Structural and Financial Characteristics of U.S. Farms: 2001 Family Farm Report. By Robert A. Hoppe, editor. Resource Economics Division, Economic Research Service, U.S. Department of Agriculture. Agriculture Information Bulletin No. 768

Abstract

Family farms vary widely in size and other characteristics, ranging from very small retirement and residential farms to establishments with sales in the millions of dollars. The farm typology developed by the Economic Research Service (ERS) categorizes farms into groups based primarily on occupation of the operator and sales class of the farm. The typology groups reflect operators' expectations from farming, position in the life cycle, and dependence on agriculture. The groups differ in their importance to the farm sector, product specialization, program participation, and dependence on farm income. These (and other) differences are discussed in this report.

Keywords: Agricultural Resource Management Study (ARMS), family farms, farm businesses, farm financial situation, farm operator household income, farm operators, farm structure, farm typology, female farm operators, government payments, spouses of farm operators, taxes.

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Summary

This report uses the farm typology developed by the Economic Research Service (ERS) in late 1997 and early 1998 to examine farm structure in the United States. (See the box, "Farm Typology Group Definitions.") A farm classification system is necessary because farms are diverse. Farms differ in their goals, strategies to meet these goals, the use and control of their resources, and the economic results of their farm and off-farm activities. The typology divides farms into more homogeneous groups to aid in policy discussions. Information from the report is summarized below.

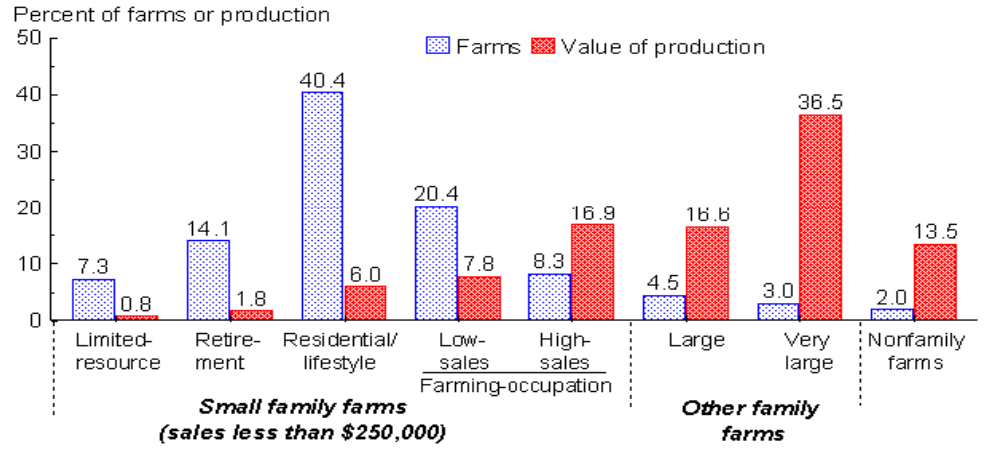
Status of the Family Farm

More than 60 percent of U.S. farms ended 1998 with a profit. For the most part, large and very large family farms were viable economic businesses. As a group, they tended to have economic cost/output ratios less than one, meaning they generated farm profits that could be used to retire debt, expand farm or nonfarm businesses, or support family living expenditures. In addition to being profitable, large and very large family farms produced 53 percent of the value of agricultural production in 1998 (see graph).

Small farms were less viable businesses. Most small farm typology groups did not report adequate income to cover expenses in 1998. They subsidized the costs of their farming activities with income from off-farm sources. Like their nonfarm counterparts, a large share of farm households are dual

Share of farms and value of production by farm typology group, 1998

Large and very large family farms account for 53 percent of the value of production



Source: USDA, Economic Research Service, 1998 Agricultural Resource Management Study, version 1.

Farm Typology Group Definitions

Small Family Farms (sales less than $250,000)

- **Limited-resource farms.** Small farms with sales less than $100,000, farm assets less than $150,000, and total operator household income less than $20,000. Operators may report any major occupation, except hired manager.
- **Retirement farms.** Small farms whose operators report they are retired.*
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Other Farms

- **Large family farms.** Sales between $250,000 and $499,999.
- **Very large family farms.** Sales of $500,000 or more.
- **Nonfamily farms.** Farms organized as nonfamily corporations or cooperatives, as well as farms operated by hired managers.

*Excludes limited-resource farms whose operators report this occupation.

career. In addition to working on their farms, the operator, the spouse, or both may have worked off the farm. Off-farm work is not entirely a recent development, since one-fourth to one-third of farm operators worked off-farm in the 1930's and 1940's.

The Importance of Small Family Farms

Although small family farms are often unprofitable, they still are important to U.S. agriculture. They accounted for only 33 percent of the value of total agricultural production in 1998, but they produced larger shares of particular commodities: 62 percent for hay, 54 percent for tobacco, 49 percent for soybeans, 47 percent for wheat, 47 percent for corn, and 40 percent for beef.

Because of their sheer numbers (91 percent of all farms) they also accounted for a large share of assets owned by farms (69 percent) including land (68 percent). As custodians and managers of the bulk of farm assets, small farms play a major role in natural resource and environmental policy. Retirement farms alone accounted for 29 percent of the land in the Conservation Reserve Program (CRP) in 1998.

The Federal Role

The Federal Government affects the status of family farms through taxes and farm program payments. There are several provisions in the tax codes that are specifically designed to lower the income taxes that farm operators pay. Recent changes to Federal estate tax provisions also make it easier to pass farms on to the next generation by exempting most small family farms from payment of the tax. On the other hand, the ability to transfer larger farms, combined with preferential treatment for farmland and other business assets, could help to accelerate the trend to fewer and larger farms.

Large and very large family farms received a disproportionate share of government payments relative to their share of farms in 1998. These farms had high participation rates and were likely to be involved in traditional program commodities. Program payments–particularly CRP payments–were also important to retirement farms. About 13 percent of the gross cash income for retirement farms came from government payments, compared with only 5 percent for all farms. Despite the public discourse about farm programs, not all farms are eligible for program payments. In fact, only 36 percent of all farms received government payments in 1998.

Business Arrangements

The share of farms and agricultural sales accounted for by nonfamily corporations has been stable for decades. The form of business organization (proprietorship, partnership, or corporation) alone does not capture the widespread use of various formal and informal business arrangements to gain access to technology, markets, equity capital, or other inputs. Commonly used arrangements include marketing and production contracts, joint ventures, strategic alliances, leases, and a variety of agreements and licenses. Even sole proprietorships can have these business linkages. For example, 34 percent of high-sales farms had production or marketing contracts in 1998, even though 85 percent of those farms were organized as sole proprietorships.

Women in Agriculture

Women operate a growing share of farms, increasing from 5 percent of farmers in 1978 to 9 percent by 1997. Although women manage all types and sizes of farms, they most commonly manage small farms and specialize in livestock production. The average income of female-operator households is lower than that of male-operator households, with the difference resulting more from low farm earnings than from low off-farm income. But, the average household income of female-operator households is higher than that of all U.S. female-headed households or females living alone.

Women also contribute to farm businesses and households as spouses of farm operators, through a variety of farm and off-farm activities. In addition to helping with day-to-day operations, spouses join in management decisions related to longer term financial commitments. Spouses also work off-farm (especially on small farms) primarily to generate extra income, but also to get benefits such as health insurance.

Structural and Financial Characteristics of U.S. Farms: 2001 Family Farm Report

Introduction

Farms vary widely in size and other characteristics, ranging from very small retirement and residential farms to establishments with sales in the millions of dollars. This report provides detailed information about the structural and financial characteristics of the various types of family farms in the United States. The information presented here is not available from any other publication.

The Agricultural Resource Management Study (ARMS), an annual sample survey, is the main source of data for the report (see the appendix "Sources of Data"). Most of the ARMS data used in this report are from the 1998 survey. In particular, 1998 ARMS data are used to depict farm structure and financial position. The 1998 ARMS data were the most currently available when the report was being prepared. The 1998 ARMS data are supplemented with data from other survey years and other sources to address some of the more specialized topics raised in the report. One should keep in mind that 1998 was about average for farming, with respect to net farm income. Although sector net cash income was lower in 1998 than in 1997 and 1996, it was only slightly less than the average for 1990-98 (fig. 1).

