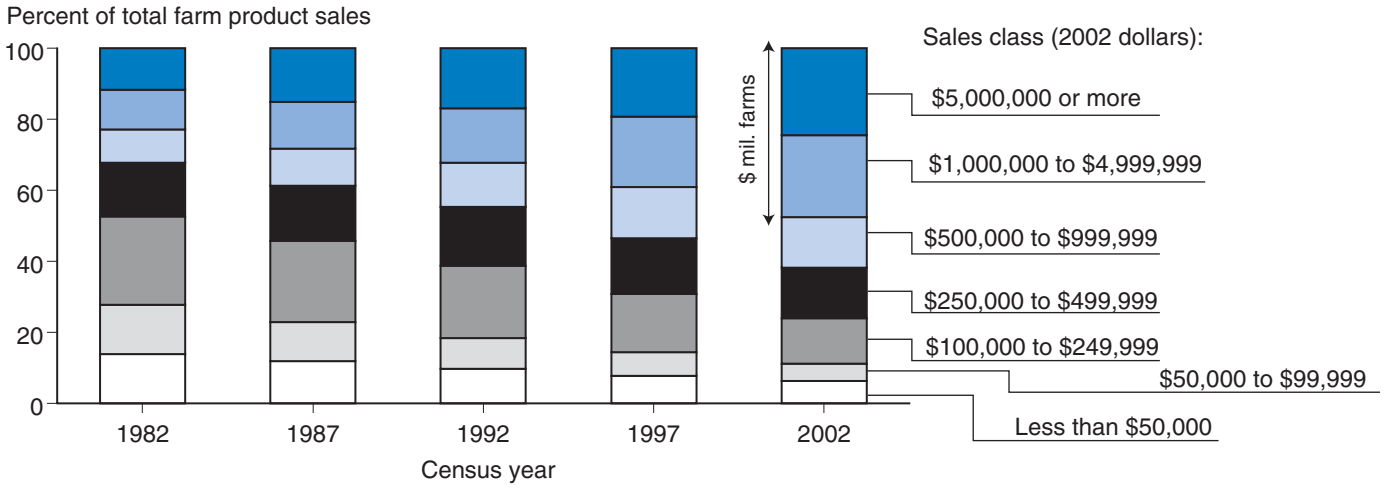
## Typical Enterprise Size

The shift of sales to larger sales classes is also reflected by an increase in "typical enterprise size" over time. The typical enterprise size aims to capture the size of farm enterprise from which most of a particular commodity came. Specifically, we define it as the median (midpoint) of the

Figure 14

**Distribution of farm product sales by constant-dollar sales class[1] (2002 dollars), 1982-2002**

*Million-dollar farms' share of sales increased from 23 percent in 1982 to 48 percent in 2002*




[1]Sales class is expressed in constant 2002 dollars, using the Producer Price Index for farm products to adjust for price changes.

Source: USDA, Economic Research Service, compiled from census of agriculture data.

Table 10
**Farms with sales of at least $1 million, by region, 2002**

| Item | Sales of $1,000,000 or more | | |
|---|---|---|---|
| | Total | $1,000,000 to $4,999,999 | $5,000,000 or more |
| | *Number* | | |
| Farms | 28,673 | 25,335 | 3,338 |
| | *Percent of U.S. total* | | |
| Farms by region: | | | |
| Northeast | 6.2 | 6.3 | 5.1 |
| Lake States | 8.3 | 8.8 | 4.6 |
| Corn Belt | 12.9 | 13.6 | 7.5 |
| Northern Plains | 8.4 | 8.0 | 12.1 |
| Appalachian | 9.0 | 9.5 | 5.0 |
| Southeast | 11.1 | 11.2 | 10.2 |
| Delta | 6.3 | 6.9 | 1.9 |
| Southern Plains | 6.5 | 6.2 | 8.5 |
| Mountain | 8.2 | 7.6 | 13.0 |
| Pacific | 23.0 | 21.8 | 32.0 |

Northeast: CT, DE, ME, MD, MA, NH, NJ, NY, PA, RI, and VT; Lake States: MI, MN, and WI; Corn Belt: IL, IN, IA, MO, and OH; Northern Plains: KS, NE, ND, and SD; Appalachian: KY, NC, TN, VA, and WV; Southeast: AL, FL, GA, and SC; Delta: AR, LA, and MS; Southern Plains: OK and TX; Mountain: AZ, CO, ID, MT, NV, NM, UT, and WY; Pacific: AK, CA, HI, OR, and WA.

Source: USDA, Economic Research Service, compiled from the 2002 Census of Agriculture.

distribution of production by enterprise size. For crops, the median defined here identifies the enterprise size at which half of a commodity's harvested acreage came from larger enterprises and half came from smaller enterprises. For example, the typical enterprise size for corn in 2002 of 450 acres (table 11) means that half of all harvested acres of corn is on farms harvesting more than 450 acres of corn and half is on farms harvesting less than 450 acres.[12]

For dairy, the measure captures the midpoint of the distribution of cows by herd size—half of dairy cows are in larger operations and half are in smaller operations. For poultry and other livestock, the measure captures the midpoint of broiler, cattle, or hog sales by enterprise size. Enterprise size differs from farm size, because a farm may have multiple crop or livestock enterprises.

The well-documented shift to larger livestock enterprises is most evident for hogs. The typical enterprise size increased nearly twentyfold, from sales of 1,200 head in 1987 to 23,400 in 2004. This increase is consistent with the rapid consolidation of the hog industry occurring in recent years (McBride and Key, 2003, pp. 5-10). Typical fattened cattle and dairy enterprises also grew in size, approximately doubling and tripling (respectively) during the 15-year period.