Farm structure is generally defined broadly. For example, Boehlje (1992, p. 219) defines the structure of an industry or a sector–including the farm sector–along five dimensions:

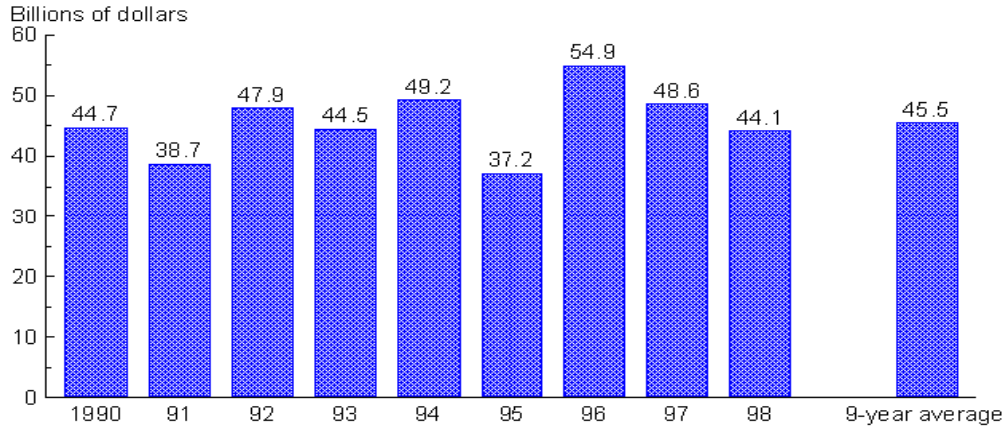
> (1) the size distribution of firms; (2) the technology and production characteristics of those firms, including type of activity and level of specialization; (3) the characterization of the workforce (both managers/entrepreneurs and employees), including age, education, experience, skill level, part-time versus full-time status, etc.; (4) the resource ownership and financing pattern, including tenancy, leasing and debt/equity sources and relationships; (5) the inter- and intrasector linkages, including contract production and vertical and horizontal integration.

By this broad definition, each section of this report deals with one or more of the five dimensions of the structure of agriculture.

This report brings together information on farm businesses, farm operators, and farm household, in order to more fully describe current farm structure. Farming has become more concentrated as farm numbers declined and more complex as farm operators adjusted to changes in market conditions, government programs, and other economic factors. Thus, describing farming in the United States today requires more than a simple compilation of facts on farm numbers, farm sizes, and farm production. Because farming is both diverse and complex, national averages often mask the variations that are essential to understanding the major participants in agricultural production: farm businesses, farm operators, and farm operator households. Such understanding is essential to assess the economic health of the sector and estimate the effects of changes in government policies.

Figure 1
Net farm income, 1990-98

Net cash income was about average in 1998



Source: USDA, Economic Research Service, Economic Indicators of the Farm Sector.

Classifying Diverse Farms

The farm typology developed by the Economic Research Service (ERS) in late 1997 and early 1998 categorizes farms into more homogeneous groups–based primarily on annual sales of the farms and the occupation of their operators–than classifications based on sales volume alone (see the box "Farm Typology Group Definitions"). This report uses the typology to examine differences in structural and financial characteristics among U.S. farms.

Compared with classification by sales alone, the ERS typology groups reflect operators' expectations from farming, position in the life cycle, and dependence on agriculture. Using more homogeneous categories based on a few key characteristics can help decisionmakers to target policy measures appropriately, including policy measures that seek to support income, stabilize commodity supplies, and protect natural resources.

The typology uses the definition of "small farm" developed by the National Commission on Small Farms, which was instituted in 1997 by Secretary Glickman to examine issues facing small farms. The Commission used $250,000 in gross sales as its cutoff between small and large farms in its report, ***A Time to Act*** (U.S. Dept. Agr., Nat'l. Comm. on Small Farms, 1998, p. 28), released in January 1998.

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(sales less than $250,000)

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*Excludes limited-resource farms whose operators report this occupation.

The Commission–after much deliberation–set the cutoff high enough to include farm families of relatively modest income who may need or want to improve their net farm income.

The farm typology focuses on the "family farm," defined here as any farm organized as a sole proprietorship, partnership, or family corporation. According to 1998 ARMS data, about 98 percent of U.S. farms are family farms. Family farms exclude farms organized as nonfamily corporations or cooperatives, as well as farms with hired managers. Family farms are closely held (legally controlled) by their operator and the operator's household.[1] The operator is defined as the person who makes the day-to-day decisions on the farm. There is one operator per farm (see the appendix, "Sources of Data").

Other definitions of the family farm exist, and a variety of definitions, implicit and explicit, have been used by Congress, researchers, and others (U.S. Dept. Agr., Econ. Res. Serv., 1999). These definitions are generally more restrictive than the one used in the farm typology, however. Some definitions exclude farms based on the amount of hired labor or total labor, the share of labor provided by the

[1]The terms "household" and "family" are used interchangeably in this report, although the two terms are technically slightly different. For more information, see the appendix, "Sources of Data."

family, contracting arrangements, or tenure, which tend to eliminate larger farms. Excluding such farms would make sense only if the focus is smaller family farms. Other definitions only include operations where the operator's main occupation is farming or where the farm provides at least half-time employment, which would tend to exclude smaller farms. The advantage of the typology is that it is inclusive, but allows one to focus on various groups of large and small farms when necessary.

The Typology Groups

The first group identified by the typology is **limited-resource farms**, or family farms with gross sales less than $100,000, farm assets less than $150,000, and household income less than $20,000. This definition of limited-resource farmers differs slightly from the original definition devised by Perry and Ahearn (1993), who required family income to be less than the poverty level, rather than less than $20,000. The present definition has the advantage of not requiring data on family size (number of people in the family), which is not collected some years by ARMS but is necessary to assign a poverty level to families. The current definition was used in an earlier analysis of risk management needs of low-income farmers (Dismukes and others, 1997, p. 8). Identifying limited-resource farms is critical, because agencies may need to develop special efforts to serve limited-resource farmers.

Unlike farmers in the other groups of small farms, limited-resource farmers are not restricted to one major occupation. Limited-resource farmers may report farming, a nonfarm occupation, or retirement as their major occupation. The limited-resource group identifies farmers with low sales, income, and assets, regardless of their major occupation.

The remaining small family farms are classified into one of three groups based on the major occupation of the operator–the occupation at which he or she spends more than 50 percent of his or her work time.

- **Retirement farms.** Small farms whose operators report they are retired. The operators may have had either a farm or nonfarm major occupation before retirement. However, they still are sufficiently engaged in farming to produce at least $1,000 worth of farm products, the minimum necessary for an establishment to be classified as a farm, according to USDA's official definition of a farm.
- **Residential/lifestyle farms.** Small farms whose operators report they have a major occupation other than farming. Some operators in this group may view their farms strictly as a hobby that provides a farm lifestyle. For others, the farm provides a residence and may supplement their off-farm income. Some may hope to eventually farm full-time.
- **Farming-occupation farms.** Small farms whose operators report farming as their major occupation. Although the operator spends most of his or her time farming, the household may receive substantial income from off-farm work by other household members and from part-time off-farm work by the operator. Larger and smaller farms in this group differ in their characteristics, so this group is further divided into two subgroups based on gross sales:
- **Low-sales farms.** Farming-occupation farms with sales less than $100,000.
- **High-sales farms.** Farming-occupation farms with sales between $100,000 and $249,999.

Three additional groups of farms were added to the typology to ensure that it covers all farms. **Large family farms** have sales between $250,000 and $499,999, and **very large family farms** have sales of $500,000 or more. Finally, the **nonfamily farm** group includes farms organized as nonfamily corporations or cooperatives and farms with hired managers. Operators of large and very large family

farms may report farming, a nonfarm occupation, or retirement as their major occupation. Operators of nonfamily farms may also be hired managers.

Topics Covered by this Report

The remaining sections in this report present detailed information on farm structure and farm finances. Topics covered in each section are summarized below. Each presents information for farms classified by the farm typology.

Attributes of Small and Large Farms. This section covers some of the traditional structural characteristics of farms: size, specialization in production, land tenure, geographic location of production, and the attributes of farm operators. The structure of U.S. agriculture is clearer when farms are sorted into the homogeneous categories of the typology.

Business Organization and Arrangements of Farms. The next section explores the business organization of farms and how farms organize resources through leasing, contracting, and other business arrangements. How resources are controlled varies by the farm typology, but even small farms may have complex rental or contractual arrangements.

Contributions by Spouses of Farm Operators. Spouses make an important economic contribution to farm households through farm work, off-farm work, or both. The farm household is able to enjoy a higher level of income through off-farm work by the spouse alone or combined with off-farm work by the operator. While both operator and spouse typically work off the farm mostly for the money, the spouse is more likely to report other reasons, such as health insurance benefits, keeping up skills, or meeting people.

Female Farm Operators and Their Farms. This section compares the characteristics of female and male operators, their farms businesses, and their households. Women make up a small, but growing proportion of the Nation's farm operators. Farms operated by women are generally smaller, both in sales and acres, than male-operated farms.

Farm Business Financial Performance. The financial condition of farm operator households and the financial performance of farms they manage differ considerably. Generally, farms with sales less than $100,000 generate losses, and do not cover the full economic costs of production. Households operating these farms necessarily rely heavily on off-farm income. Sources of credit also vary among the typology groups.

Farm Household Income and Wealth. This section examines sources of household income for households operating farms. Dependence on farming as a source of income varies from category to category in the typology. The situation is different for operator household wealth, however. Regardless of farm typology group, most operator household wealth is held as farm assets.

Government Payments and the Use of Selected Management Strategies. This section discusses changes made by the Federal Agriculture Improvement and Reform Act of 1996 (the Act) in Government payment programs. It then identifies which farms received government payments and

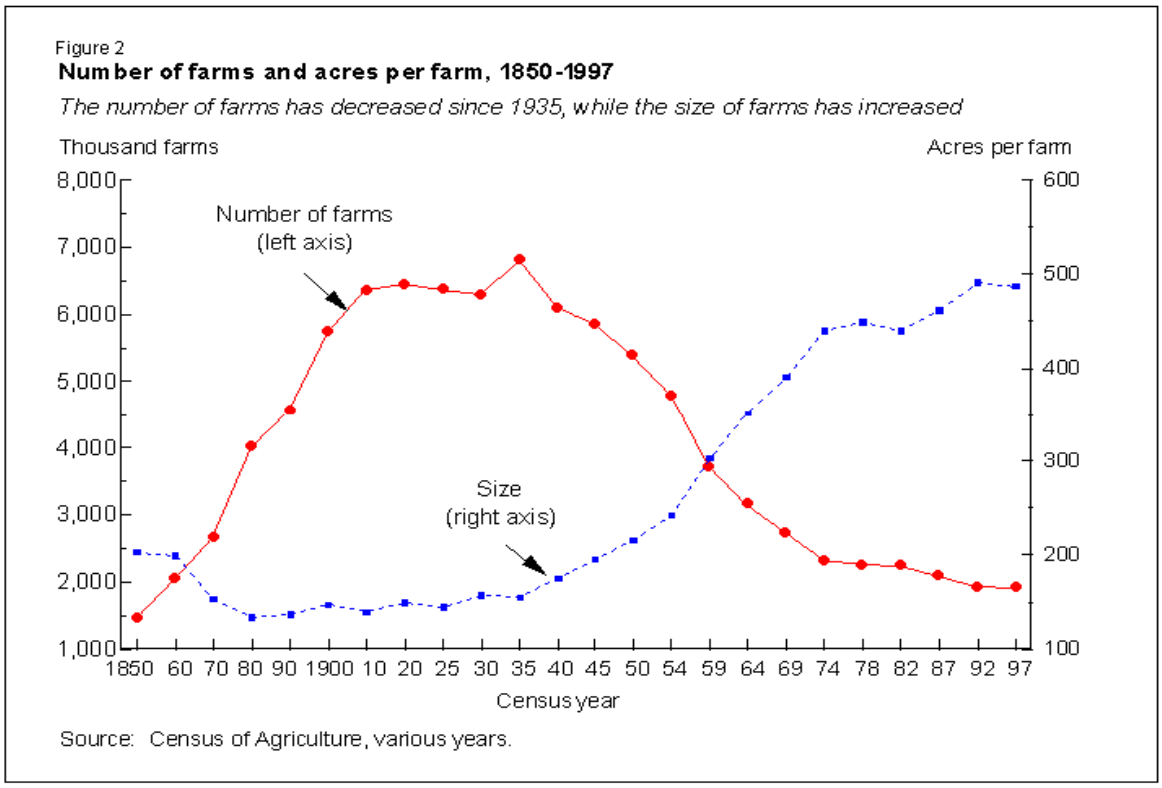
shows the contribution of these payments to farm income in 1998. The section also discusses changes in farmers' use of management strategies in response to the Act.

Federal Tax Policies Affecting Farmers. The most important Federal taxes for farmers are the Federal income tax, the self-employment tax, and estate and gift taxes. Although the Federal income tax imposes the largest tax burden on the broadest group of farmers, the relative importance of the various taxes differs with the size and other aspects of the farm business. This section discusses the most important features of Federal tax law and how they affect farms in the various typology groups.

Attributes of Small and Large Farms

U.S. farms are highly diverse in their physical and production attributes, the characteristics of their operators, and in the choices of management practices and strategies that are incorporated into the farm business plan. Agricultural production is heavily concentrated in large and very large farms, although small farms produce substantial amounts of individual commodities. Small farms hold about two-thirds of farm assets, including land. Thus, they are important in any discussion regarding land use, natural resources, and the environment.

The number of farms in the United States has declined dramatically since its peak in 1935 (fig. 2). As shown by data from the census of agriculture, the number of farms decreased by two-thirds between 1935 and 1974, from 6.8 million to 2.3 million. This decline reflects growing productivity and excess capacity in agriculture that led to farm consolidation (Hoppe, 1994, pp. 1-2). Since 1974, farm numbers



have declined at a slower rate. The availability of off-farm employment undoubtedly played a role in the retention of farms in recent years. Farmers could remain on their farms, even if the farm itself was not profitable, by relying on off-farm income.

Farms today are much larger than they used to be, averaging 487 acres in 1997 versus 155 acres in 1935. Averages can be deceiving, however. The remaining farms are diverse in many ways, but most are very small in acres and sales. To show the difference between small and other farms, the various typology groups are compared with respect to the following traditional structural characteristics:[2]

- Share of production.
- Size of farms (in terms of sales and acres).
- Tenure.
- Specialization in production.
- Characteristics of farm operators.
- Geographic location.

Small and large farms also differ in their choices of management practices and strategies, as discussed in this section. Business organization is another structural characteristic of frequent concern to policymakers, but that topic is discussed in detail in the following section, "Business Organization and Arrangements of Farms."

Shares of Farms, Production, and Assets

Although most U.S. farms are classified as small, agricultural production is highly concentrated in large and very large family farms. These two groups together made up 8 percent of all farms in 1998, but accounted for 53 percent of the total production of agricultural products (fig. 3).

Some small farms contribute substantially to aggregate production. Small farms with high sales were responsible for 17 percent of the total value of production in 1998 (about the same as the percentage contributed by large farms), while small farms with low sales accounted for another 8 percent. As a group, small farms produced a large share of specific commodities, including 62 percent of the value of production for hay, 54 percent for tobacco, 49 percent for soybeans, 47 percent for wheat, 47 percent for corn, and 40 percent for beef. At the other extreme, small farms accounted for only 26 percent of hogs and 11 percent of vegetable, fruit, and nursery products.

Sixty-two percent of all U.S. farms were in the limited-resource, retirement, and residential/lifestyle categories, but these farms produced only 9 percent of U.S. farm output. Most farm businesses were very small, because only $1,000 of farm sales is necessary for an establishment to be classified as a farm according to the U.S. Department of Agriculture's official definition (see the box "Defining Farms").

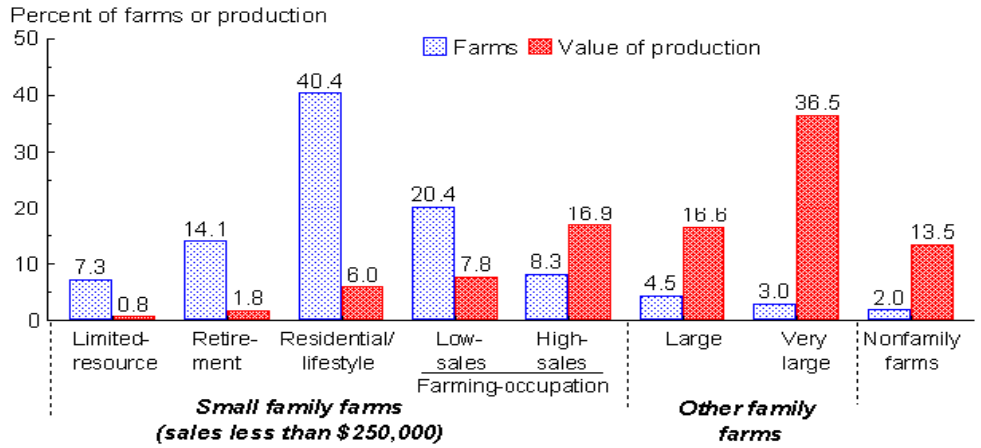
Nevertheless, small farms collectively held 69 percent of farm assets, including 68 percent of the land (fig. 4). As custodians and managers of the bulk of farm assets–including land–small farms play a large role in natural resource and environmental policy. For example, retirement farms alone accounted for

[2]This list of structural characteristics was drawn from Penn (1979), Babb (1979), and Stanton (1993).

Figure 3

Share of farms and value of production by farm typology group, 1998

Large and very large family farms account for 53 percent of the value of production

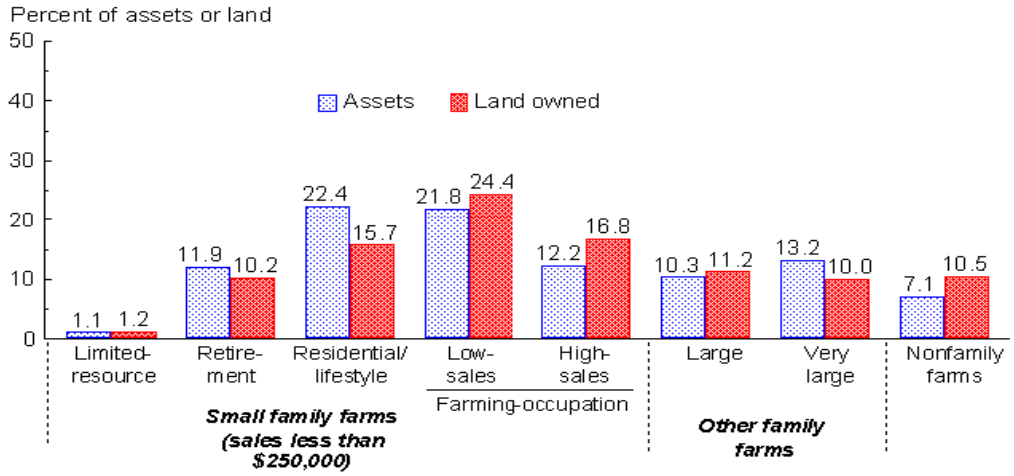


Source: USDA, Economic Research Service, 1998 Agricultural Resource Management Study, version 1.