The growth in size between 1987 and 2002 was less extreme for broiler and cow/calf enterprises, around 70 percent for both enterprises. Much of the growth in broiler enterprise size occurred long before 1987, and cow-calf enterprises are a common specialization for small farms. The typical size for cow-calf enterprises is still just 84 calves per year.

[12]This measure is the median of acres harvested by enterprise size, not the median of farms by enterprise size. Under the latter method, farms would be arrayed by acres harvested and the median divides *farms* into two equal groups, not the acres harvested. By using acres harvested, our definition of median identifies the enterprise size at the midpoint of enterprises arrayed by a measure of production.

Table 11

**Typical enterprise size for selected commodities, 1987 to 2002**

| Selected commodity | Census year | | | | Change, 1987 to 2002 |
|---|---|---|---|---|---|
| | 1987 | 1992 | 1997 | 2002 | |
| | *Typical annual sales[1] (head per farm)* | | | | *Percent* |
| Poultry/livestock: | | | | | |
| Broilers | 300,000 | 384,000 | 480,000 | 520,000 | 73.3 |
| Hogs | 1,200 | 1,880 | 11,000 | 23,400 | 1,850.0 |
| Fattened cattle | 17,532 | 23,891 | 38,000 | 34,494 | 96.7 |
| Cattle, less than 500 pounds | 50 | 60 | 65 | 84 | 68.0 |
| | *Typical herd size[2] (head per farm)* | | | | *Percent* |
| Dairy production | 80 | 100 | 140 | 275 | 243.8 |
| | *Typical acres harvested[3] (acres per farm)* | | | | *Percent* |
| Field crops: | | | | | |
| Corn | 200 | 300 | 350 | 450 | 125.0 |
| Soybeans | 243 | 300 | 380 | 480 | 97.5 |
| Wheat | 404 | 562 | 693 | 784 | 94.1 |
| Cotton | 450 | 605 | 800 | 920 | 104.4 |
| Rice | 295 | 400 | 494 | 607 | 105.8 |
| Vegetables: | | | | | |
| Asparagus | 160 | 200 | 200 | 236 | 47.5 |
| Lettuce | 949 | 1,168 | 1,461 | 2,225 | 134.5 |
| Bell peppers | 88 | 130 | 180 | 200 | 127.3 |
| Potatoes | 350 | 422 | 556 | 810 | 131.4 |
| Sweet corn | 100 | 120 | 173 | 222 | 122.0 |
| Tomatoes | 400 | 450 | 589 | 700 | 75.0 |
| Tree crops: | | | | | |
| Apples | 83 | 94 | 122 | 129 | 55.4 |
| Almonds | 203 | 234 | 292 | 361 | 77.8 |
| Oranges | 450 | 732 | 769 | 1,015 | 125.6 |
| Peaches | 92 | 95 | 100 | 105 | 14.1 |

Note: Census records do not have all the data necessary to derive typical enterprise size prior to 1987.

[1]Median head sold. Half of the sales of a given species were from farms with more than the typical sales and half were from farms with less than the typical sales.

[2]Median head of dairy cows as of December 31 of the census year. Includes dry cows and cows in milk. Half of the cows were on farms with more than the typical number of cows and half were on farms with less than the typical number of cows.

[3]Median acres harvested. Half of all harvested acres of a commodity were on farms harvesting more than the typical number of acres and half were on farms harvesting less than the typical number of acres.

Source: USDA, Economic Research Service, compiled from census of agriculture data.

Enterprise size has also increased in crop production. Typical acres harvested roughly doubled for each of the field crops, for most types of vegetables, and for oranges. Peach enterprises have been more stable, increasing by only 14 percent between 1987 and 2002.

## Business Organization

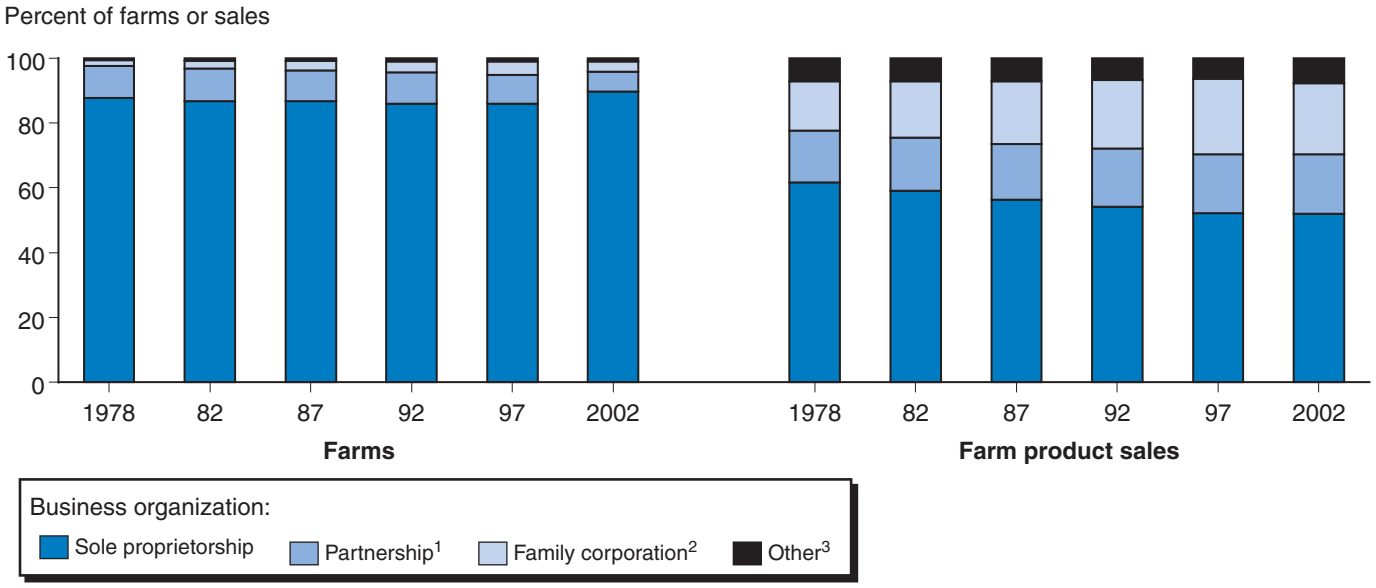
Despite the shift in farm product sales to larger farms and increasing enterprise sizes, most farms continue to be organized as sole proprietorships, partnerships, or family corporations. These farms have consistently made up about 99 percent of the farm count since 1978 (fig. 15), the initial year of the current census series on business organization. They also accounted for more than 90 percent of agricultural sales each year. Marked shifts have occurred in the distribution of sales among these farms between 1978 and 2002, however. Family corporations' share of sales grew by 7 percentage points, and partnerships' share grew by 2 percentage points, while proprietorships' share shrank by 10 percentage points. Nevertheless, sole proprietorships still accounted for 90 percent of farms and 52 percent of sales in 2002.