Figure 4

Share of assets and land owned, by farm typology group, 1998

Small farms account for most of the assets (including land) owned by farms



Source: USDA, Economic Research Service, 1998 Agricultural Resource Management Study, version 1.

29 percent of the land in the Conservation Reserve Program (CRP). Given their life cycle position, many retired farmers were likely scaling back their farming activities and thus may have had land available to put to conservation uses. Alternatively, the assured and steady stream of rental payments coming from the CRP may have made retirement a more viable option for some farmers.

Sales Class and Acreage

Fifty-three percent of all U.S. farms sold less than $10,000 worth of agricultural products in 1998 (table 1). Even among nonfamily farms, this sales class was common; approximately 31 percent of nonfamily farms sold less than $10,000 of agricultural products. Farms with sales less than $10,000 made up a particularly large share of farms in the limited-resource (80 percent), retirement (76 percent), and residential/lifestyle (70 percent) groups. And, the average acreage operated for these groups was small, ranging from 111 to 180 acres. Not surprisingly, households in these groups relied heavily on off-farm income (see the "Farm Household Income and Wealth" section). In contrast to limited-resource, retirement, and residential/lifestyle farms, a substantially smaller percentage of low-sales small farm operators had sales less than $10,000. Nevertheless, households operating low-sales farms also relied heavily on off-farm income.

Defining Farms

Since 1850, when minimum criteria defining a farm for census purposes were first established, the farm definition has changed nine times, as the Nation has grown and changed. A farm is currently defined, for statistical purposes, as any place from which $1,000 or more of agricultural products (crops and livestock) were sold or normally would have been sold during the year under consideration. This definition has been in place since August 1975, by joint agreement among the USDA, the Office of Management and Budget, and the Bureau of the Census (Sommer and others, 1998, p. 4).

Minor differences existed, however, between the Census and USDA versions of the definition. The Census Bureau excluded Christmas tree farms and farms wholly enrolled in the Conservation Program (CRP), while the USDA's National Agricultural Statistics Service (NASS) excluded farms having five or more horses or ponies and sales of no other farm products (U.S. Department of Agriculture, National Agricultural Statistics Service, 1999b, p. 1). After the responsibility for the Census of Agriculture was transferred to NASS from the Census Bureau, the NASS and Census definitions were standardized. The 1997 Census included Christmas tree and CRP farms and NASS surveys began to include horse farms in 1995. Two new types of farms, maple syrup, and short-rotation wood crops (growing trees with a harvest cycle less than 10 years for pulp or nursery stock), were added to both counts starting in 1997, due to the implementation of the new North American Industry Classification System.

The 1997 Census count of farms (1,911,859) and the 1997 NASS initial count of farms (2,057,910) still differed because of Census undercoverage of farms (U.S. Department of Agriculture, National Agricultural Statistics Service, 1999c, pp. C5-C6). The count of farms in the Agricultural Resource Management Study (ARMS) is weighted to correspond to the official NASS count, excluding "abnormal farms" (institutional, experimental, and research farms) and farms in Alaska and Hawaii.

Table 1–Selected structural characteristics of farms, by farm typology group, 1998

Item	Small family farms[1]					Large family farms[1]	Very large family farms[1]	Non-family farms[2]	All farms
	Limited-resource[3]	Retire-ment[4]	Residential/ lifestyle[4]	Farming-occupation[4]					
				Low-sales	High-sales				
				Number					
Total farms	150,268	290,938	834,321	422,205	171,469	91,939	61,273	42,296	2,064,709
				Percent					
Sales class:									
Less than $10,000	79.8	75.5	70.2	34.6	na	na	na	31.1	52.5
$10,000 to $49,999	*17.6	22.3	22.9	42.1	na	na	na	26.4	22.8
$50,000 to $99,999	d	d	4.5	23.4	na	na	na	8.8	7.2
$100,000 to $174,999	na	d	2.0	na	65.7	na	na	d	6.5
$175,000 to $249,999	na	d	*0.4	na	34.3	na	na	d	3.1
$250,000 to $499,999	na	na	na	na	na	100.0	na	9.7	4.7
$500,000 or more	na	na	na	na	na	na	100.0	15.6	3.3
				Acres per farm					
Land operated per farm	111	180	148	453	1,167	1,747	1,971	*1,670	453
Owned	44	189	102	313	531	661	878	*1,336	262
Rented in	71	*19	54	172	658	1,109	1,109	382	210
Rented out	*4	28	9	32	22	*23	19	*50	19
				Percent					
Tenure:									
Full owner	50.3	84.1	62.9	54.5	17.7	11.1	28.4	64.4	56.2
Part owner	17.9	14.4	28.7	40.0	67.5	68.3	55.3	20.9	33.8
Tenant	31.8	d	8.5	5.5	14.7	*20.6	16.3	14.7	10.0
Specialization:									
Cash grain	*10.0	7.1	14.1	22.7	42.9	44.1	20.5	25.0	18.7
Other field crops[5]	22.1	31.6	24.5	15.8	10.6	12.5	13.3	21.9	21.5
High-value crops[6]	d	*7.4	7.8	6.6	4.9	7.3	14.0	20.5	7.7
Beef	40.6	39.0	32.4	36.6	13.0	9.8	8.8	14.7	31.1
Hogs	d	d	d	2.3	4.2	4.8	5.9	d	2.5
Dairy	d	d	d	6.4	20.4	15.6	14.0	d	4.5
Other livestock	*15.7	*14.5	18.0	9.6	4.0	5.9	23.5	*11.5	14.0

d = Data suppressed due to insufficient observations. na = Not applicable. * = Standard error is between 25 and 50 percent of the estimate.

[1]Small family farms have sales less than $250,000. Large family farms have sales between $250,000 and $499,999. Very large family farms have sales of $500,000 or more.

[2]Nonfamily farms include nonfamily corporations or cooperatives, as well as farms operated by a hired manager.

[3]Limited-resource farms have household income less than $20,000, farm assets less than $150,000, and sales less than $100,000.

[4]Small farms other than limited-resource farms are classified according to the major occupation of their operators. Operators of retirement farms are retired. Operators of residential/lifestyle farms report a nonfarm occupation. Operators of farming-occupation farms report farming as their major occupation. Farming-occupation farms are further divided into low-sales (sales less than $100,000) and high-sales (sales between $100,000 and $249,999).

[5]Includes tobacco, cotton, peanuts, Irish potatoes, sunflowers, sweet potatoes, sugarcane, broomcorn, popcorn, sugar beets, mint, hops, seed crops, hay, silage, and forage.

[6]Vegetables, fruits, tree nuts, and horticultural specialties.

Source: USDA, Economic Research Service, 1998 Agricultural Resource Management Study, version 1.

On average, low-sales farms operated 453 acres, or more than double the averages for the limited-resource, retirement, or residential/lifestyle groups. This 453-acre average was relatively small, however, when compared with the averages for high-sales farms (1,167 acres), large family farms (1,747 acres), and very large family farms (1,971 acres).

Tenure

At the national level, full owners (owned all land operated) operated 56 percent of farms, part owners (owned part of the land and rented the rest) operated 34 percent, and tenants (rented all the land they operated) operated the remainder. The distribution of farms by tenure varied among the typology groups. The distribution of residential/lifestyle and low-sales farms was similar to the national distribution. In contrast, full owners operated a much larger share of farms in the retirement group (84 percent). At the other extreme, part owners operated about two-thirds of high-sales small farms and large family farms, approximately double the national rate. Tenant farmers operated 32 percent of limited-resource farms.

Renting land has changed from a method for entry into farming to a way to control additional land. Farms may rent land to avoid debt and risks of ownership (Reimund and Gale, 1992, p. 8; Wiebe and others, 1997, p. 33) and to enable rapid response to changing markets. Pinpointing when this shift occurred is difficult, but it was probably underway by the 1950's. Until the 1950's farm tenancy was considered a serious social problem and full ownership was viewed as the ideal form of tenure (Janssen, 1993, pp. 473-475). Accepting renting as a way to control land, rather than viewing it as a transitional state or a problem, facilitated expansion for many farmers by enabling them to absorb the land of farmers leaving agriculture without actually buying it. Most of the farmers leaving agriculture were full owners and tenants, with tenants beginning to leave after 1935, about 10 years earlier than full owners (fig. 5). Part owners' share of land in farms increased from 36 percent in 1950 to 55 percent by 1997.