Nonfamily corporations make up a relatively minor and stable share of farm numbers and sales. Nonfamily corporations—part of the "other organization" category in figure 15—accounted for 0.2-0.4 percent of all farms and 6-7 percent of agricultural sales each census year. Most of these nonfamily

Figure 15

**Distribution of farms and farm product sales, by business organization, 1978-2002**

*Family corporations' share of sales grew the most*




[1]Includes informal partnerships as well as partnerships registered under State law.

[2]Prior to the 2002 census, family-held corporations were defined in the questionnaire as having more than 50 percent of their stock owned by persons related by blood or marriage. No specific definition was used in the 2002 census.

[3]Includes nonfamily corporations, cooperatives, estates or trusts, institutional farms, etc.

Source: USDA, Economic Research Service, compiled from census of agriculture data.

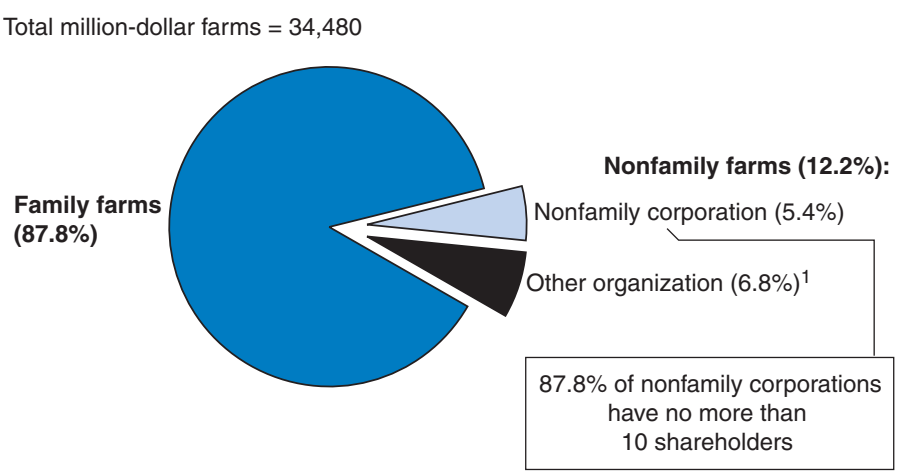
corporations are not large, publicly held companies. Between 80 and 87 percent of them, depending on the year, had no more than 10 stockholders.

Regardless of farm type, proprietorships make up the bulk of family farms: approximately 90 percent of each small farm type, 77 percent of large farms, and 60 percent of very large farms (table 12). Given the age distribution of farmers, one would expect to find some farms in estates or trusts. In fact, 50 percent of nonfamily farms fall in the "other organization" category, which includes estates and trusts.

Only 19 percent of nonfamily farms are organized as nonfamily corporations. Direct ownership of large farms by large, publicly held corporations is negligible and is likely to remain so. For example only 5 percent of the 34,500 million-dollar farms were organized as nonfamily corporations in 2004, and 88 percent of these corporations had no more than 10 shareholders (fig. 16).

Figure 16

**Organization of farms with gross sales of $1 million or more, 2004**
*Most million-dollar farms are organized as family farms*




[1]Proprietorships, partnerships, or family corporations with hired managers. Also includes estates, trusts, and cooperatives.

Source: USDA, Economic Research Service, 2004 Agricultural Resource Management Survey, Phase III. (Number of shareholders is from version 1 of ARMS.)