About 263,000 farms reported renting a total of 38 million acres to others in 1998, which accounted for only a small share of the 433 million acres that farms rented in. Nonfarm landlords provided the rest of the rented land. Little information exists on the characteristics of farmland landlords. Nevertheless, the Agricultural Economics and Land Ownership Survey (AELOS) of 1988, a follow-on survey to the 1987 Census of Agriculture, gathered information about landlords. Although dated, the AELOS suggests that a large majority of the landlords (93 percent) were individuals, families, or partnerships (Hoppe and others, 1995). Just over half (52 percent) of these unincorporated landlords were retired. Twenty-six percent of landlords had retired from farming or from a farm-related job. Another 26 percent had retired from a nonfarm-related job. How many of the second group of retirees farmed before taking the nonfarm-related job is unknown. Only 12 percent of landlords were farming or working at a farm-related job.

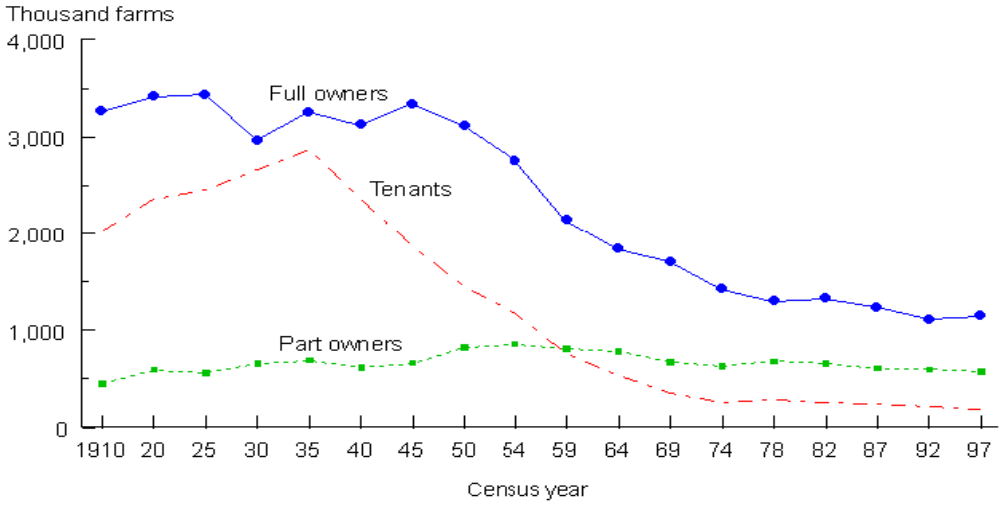
Farm Specialization and Diversification

A relatively large percentage of farms specialized in beef cattle in the limited-resource (41 percent), retirement (39 percent), residential/lifestyle (32 percent), and low-sales (37 percent) groups (table 1). Cow-calf enterprises in particular can have relatively low labor requirements (Holcomb, 1982, pp. 6, 22-23), and are compatible with off-farm work, retirement, or an operation being scaled back in preparation for retirement.

Figure 5

Number of farms by tenure, 1910-1997

Full owners and tenants account for most of the decline in farms



Source: Census of Agriculture, various years.

Beef cattle were less important as a specialization for the remaining groups. High-sales small farms had two major specializations: cash grain (43 percent) and dairy (20 percent). Cash grain farms and dairying accounted for similar shares of the large family farm group. Farms were more evenly distributed among the various specializations in the very large family farm group. Small farms' specialization in beef cattle and cash grain is consistent with the large share of farmland they own. Both these specializations often make extensive use of farmland (Hoppe and others, 1996, pp. 4-6).

Although small farm analysts often suggest high-value crop enterprises to boost the earnings of small farmers, less than 10 percent of each small farm group in the typology specialized in the production of these crops. The groups most frequently specializing in high-value crops were nonfamily farms (21 percent) and very large family farms (14 percent). The two groups together accounted for 80 percent of the production of these crops in 1998.

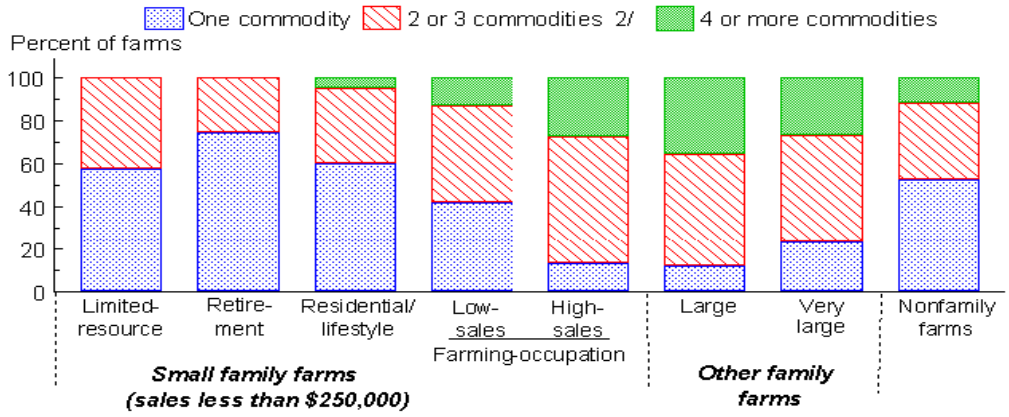
U.S. farms tended to be specialized in production, rather than diversified, with over half of farms producing just one commodity. Three-fourths of the retirement farms and three-fifths of limited-resource and residential/lifestyle farms produced only one commodity (fig. 6). As indicated in table 1, these most often were beef cattle or field crops.

High-sales small farms, large family farms, and very large family farms tended to produce a larger number of commodities, but two-thirds of these farms still produced fewer than four commodities. Analysis of the profitability of small farms indicates that diversification is a significant factor explaining differences in the level and variability of income between higher and lower performing small farms. Financially successful small farms tend to be more diversified.

Figure 6

Distribution of farms, by number of commodities produced and farm typology group, 1998 1/

Few farms produce four or more commodities



1/ Based on 26 commodities or commodities groups: barley, oats, wheat, corn for grain, corn silage, soybeans, sorghum for grain, sorghum silage, canola, fruit, vegetables, peanuts, nursery products, sugar cane, sugar beet, rice, potatoes, cotton, tobacco, cattle, hogs, dairy, poultry, eggs, other livestock, and other crops.

2/ Includes the estimate for 4 or more commodities, when not shown separately.

Source: USDA, Economic Research Service, 1998 Agricultural Resource Management Study, version 1.

Operator Characteristics

Operator characteristics help explain the variation in production accounted for by the various groups discussed above. Very few operators of limited-resource, retirement, or residential/lifestyle farms worked 2,000 or more hours per year on their farms (table 2), the equivalent of a full-time job. As a result, their contribution to the value of agricultural production was small.

On low-sales small farms, however, operators averaged 2,100 hours of farm work per year, and 51 percent of operators worked at least 2,000 hours. Average hours per year and share of operators working full-time were even higher for the remaining groups, except for operators of nonfamily farms. Nonfamily farms were also unique in that more than half of the operators reported that their principal occupation was hired manager.

Operators of retirement farms had the highest average age (70 years), as one would expect. The average age for limited-resource farms and for low-sales farms (both 58 years) was also high when compared with the averages for the other groups of family farms, which centered around 50 years. In addition, the limited-resource, retirement, and low-sales groups had a relatively large percentage of operators at least 65 years old. These three groups also had the highest percentage of operators with less than a high school education. Bellamy (1992) found that–like the rest of the population–farmers more than 65 years of age were less likely to have finished high school.

The average age level of retirement, low-sales, and limited-resource farms raises questions about potential land use and transfer that cannot be answered with existing data. While economic data are

Table 2–Characteristics of farm operators, by farm typology group, 1998

Item	Small family farms[1]					Large family farms[1]	Very large family farms[1]	Non-family farms[2]	All farms
	Limited-resource[3]	Retire-ment[4]	Residential/ lifestyle[4]	Farming-occupation[4]					
				Low-sales	High-sales				
					Number				
Total operators	150,268	290,938	834,321	422,205	171,469	91,939	61,273	42,296	2,064,709
					Percent				
Occupation:									
Farming	35.4	na	na	100.0	100.0	95.1	96.3	20.6	38.8
Hired manager	na	na	na	na	na	na	na	57.7	1.2
Something else	30.1	na	100.0	na	na	*3.9	3.0	*14.9	43.2
Retired	34.6	100.0	na	na	na	d	d	d	16.8
					Hours per year				
Operator's onfarm work	1,111	817	880	2,051	3,045	3,114	3,055	1,697	1,488
					Percent				
Hours worked onfarm per year by operator:									
Less than 500	31.7	40.0	30.5	*8.0	d	d	d	*20.6	22.4
500 to 999	25.4	27.0	32.0	10.2	d	d	2.1	*17.5	21.3
1,000 to 1,999	25.5	24.5	32.2	30.5	9.9	9.3	*11.5	*21.2	26.6
2,000 or more	17.4	8.5	5.3	51.3	87.9	87.8	85.2	40.7	29.7
					Years				
Average age	58	70	49	58	50	50	49	53	54
					Percent				
Age:									
Younger than 35 years	d	0.0	7.1	3.8	9.8	8.5	7.3	*9.0	6.3
35 to 44 years	*12.7	d	27.8	16.6	27.6	27.7	30.8	17.6	20.4
45 to 54 years	13.3	d	39.4	16.9	28.1	29.7	31.2	30.0	26.1
55 to 64 years	9.7	19.8	20.5	26.7	20.5	24.3	21.3	21.7	21.1
65 years or older	49.2	75.9	5.2	36.0	14.0	9.8	9.4	21.7	26.1
Education:									
Less than high school	46.9	25.2	6.2	21.5	8.8	7.9	7.5	d	15.3
High school	32.6	40.8	42.9	43.3	43.6	33.0	32.7	33.3	41.0
Some college	10.8	17.8	29.0	21.5	28.7	31.0	34.7	25.6	24.7
Completed college	d	16.2	21.9	13.7	18.9	28.1	25.1	34.8	18.9

d = Data suppressed due to insufficient observations. na = Not applicable. * = Standard error is between 25 and 50 percent of the estimate.