Table 12

**Business organization of farms, by farm type, 2004**

| Item | Small family farms | | | | | Large-scale family farms | | Nonfamily farms | All farms |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Farming-occupation | | | | | |
| | Limited-resource | Retire-ment | Residential/ lifestyle | Low-sales | Medium-sales | Large | Very large | | |
| | | | | | *Number* | | | | |
| Total farms | 197,734 | 338,671 | 837,542 | 395,781 | 133,299 | 86,087 | 71,708 | 47,103 | 2,107,925 |
| | | | | | *Percent* | | | | |
| Farms by organization: | | | | | | | | | |
| Sole proprietorship[1] | 96.1 | 94.7 | 92.8 | 93.1 | 87.3 | 77.3 | 59.8 | 14.6 | 89.6 |
| Partnership[2] | 1.8 | 1.7 | 4.6 | 4.1 | 6.8 | 11.3 | 18.3 | *6.0 | 4.7 |
| Corporation | d | #3.7 | *2.6 | 2.7 | *5.9 | 11.4 | 21.9 | 29.3 | *4.6 |
| Family[3] | d | #3.7 | *2.6 | 2.7 | *5.9 | 11.4 | 21.9 | 10.0 | *4.1 |
| Nonfamily[3] | na | na | na | na | na | na | na | 19.3 | 0.4 |
| Other organization[4] | na | na | na | na | na | na | na | 50.1 | 1.1 |
| Farm product sales by organization: | | | | | | | | | |
| Sole proprietorship[1] | 93.5 | 87.4 | 89.8 | 90.2 | 86.8 | 76.8 | 51.5 | **15.1 | 57.7 |
| Partnership[2] | *2.7 | *3.7 | 6.4 | *6.1 | *6.7 | 11.5 | 20.8 | *6.4 | 13.7 |
| Corporation | d | *8.9 | **3.8 | 3.7 | *6.4 | 11.7 | 27.7 | 58.6 | 25.4 |
| Family[3] | d | *8.9 | **3.8 | 3.7 | *6.4 | 11.7 | 27.7 | 14.7 | 18.2 |
| Nonfamily[3] | na | na | na | na | na | na | na | 44.0 | 7.2 |
| Other organization[4] | na | na | na | na | na | na | na | *19.9 | *3.2 |

d = Data suppressed due to insufficient observations.

na = Not applicable.

* = Standard error is between 25 percent and 50 percent of the estimate.

** = Standard error is between 51 percent and 75 percent of the estimate.

# = Standard error is greater than 75 percent of the estimate.

[1]Includes informal partnerships, such as those between spouses. (In the census of agriculture, informal partnerships are classified as partnerships.)

[2]Includes only partnerships registered under State law.

[3]A corporation is classified as a family corporation if more than 50 percent of the stock is held by people related by blood or marriage. Other corporations are classified as nonfamily.

[4]Estates, trusts, and cooperatives.

Source: USDA, Economic Research Service, 2004 Agricultural Resource Management Survey, Phase III.

# Contracting

Although few nonfamily corporations—large or small—directly operate farms, they often make contracts with farmers to provide the commodities they need for processing or wholesaling. ERS identifies two types of contracts in ARMS:

- **Production contract.** A production contract is a legal agreement between a farm operator (contractee) and another person or firm (contractor) to produce a specific type, quantity, and quality of agricultural commodity. The contractor usually owns the commodity being produced and the farm receives a service fee.
- **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 owns the commodity while it is being produced and receives a price reflecting the value of the commodity.

Contracts can provide benefits to both producers and contractors (MacDonald and Banker, 2005, pp. 52-53; MacDonald et al., 2004, pp. 24-30). Farmers get a guaranteed outlet for their production with known compensation, while contractors get an assured supply of commodities with specified characteristics, delivered in a timely manner.

## Production Under Contract

Although production and marketing contracts account for about two-fifths of U.S. agricultural production, the share varies by commodity (fig. 17). For example, U.S. farmers produce virtually all sugarbeets and poultry under contract. Contracting also accounts for at least half of the production of cotton, tobacco, fruits, dairy products, and hogs. At the other extreme, only a small portion of wheat, soybeans, or corn—all traditional field crops—is grown under contract.

The aggregate data show slow and steady growth in contracting over the years, but change can be more rapid for some commodities. For example, the share of tobacco production covered by contracts went from 1 percent to 50 percent between 1995-96 and 2004. Cigarette manufacturers replaced cash auctions with contract marketing because contracts better enabled them to acquire enough of the specific types of tobacco they needed. The contracting share of hogs also increased rapidly over this 10-year span, from 31 percent to 71 percent, driven in part by product differentiation. Processors wanted more control over the characteristics of the hogs they acquired, which helped them provide a consistent quality of meat to consumers (MacDonald and Banker, 2005, pp. 55-59).

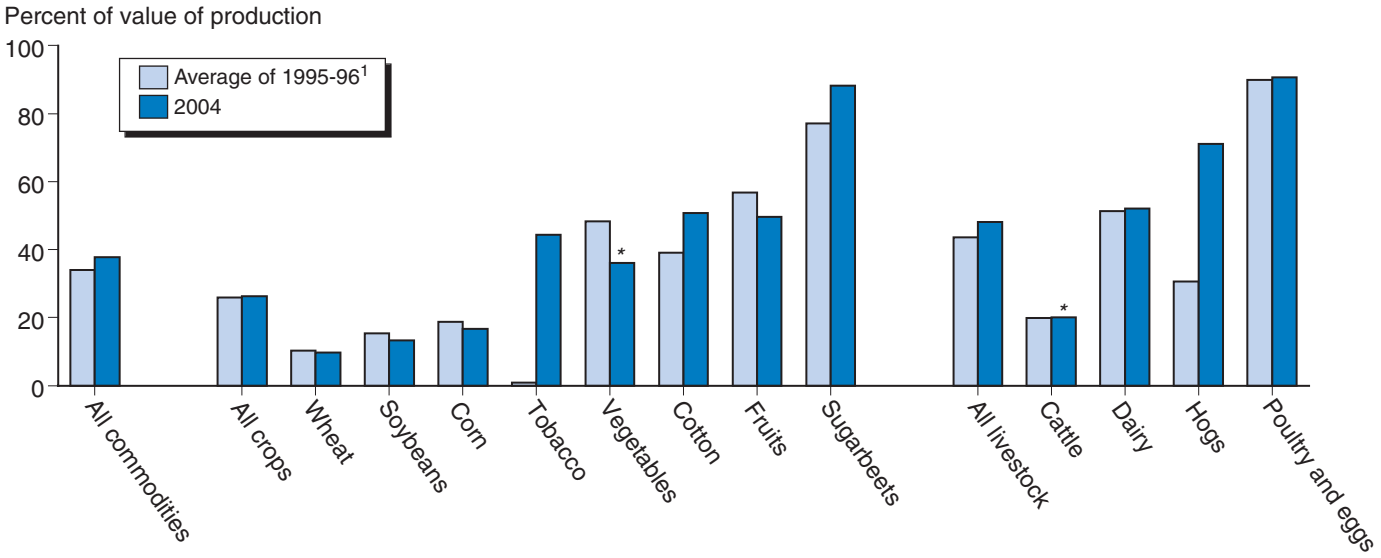
## Variation by Type of Farm

Use of contracts also varies by farm type. The share of limited-resource, retirement, and residential/lifestyle farms using contracts is just 3 or 4 percent (table 13). For the remaining types of family farms, the use of contracts increases with sales, ranging from 9 percent of low-sales farms to

Figure 17

**Share of value of production under marketing or production contracts for selected commodities, 1995-96 and 2004**

*Share of tobacco and hogs sold or removed under contract increased dramatically*




*=Standard error is between 25 percent and 50 percent of the estimate.

[1]An average of 1995 and 1996 was used to provide a more statistically reliable estimate.

Source: USDA, Economic Research Service, 1995 Farm Costs and Returns Survey and 1996 and 2004 Agricultural Resource Management Survey, Phase III.

Table 13

**Farms with contracts and value of production under contract, by farm type, 2004**

| | Small family farms | | | | | Large-scale family farms | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Farming-occupation | | | | | |
| Item | Limited-resource | Retire-ment | Residential/ lifestyle | Low-sales | Medium-sales | Large | Very large | Nonfamily farms | All farms |
| | | | | *Number* | | | | | |
| Total farms | 197,734 | 338,671 | 837,542 | 395,781 | 133,299 | 86,087 | 71,708 | 47,103 | 2,107,925 |
| | | | | *Percent of group* | | | | | |
| Farms with contracts[1] | *2.7 | 3.3 | 4.2 | 9.0 | 34.5 | 50.3 | 63.7 | 15.4 | 10.9 |
| Value of production under contract[2] | *10.1 | 13.3 | 10.4 | *18.2 | 21.4 | 34.5 | 51.0 | 35.1 | 37.8 |
| | | | | *Percent of U.S. total* | | | | | |
| Farms with contracts[1] | 2.3 | 4.9 | 15.3 | 15.5 | 20.0 | 18.9 | 19.9 | 3.2 | 100.0 |
| Value of production under contract[2] | 0.3 | 0.7 | 1.5 | 2.7 | 6.1 | 13.5 | 61.2 | 14.1 | 100.0 |

* = Standard error is between 25 and 50 percent of the estimate.

[1]Includes farms with production contracts, marketing contracts, or both.

[2]Includes commodities under production or marketing contracts.

Source: USDA, Economic Research Service, 2004 Agricultural Resource Management Survey, Phase III.

64 percent for very large family farms. The share of their production under contract also increases with sales, from 18 to 51 percent.

Although a small percentage of each small farm type has contracts, small farms make up 58 percent of the farms with contracts, reflecting their large numbers. Value of production under contract, in contrast, is concentrated among very large family farms, which account for 61 percent of the total.

The value of commodities removed under production contracts is counted in the farms' gross sales, often used as a basic measure of farm size. But the value of commodities removed is not included in gross cash income (equivalent to gross revenue) received by the farms, because they never owned or sold the commodities. Only the fees that the farms receive under a production contract are included in gross cash income. As a result, gross sales are much higher than gross cash income for farms with most of their output under production contracts, such as poultry farms. If gross cash income were used to measure farm size, only 11 percent of poultry farms would be classified as large-scale—using a $250,000 cutoff—compared with 56 percent if gross sales were used (see box, "Gross Sales or Gross Cash Income?").

## Gross Sales or Gross Cash Income?

***Gross farm sales*** (or gross sales) is an indicator of farm size. It measures what the farm produces, regardless of who has a claim on that production. Gross sales is calculated as the farm's crop and livestock sales plus the shares of production received by any share landlords and production contractors. The measure also includes all government payments received by the farm and its landlords.

In contrast, ***gross cash farm income*** (or gross cash income) is the total revenue received by the farm business alone, excluding any shares accruing to share landlords and contractors. Gross cash income is the sum of livestock sales, crop sales, government payments, and "other farm-related income" received by the farm business. Other farm-related income includes income from a variety of sources: custom work, machine hire, livestock grazing, timber sales, outdoor recreation, contract production fees, etc.

For farms with no production contracts and no landlords, gross sales and gross cash income will generally be the same, both calculated as the sum of crop sales, livestock sales, and government payments received by the farm. In some cases, however, gross cash farm income is higher than gross sales, due to the additional miscellaneous items making up other farm-related income.