[1]Small family farms have sales less than $250,000. Large family farms have sales between $250,000 and $499,999. Very large family farms have sales of $500,000 or more.

[2]Nonfamily farms include nonfamily corporations or cooperatives, as well as farms operated by a hired manager.

[3]Limited-resource farms have household income less than $20,000, farm assets less than $150,000, and sales less than $100,000.

[4]Small farms other than limited-resource farms are classified according to the major occupation of their operators. Operators of retirement farms are retired. Operators of residential/lifestyle farms report a nonfarm occupation. Operators of farming-occupation farms report farming as their major occupation. Farming-occupation farms are further divided into low-sales (sales less than $100,000) and high-sales (sales between $100,000 and $249,999).

Source: USDA, Economic Research Service, 1998 Agricultural Resource Management Study, version 1.

collected for the whole farm, demographic data have traditionally been collected only for its primary operator or partner associated with the farm. Thus, we do not know if there are other operators or persons associated with the farm who might take it over in the future.

Operators' Management Strategies

Farmers use a variety of production, marketing, and financial strategies (table 3). Production strategies involve such practices as precision farming and diversification. Marketing strategies concern when, how, and under what conditions commodities are marketed. Financial strategies include record keeping, budgeting, and insurance. Farmers integrate all three strategies to create a management plan to improve their operations' effectiveness and overall financial performance.

While the largest proportion of farms in each typology group reported using budgeting and debt management, the proportions rose with farm size. Operators of high-sales, large, and very large farms tended to use more financial and production strategies, since they depended on the farm for their livelihood to a larger extent than smaller farms. In contrast, operators of the smaller farms tended to make limited use of management strategies, as they relied on off-farm income. As the household depends more heavily on income from the farm business, there was a shift toward more intensive use of all three types of management strategies.

Regardless of typology group, most farmers either agreed or strongly agreed that it was important to have adequate insurance (for liability more than hail/fire) and sufficient backup labor. Having new machinery or at least machinery in good repair was also important, but more so to the high-sales, large, and very large farms. The larger farms were also more likely to agree with the importance of relying on market information from government reports or private market new services in making marketing decisions. Farmers' use of management strategies will become increasingly critical as future farm legislation affects government involvement in the sector, and as technological and organizational responses to the market affect the structure of agriculture.

Location of Farms

As one would expect from their specialization in dairy and cash grain, 66 percent of high-sales farms are located in the Northern Crescent, Heartland, and Northern Great Plains (table 4). (See the box, "Geographic Units," for a description of the geography used in this report.) Similarly, 64 percent of large farms were located in the Heartland, Northern Great Plains, and Prairie Gateway, which reflects the large farm specialization in cash grain. One-fifth of very large and nonfamily farms were in the Fruitful Rim, consistent with the groups' specialization in high-value crops.

About two-thirds of all U.S. farms were located in nonmetro counties, with the remaining third located in metro counties. The distribution of farms by metro-nonmetro location differed from the national distribution for some of the typology groups. About three-fourths of farming-occupation small farms and large family farms were located in nonmetro counties, a higher share than the national average. These farms typically account for two-thirds of major grain and row crop commodities, a farming focus that makes extensive use of land. In addition, over 40 percent of high-sales small farms and large family farms were located in nonmetro counties that were not adjacent to a metro area, compared with one-third of all farms. In other words, large family farms and small farms with high sales were more likely to be located in less densely settled rural areas.

Table 3—Farmers choice of management strategies, by farm typology group, 1998

Item	Small family farms[1]					Large family farms[1]	Very large family farms[1]	Non-family farms[2]	All farms
	Limited-resource[3]	Retire-ment[4]	Residential/ lifestyle[4]	Farming-occupation[4]					
				Low-sales	High-sales				
	Number								
Total farms	150,268	290,938	834,321	422,205	171,469	91,939	61,273	42,296	2,064,709
	Percent of farms								
Precision farming techniques	d	d	*2.5	2.9	11.1	18.8	17.8	9.8	4.3
Diversifying production	*12.0	11.8	18.2	29.8	48.1	48.6	47.1	35.2	24.3
Multiple production practices	*7.6	11.3	16.1	27.1	55.5	60.5	49.6	37.7	23.7
Options to forward price	d	6.9	8.2	8.4	20.9	29.2	25.6	*15.5	10.3
Debt management to expand, or cash flow	41.6	33.5	45.6	57.3	77.8	80.4	83.6	55.9	51.6
Flexibility in acquiring inputs, organizing production	*22.5	31.5	37.9	57.4	77.8	84.7	70.9	53.3	46.6
Budgeting/records to manage cash flow/control cost	43.0	46.3	58.6	67.4	84.2	87.8	87.8	65.0	62.0
	Percent of operators								
Operators agreed or agreed strongly with the importance of:									
Spreading sales of com-modities over the year	27.0	24.1	25.8	46.5	59.6	62.8	55.1	36.2	35.4
Relying heavily on market information for decisions	*18.5	15.4	19.2	34.8	41.1	50.4	45.7	36.7	26.2
Adequate insurance:									
Liability	40.6	49.9	52.0	64.6	78.9	84.3	82.8	71.0	58.4
Hail/fire	*15.6	22.1	18.5	31.3	49.4	53.1	47.7	26.3	26.6
Most machinery new or in good repair	28.4	40.7	44.2	49.6	58.6	64.5	71.2	54.9	46.8
Sufficient backup labor/ management	45.6	41.8	48.9	53.7	47.6	57.9	67.7	58.2	49.7

d = Data suppressed due to insufficient observations. na = Not applicable. * = Standard error is between 25 and 50 percent of the estimate.

[1]Small family farms have sales less than $250,000. Large family farms have sales between $250,000 and $499,999. Very large family farms have sales of $500,000 or more.

[2]Nonfamily farms include nonfamily corporations or cooperatives, as well as farms operated by a hired manager.

[3]Limited-resource farms have household income less than $20,000, farm assets less than $150,000, and sales less than $100,000.

[4]Small farms other than limited-resource farms are classified according to the major occupation of their operators. Operators of retirement farms are retired. Operators of residential/lifestyle farms report a nonfarm occupation. Operators of farming-occupation farms report farming as their major occupation. Farming-occupation farms are further divided into low-sales (sales less than $100,000) and high-sales (sales between $100,000 and $249,999).

Source: USDA, Economic Research Service, 1998 Agricultural Resource Management Study, version 1.

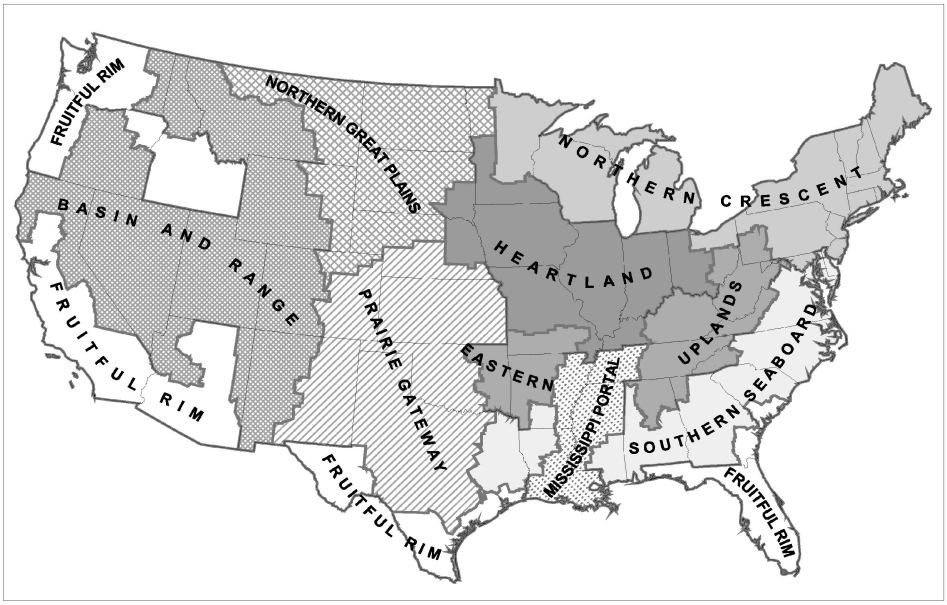
Table 4—Location of farms, by farm typology group, 1998