For farms with production contracts, gross cash income may be substantially less than gross sales. Commodities removed under production contracts are excluded from gross cash income but are included in gross sales. Fees received from contractors are included in gross cash income—as part of other farm-related income—but these fees are small compared with the value of the commodities removed.

Farms specializing in poultry or hogs have especially small gross cash income, relative to gross sales (see text table below). The ratio of gross cash income to gross sales is lower for poultry farms (34 percent) than for hog farms (72 percent) because poultry farms produce more under product contracts.

Our perception of the size of poultry farms would change if we measured size by gross cash income instead of gross sales. Only 11 percent of poultry farms would be considered large-scale—applying the $250,000 cutoff to gross cash income—instead of 56 percent.

**For poultry farms, gross cash farm income was only one-third of gross sales in 2004**

| Item | Poultry farms | Hog farms | Other farms | All farms |
|---|---|---|---|---|
| | | *Number* | | |
| Total farms | **34,149 | 33,292 | 2,040,485 | 2,107,925 |
| | | *Dollars per farm* | | |
| Gross farm sales | *685,750 | 435,882 | 88,342 | 103,509 |
| Gross cash farm income | *231,239 | 314,701 | 93,574 | 99,297 |
| | | *Percent* | | |
| Ratio of gross cash farm income to gross farm sales | 33.7 | 72.2 | 105.9 | 95.9 |
| Share of production under production contract | 85.7 | 58.9 | 5.5 | 18.2 |
| Farms with gross farm sales of $250,000 or more | *55.5 | 32.0 | 6.8 | 8.0 |
| Farms with gross cash farm income of $250,000 or more | *11.3 | 21.4 | 7.4 | 7.7 |

* = Standard error is between 25 and 50 percent of the estimate.

** = Standard error is between 51 and 75 percent of the estimate.

Source: USDA, ERS, 2004 ARMS.

# Conclusions

This report has four major findings important to understanding farms and farm households today and in the future.

- Farm product sales have shifted to larger farms over the past two decades. Farms with sales of $250,000 or more accounted for 76 percent of all sales in the 2002 Census of Agriculture, and million-dollar farms alone accounted for 48 percent.
- Most U.S. farms—including million-dollar farms—are family farms. The share of farm output from large, publicly held corporations remains minimal.
- Generally, large and very large family farms are viable economic businesses, with favorable financial ratios. Small farm businesses are less viable as businesses, but the households operating them receive substantial off-farm income.
- Different farm policies affect different sets of farmers. Payments from commodity programs tend to flow to medium-sales and large-scale farms, and conservation payments tend to flow to smaller family farms. A majority of farms, however, receive no government payments, but they may be indirectly affected by the effects of government payments on farmland and commodity markets.

## Shifts to Larger Farms

Constant-dollar sales class data show a steady growth in large farms (sales at least $250,000) and decline in the number of farms in most other sales classes. Growth in the number of large farms was accompanied by a sales shift in the same direction. The share of production accounted for by large farms grew from 47 percent in 1982 to 76 percent in 2002. By 2002, million-dollar farms alone accounted for 48 percent of sales, compared with 23 percent in 1982.

The only other increase in farm numbers was for farms with sales less than $10,000, which grew in the last two intercensus periods because of growth in the number of point farms. Most of this increase was due to a change in the census farm definition and an adjustment for undercoverage in the census farm count. Farms with sales less than $10,000 accounted for 59 percent of farms in 2002, up from 49 percent in 1982. Their share of sales, however, declined from 3 percent in 1982 to 1 percent in 2002. Thus, the 29-percentage-point increase in the share of sales for large farms came largely from a declining share for farms in the $10,000-$249,999 sales classes.

## The Place of Family Farms in U.S. Agriculture

Family farms dominate U.S. agriculture. Most farms (98 percent) are family farms, and they collectively generate 85 percent of the value of production. Large-scale family farms account for about 60 percent of production, which is large compared with their 8-percent share of farms. Small family farms

make significant contributions to the production of specific commodities, such as wheat, corn, soybeans, hay, tobacco, and beef.

Even million-dollar farms are overwhelmingly family operations. About 88 percent operated as family farms in 2004, and only 5 percent were organized as nonfamily corporations, usually with no more than 10 stockholders. Direct ownership of million-dollar farms by large, publicly held corporations is negligible and is likely to remain that way, although these corporations often act as contractors. Nonfamily corporations made up less than 1 percent of farms and no more than 7 percent of sales in the last six agricultural censuses, despite the ongoing shift of production to large farms.

## Financial Status of the Family Farm

Farming had a very good year in 2004. Total net farm income for the sector was $83 billion, substantially higher than the annual average for the previous 10 years ($55 billion) and the previous peak in 1996 ($69 billion), all measured in constant 2004 dollars. Seventy percent of all farms in 2004 earned a positive net farm income. Only 3 percent of farms were classified as vulnerable (negative net cash farm income with a debt/asset ratio greater than 40 percent). More than half of the vulnerable farms were residential/lifestyle farms, whose operators—by definition—rely on off-farm work for their livelihood.

For the most part, large and very large family farms are viable economic businesses. Their average profit margin and rates of return on assets and equity were all positive, and the large majority of these farms had a positive operating profit margin. Small farms—in contrast—were less viable as businesses. Their average operating profit margin and rates of return on assets and equity were negative. Nevertheless, some farms in each small farm group had an operating margin of at least 20 percent.

A majority of each small farm group had a positive net farm income, but the average net income for each type of small farm was low compared with large-scale farms. Small farm households typically receive substantial off-farm income. Most off-farm income is from earned sources, from a wage and salary job or self-employment. Off-farm work dates back at least to the 1930s. The shift to full-time off-farm work, however, is more recent.