Item	Small family farms[1]					Large family farms[1]	Very large family farms[1]	Non-family farms[2]	All farms
	Limited-resource[3]	Retirement[4]	Residential/lifestyle[4]	Farming-occupation[4]					
				Low-sales	High-sales				
				Number					
Total farms	150,268	290,938	834,321	422,205	171,469	91,939	61,273	42,296	2,064,709
				Percent					
Resource region:									
Heartland	d	15.2	22.0	21.1	34.7	31.0	20.1	18.5	22.0
Northern Crescent	*16.9	10.8	16.7	14.9	19.4	16.5	10.5	15.3	15.5
Northern Great Plains	d	d	2.1	5.7	11.6	8.5	3.3	d	4.3
Prairie Gateway	d	12.8	14.6	15.7	10.8	*16.5	10.3	*10.8	13.6
Eastern Uplands	20.2	20.4	14.8	12.7	5.3	3.5	*11.2	d	14.0
Southern Seaboard	*10.1	13.7	9.9	*11.0	5.0	9.6	16.2	*5.8	10.4
Fruitful Rim	d	9.1	12.8	10.7	7.0	8.5	19.6	20.8	11.3
Basin and Range	d	*10.9	3.9	4.3	3.7	2.4	2.5	7.9	4.8
Mississippi Portal	*9.5	*4.8	3.3	*3.9	2.4	3.5	6.2	**7.3	4.2
Metro-nonmetro status:									
Metro counties	34.0	40.9	37.0	26.1	23.0	26.5	31.5	49.2	33.5
Nonmetro counties	66.0	59.1	63.0	73.9	77.0	73.5	68.5	50.8	66.5
Adjacent	32.3	32.3	32.3	38.5	35.2	30.7	31.5	22.2	33.5
Nonadjacent	33.8	26.9	30.7	35.4	41.8	42.8	36.9	28.6	33.0
Economic specialization:									
Farming-dependent counties	*7.5	10.8	7.8	17.0	26.8	28.0	19.5	12.8	13.0
Other nonmetro counties	58.5	48.3	55.2	56.9	50.2	45.5	48.9	38.1	53.4

Note: For definitions of the geographic units used in this table, see the box "Geographic Units."
d = Data suppressed due to insufficient observations. * = Standard error is between 25 and 50 percent of the estimate. ** = Standard error is between 51 and 75 percent of the estimate.
[1]Small family farms have sales less than $250,000. Large family farms have sales between $250,000 and $499,999. Very large family farms have sales of $500,000 or more.
[2]Nonfamily farms include nonfamily corporations or cooperatives, as well as farms operated by a hired manager.
[3]Limited-resource farms have household income less than $20,000, farm assets less than $150,000, and sales less than $100,000.
[4]Small farms other than limited-resource farms are classified according to the major occupation of their operators. Operators of retirement farms are retired. Operators of residential/lifestyle farms report a nonfarm occupation. Operators of farming-occupation farms report farming as their major occupation. Farming-occupation farms are further divided into low-sales (sales less than $100,000) and high-sales (sales between $100,000 and $249,999).
Source: USDA, Economic Research Service, 1998 Agricultural Resource Management Study, version 1.

Geographic Units

Resource Regions. The Economic Research Service (ERS) has developed new resource regions based on characteristics of the land and the commodities produced (Heimlich, 2001). These regions cross state boundaries, but are more homogeneous with respect to resources or production than regions based on combinations of States. See the map below for delineation of the regions.



Metro-Nonmetro Status. ***Metro*** areas are defined by the U.S. Office of Management and Budget (OMB) as geographic areas with a large population nucleus (generally at least 50,000 inhabitants), plus adjacent communities that are socially and economically integrated with that nucleus (U.S. Dept. Comm., Cen. Bur., 1993, pp. A8-A9). Metro designations as of 1993, which identified 813 metro counties, are used in this report.

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

Economic Specialization. Nonmetro counties can also be categorized according to their economic specialization. There are 556 ***farming-dependent*** counties where farming accounted for at least 20 percent of earned income over the three years from 1987 to 1989 (Cook and Mizer, 1994, pp. 6-7).

Two-thirds of residential/lifestyle and limited-resource farms were located in nonmetro counties, with the location of these farms being about evenly divided between adjacent and nonadjacent counties. The heavy dependence of these farmers on off-farm employment to underpin household incomes highlights the importance of a vibrant rural nonfarm economy and transportation system to U.S. farms and farm households.

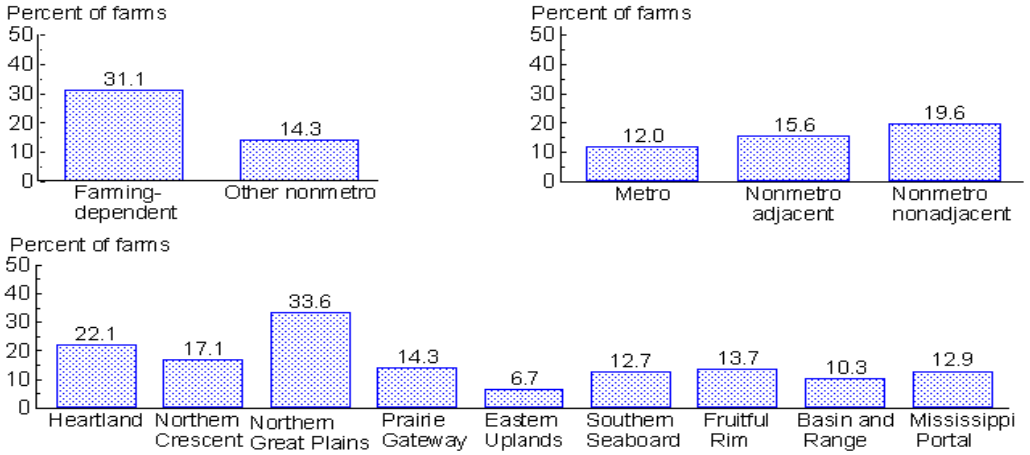
By definition, farming-dependent counties have a large local farm sector relative to other types of business activity. Not surprisingly, family farms with sales of $100,000 or more were more likely than farms in general to be located in farming-dependent counties. Between 20 and 28 percent of high-sales small farms, large farms, and very large farms were located in these counties. In contrast, only 13 percent of all U.S. farms were located in farming-dependent counties.

This section has emphasized the distribution of particular typology groups across geographic units. However, it is also important from an economic development perspective to examine the composition of farms within particular geographic areas. Thirty-one percent of all farms were family farms with sales of at least $100,000 in farming-dependent counties, compared with about 12 percent in metro counties and 14 percent in the remaining nonmetro counties (fig. 7). The Northern Great Plains and Heartland also had a high percentage (34 and 22 percent, respectively) of their farms with sales of $100,000 or more. Farm size seemed to increase as the density of settlement declined. Fewer off-farm job opportunities combined with any cost economies that may exist in grain, row crops, and livestock production may help explain why farms were larger in farming-dependent counties, in the Northern Great Plains and Heartland, and in nonadjacent counties.

Figure 7

Family farms with sales of $100,000 or more 1/ as a share of all farms in selected geographic areas, 1998

Family farms with sales of $100,000 or more make up the largest share of farms in farm-dependent counties, in the Northern Great Plains and Heartland, and in nonadjacent counties



1/ Family farms with sales of $100,000 or more include high sales small farms, large family farms, and very large family farms.

Source: USDA, Economic Research Service, 1998 Agricultural Resource Management Study, version 1.

Summary

Great diversity exists in U.S. farms. In part, this occurs because only $1,000 in product sales is necessary for an establishment to qualify as a farm, and most family farms classified as limited-resource, retirement, and residential/lifestyle have sales less than $10,000. At the other extreme, very large family farms have sales of at least $500,000. A large share of family farms are too small for the farm to do more than supplement off-farm income, either with cash or with in-kind items, such as food, fuel, or housing.

Agricultural production is concentrated in large and very large farms. However, low- and high-sales small farms account for about 25 percent of all agricultural production. Small farms as a group also produce substantial portions of specific commodities, including hay, tobacco, soybeans, wheat, corn, and beef.

Small farms hold about 69 percent of farm assets, including 68 percent of the land. Thus, small farms are important in any discussions regarding land use, natural resources, or the environment. Retirement farms alone account for 29 percent of the land enrolled in the CRP.

Direct payments from commodity programs may have limited relevance to most small farms, except high-sales small farms. Direct payments–including transition payments under the 1996 Farm Act–focus on grain and cotton, while many small farmers specialize in beef cattle. Commodity programs are most relevant to high-sales small farms, since 43 percent of them specialize in cash grain production. Commodity programs also are an important source of income to the 44 percent of large family farms that specialize in cash grain production.

Currently, high-sales, large, and very large farms are more likely to use production, marketing, and financial strategies to manage their businesses. Use of these strategies in the future is likely to become more critical as farm structure and farm programs evolve.