Because many farm households—particularly those operating small farms—are dual-career and receive a large share of their income from off-farm earnings, macroeconomic and monetary policies affecting the nonfarm economy are important to farm households. Also, a provision of the U.S. tax code allows farmers to write farm losses off against other income (Freshwater and Reimer, 1995, p. 220). This provision is especially important to operators of residential/lifestyle farms who have substantial off-farm earned income. Finally, the status of retirement programs is important to operators of retirement farms and to older operators in other farm types as they approach retirement.

## Different Farms, Different Policies

Payments from commodity-related programs and conservation programs go to different types of farms. The distribution of commodity program payments is roughly proportional to the harvested acres of program commodities. As a result, medium-sales small farms and the two types of large-scale farms received 78 percent of commodity-related government payments in 2004. This report does not consider, however, how those payments are distributed for land-renting farm operators between land owners and operators.

In contrast, the Conservation Reserve Program (CRP), which pays the bulk of environmental payments, targets environmentally sensitive land rather than commodity production. As a result, retirement, residential/lifestyle, and low-sales small farms received 62 percent of conservation program payments in 2004. This distribution reflects the large number of farms in these groups, their large landholdings, and their tendency to enroll large shares of their land in the CRP. The program has relatively low labor and capital requirements, which make it attractive to residential/lifestyle farmers, who spend most of their work time off the farm, and to retired or older low-sales farmers, who have scaled back their operations.

A large majority of farms, 61 percent in 2004, do not receive government payments. Nevertheless, these farms—and the households that operate them—may be affected indirectly by government payments' impact on farmland and commodity markets. Some studies find that capitalizing government payments has increased farmland values by 15 to 25 percent in recent years (U.S. Dept. Agr., Office of the Chief Economist, 2003, p. 5). This would increase the net worth of landowing farm households, regardless of whether their farm received government payments. In addition, various analyses indicate that government payments have increased crop production between 1 and 6 percent over time (U.S. Dept. Agr., Office of the Chief Economist, 2003, p. 8). Thus, livestock producers who do not receive government payments may benefit from lower feed prices due to an increased supply of grain.

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# Appendix I

## Measuring Operator Household Income and Net Worth

The Current Population Survey (CPS), conducted by the Bureau of the Census, is the source of official U.S. household income statistics. Thus, calculating an estimate of farm household income from the Agricultural Resource Management Study (ARMS) that is consistent with CPS methodology allows income comparisons between farm operator households and all U.S. households.

The CPS definition of farm self-employment income is net money income from the operation of a farm by a person on his or her own account, as an owner or renter. CPS self-employment income includes income received as cash, but excludes in-kind or nonmoney receipts. No adjustments are made to the CPS income measure to reflect inventory changes, since inventory change is a nonmoney item. The CPS definition departs from a strict cash concept by deducting depreciation, a noncash business expense, from the income of self-employed people.

Farm self-employment income from the ARMS is the sum of the share of farm business income (net cash farm income less depreciation) accruing to the principal operator's household, wages paid to the operator, and net rental income from renting farmland. Adding other farm-related income of the operator household yields earnings of the operator household from farming activities. (Other farm-related earnings consist of net income from a farm business other than the one being surveyed, wages paid by the farm business to household members other than the operator, and commodities paid to household members for farm work.)

ARMS is also the source of data for estimates of operator households' net worth. The net worth of farm operator households is defined as the difference between their assets and liabilities. It is calculated as the sum of the operator household's farm net worth and nonfarm net worth. If the net worth of the farm is shared with other households (such as the households of shareholders in a family corporation), only the operator household's share is included.

For more information on operator household income and well-being, see "Farm Household Economics and Well-Being," a briefing room on the ERS website (http://www.ers.usda.gov/Briefing/WellBeing/). Estimates presented in this report are consistent with those from the briefing room. Both sets of estimates are derived from ARMS for the principal operator households using CPS procedures. Household income estimates cannot be derived from the sector estimates of net farm income presented on another ERS briefing room, "Farm Income and Costs" (http://www.ers.usda.gov/Briefing/FarmIncome/). The farm sector estimates are estimated from several data sources and include all participants in farm production, including contractors and share landlords who do not farm. For more information, see Harrington et al. (1998, pp. 45-52).

# Appendix II

## Defining Limited-Resource Farms—Past, Present, and Future

Perry and Ahearn (1993) first identified limited-resource farmers for the Economic Research Service (ERS)—based on 1988 data—although they used the term "limited-opportunity" rather than "limited-resource." They defined limited-resource farms using three criteria:

- Farm sales less than $100,000
- Farm assets less than $150,000
- Operator household income less than the poverty level

When the Economic Research Service created its farm classification system in 1998, it incorporated the Perry-Ahearn definition, with one modification. Family income was required to be below $20,000 rather than the poverty level. Using a $20,000 cutoff rather than the poverty level avoided the necessity of knowing family size. Family size is not collected every year by the Agricultural Resource Management Survey (ARMS), but it is needed to assign the appropriate poverty level to a family (Hoppe, 2001, p. 4).

### The Current Definition

In 2003, a new definition of limited-resource farms was developed by an interagency committee to provide a consistent definition across all USDA agencies (U.S. National Archives and Records Admn., 2003, p. 32520). This USDA-wide definition is currently used in the ERS farm classification. The limits on sales and household income are similar under the former and current definitions (see box, "Defining Limited-Resource Farms"). Both definitions use a $100,000 cutoff for farm sales, although the current definition indexes the cutoff to reflect price changes. The current definition also requires 2 years of low sales, rather than 1. The cutoff for household income is also set low in both definitions, but—as in the case of sales—2 years of low income are required under the current definition.

The main difference between the two definitions is the absence of a limit on farm assets in the current definition. An asset limitation was not used because the assets held by individual farmers are difficult to verify on applications to participate in USDA programs targeted at limited-resource farmers. Instead, the requirement for a second year of low income—which is easier to verify than low assets—was added as an indication of persistently low income.

### Differences

The limited-resource farms identified under the two definitions are different in some respects (app. table 1). Although the level of household income is similar under the two definitions, median farm assets are nearly three times

## Defining Limited-Resource Farms

| Criterion | Former definition in the ERS farm classification | Current definition (USDA-wide) |
|---|---|---|
| **Sales** | Less than $100,000, with no indexing | Low sales in both the current and previous year. Low sales is defined as less than $100,000 in 2003 and indexed thereafter |
| **Farm assets** | Less than $150,000 | No limits |
| **Operator household income** | Less than $20,000 in the current year | Low in both the current and previous year. Income is low if it is less than the poverty level for a family of four with two children—$19,157 in 2004—or if it is less than half the county median household income |

Appendix table 1

**Characteristics of limited-resource farmers under the former and current definitions, 2004**

| Item | Former definition | Current definition |
|---|---|---|
| | *Number* | |
| Farms and operator households | 74,819 | 197,734 |
| | *Dollars per household (or farm)* | |
| Median household income (2004) | 9,900 | 10,300 |
| Median farm assets | 87,614 | 244,609 |
| Median household net worth | 109,463 | 271,280 |
| | *Years* | |
| Average age | 61 | 65 |

Source: USDA, ERS, 2004 ARMS.

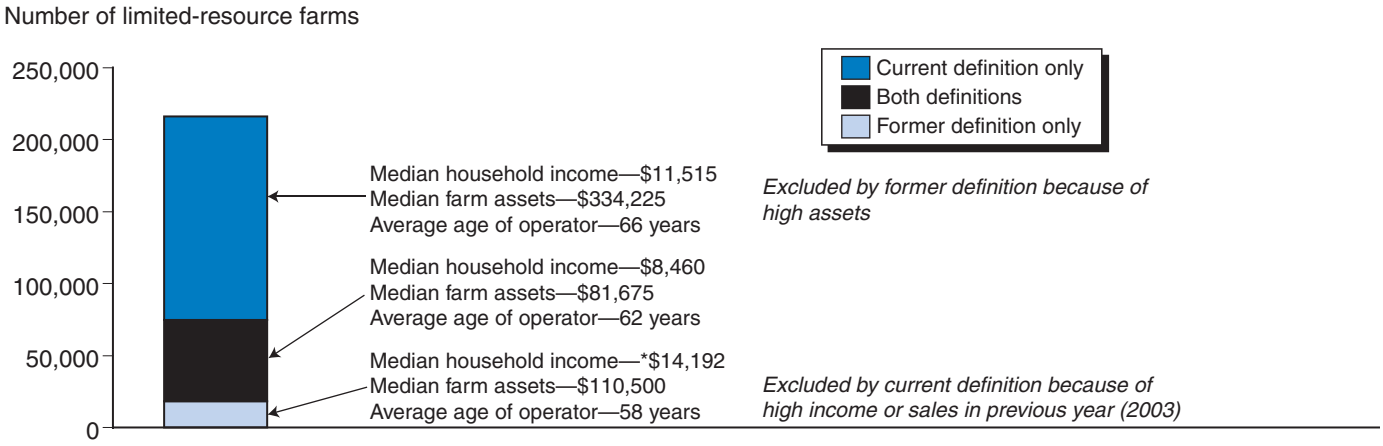
as high under the current definition ($244,600) as under the former definition ($87,600). Similarly, the net worth of farm households is nearly three times higher under the current definition. Operators under the current definition also tend to be older: 65, on average, under the current definition versus 61 under the former definition.

A total of 197,700 farms were classified in 2004 as limited-resource farms under the current definition. This includes 56,300 farms that were also classified as limited-resource under the former definition (app. fig. 1). The 141,400

Appendix figure 1

**Limited-resource farms under the former and current definitions, 2004**

*Limited-resource farms added by the current definition have more assets and older operators*




* = Standard error is between 25 percent and 50 percent of the estimate.

Source: USDA, Economic Research Service, 2004 Agricultural Resource Management Survey, Phase III.

farms added under the new definition have a higher level of farm assets—a median of $334,200—compared with farms classified as limited-resource under the former definition. Operators of the added farms also tend to be older.

## Alternate Definitions

The current limited-resource definition focuses on low-sales farms operated by farmers with low household income over a 2-year period. Different criteria could be considered, at least for research purposes. For example, we could use a definition that included an asset constraint, such as the previous $150,000 limit. We may want to even consider an asset constraint that changes over time—such as one-half of the median assets of all small farms—to reflect increases in the value of farmland and other assets used in farming. Different sales constraints might also be tested.

In future *Family Farm Reports*, ERS will continue to provide information about limited-resource farms as defined currently because that definition is used by USDA agencies to administer programs. We will also explore alternate definitions to identify other groups of limited-resource farms. To facilitate comparing the USDA-wide current definition with alternate definitions, the limited-resource category will be dropped from the ERS farm classification system in future reports. However, there will be more information on counts and characteristics of limited-resource farmers under different definitions.