Business Organization and Arrangements of Farms

Farmers use a variety of business arrangements. While most are sole proprietorships, they may have many formal or informal linkages to other firms. These linkages include arrangements to procure inputs (leasing land and machinery, custom work, hired or contract labor, forward pricing inputs), as well as marketing and production contracts. The extent of these linkages varies across the typology and by commodity.

Farmers use a combination of forms of business organization and business arrangements to structure a firm that meets personal, professional, and household goals. Readily recognizable forms of business organization include sole proprietorships, partnerships, and corporate businesses. In addition to these more traditional forms of organization, farms are also organized using other forms of organization, such as limited liability companies as well as trusts and cooperatives (table 5).

Moving beyond forms of business organization, farmers may choose to use a wide range of formal and informal business arrangements to gain access to technology, markets, equity capital, or other inputs important to achieving business or other goals. Commonly used arrangements include marketing and production contracts, joint ventures, strategic alliances, leases, and a variety of agreements and licenses.

Table 5–Organizational choices and business arrangements for farm operators

Farmers' choices of:	
Business organization	Business arrangements

Proprietorships
  Modified proprietorships
Partnerships
Corporations
  Family
  Nonfamily
Cooperatives, estates, and trusts
Limited liability companies
	Independent producer
	Contract producer
	  Subcontract producer
	Strategic alliances
	Franchise agreements
	Licensing
	Alliances or joint ventures
	Leasing

Farmers may use any or all of these business arrangements in various combinations. A farm may have a marketing contract with an elevator to market a row crop, a production contract with a processor to produce livestock, an arrangement with a farming neighbor to share equipment purchases or use, and an agreement with a relative to jointly rent land from another neighbor. Any formal or informal business arrangement can be used in conjunction with any of the various forms of business organization. Farmers intermingle business organization with a variety of business arrangements that may even differ among enterprises within the same firm. This flexibility allows them to build a business structure that accommodates their goals. Building a business that addresses personal and household goals–as well as business goals–explains why operators report that their spouses share in land acquisition and capital investment decisions (see the "Contributions by Spouses of Operators" section).

The complexity of today's farm business structure suggests that a farm's form of business organization alone is not sufficient to assess the extent of business linkages or the degree to which production or market integration may exist. This section reports information on the business organization and arrangements of farms, showing how arrangements vary for small and large farm businesses, household choices with regard to occupation, and stage in the life cycle of the family.

Business Organization

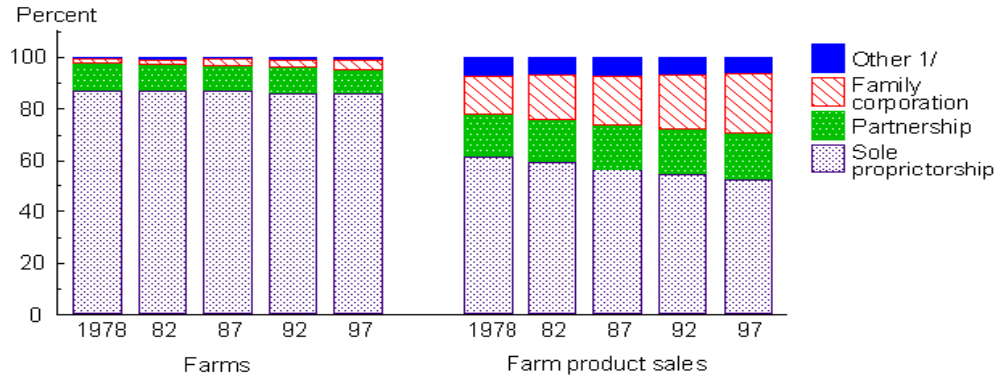
The most common form of business organization is the sole proprietorship. Data from the census of agriculture show that approximately 9 out of 10 farms have been organized as proprietorships for decades (fig. 8). Nonfamily corporations' share of agricultural sales has also been stable. The 1997 Census of Agriculture again confirmed the proprietorship as the dominant organizational form for farms. For the 1997 calendar year, 1.6 million or 86 percent of farms were organized using this form of business entity. Sole proprietorship operations generated 52 percent of farm product sales in 1997.

The ARMS confirms that the sole proprietorship is the most prevalent form of business ownership (table 6). Consistent with the census, 90 percent of the expanded number of farms represented by the 1998 calendar year survey reported the sole proprietorship form of organization.

Figure 8

Distribution of farms and farm product sales, by business organization, 1978-97

Most farms are sole proprietorships



1/ Includes nonfamily corporations, cooperatives, estates or trusts, and institutional farms.

Source: Census of Agriculture, various years.

Other traditional forms of business organization include partnerships (general and limited), corporations (farm and nonfarm), and cooperatives, estates, and trusts. In any given year, partnerships typically account for 5 to 6 percent of farms. Some persons or entities associate to produce commodities or services but are not legally organized as partnerships. These informal associations or alliances are typically considered to be proprietorships, but more than one household shares in the asset base and income of the farm.

Current data indicate that about 7 percent of farms have more than one household providing assets to the business. These households may be those of partners (in more formal business organizations), sons and/or daughters, or neighbors in more informal partnering. All typology groups, even very small and retirement-focused operations have some farms where multiple households contribute to the asset base of the farm. The presence of multiple households is more prevalent among very large family farms, where up to a fourth of farms receive assets from and provide income to multiple households. Corporations, cooperatives and other forms of business organization account for the remaining 4 to 5 percent of farms. While considerable attention is paid to potential expansion in the number of large nonfarm corporations and their share of production, the predominant form of corporate farm in terms of numbers of farms has traditionally been, and continues to be, the family corporation. The 1998 ARMS showed that 77 percent of the combined group of corporations, cooperatives and other nonproprietor or nonpartnership farms were organized as family corporations. Confirming numbers were reported in the 1997 Census of Agriculture where 76,100 of the Nation's 84,000 farming corporations (90 percent) were family-held operations.

Choice of form of business organization varies across the farm typology. Dahl (1995) and Boehlje and Lins (1995) indicate that several factors are important in the choice of one type of business organization over another. These factors include simplicity of forming the business, control over business and financial decisions, business continuity, owner liability, business and personal tax liability, estate transfer issues, and access to capital. The stage of life cycle for the business, the operator, and his or her household, and goals held for the business and the household may also affect choice of business organization (Thomas and Boehlje, 1991). More complex forms of organization, such as partnerships and corporations, are typically associated with larger farms where decisions and business issues regularly extend beyond the production and disposition of agricultural commodities to include other key concerns.

Table 6–Business organization of farms, by typology group, 1998

Item	Small family farms[1]					Large family farms[1]	Very large family farms[1]	Non-family farms[2]	All farms
	Limited-resource[3]	Retire-ment[4]	Residential/ lifestyle[4]	Farming-occupation[4]					
				Low-sales	High-sales				
	Number								
Total farms/operators	150,268	290,938	834,321	422,205	171,469	91,939	61,273	42,296	2,064,709
	Percent								
Percent of farms	7.3	14.1	40.4	20.4	8.3	4.5	3.0	2.0	100.0
Business organization:									
Sole proprietorship	97.8	97.2	94.5	92.4	85.4	68.7	59.1	31.0	90.4
Partnership	d	d	4.6	5.2	8.2	11.9	23.9	*2.5	5.3
Corporation or cooperative	d	d	*0.9	2.4	6.4	*19.5	17.1	66.6	4.3
Family corporation	d	d	*0.9	2.4	6.4	*19.5	17.1	16.8	3.3
Nonfamily corporation or other[5]	na	na	na	na	na	na	na	49.8	1.0
Multiple households providing assets[6]	2.3	4.0	7.6	6.1	12.0	14.9	24.7	na	7.0

d = Data suppressed due to insufficient observations. na = Not applicable. * = Standard error is between 25 and 50 percent of the estimate.
[1]Small family farms have sales less than $250,000. Large family farms have sales between $250,000 and $499,999. Very large family farms have sales of $500,000 or more.
[2]Nonfamily farms include nonfamily corporations or cooperatives, as well as farms operated by a hired manager.
[3]Limited-resource farms have household income less than $20,000, farms assets less than $150,000, and sales less than $100,000.
[4]Small farms other than limited resource farms are classified according to the major occupation of their operators. Operators of retirement farms are retired. Operators of residential/lifestyle farms report a nonfarm occupation. Operators of farming-occupation small farms report farming as their major occupation. Farming-occupation farms are further divided into low-sales (sales less than $100,000) and high-sales (sales between $100,000-$249,999).
[5]"Other" includes estates, trusts, and cooperatives.
[6]Data are from the 1996 Agricultural Resource Management Study, version 1.
Source: USDA, Economic Research Service, 1998 Agricultural Resource Management Study, version 1.

Proprietorships are generally the simplest form of business organization to use and understand. In effect, individuals (or married couples) establish a business and operate as a proprietorship, unless they take steps to operate using another form of organization. The individual or couple forming the business hold managerial control, are liable for debt and business decisions, and receive income produced by the business. Other forms of business organization are more complex as a result of shared management, differences in tax treatment and liability, distribution of income among multiple owners, and legal documents needed to establish life for the organization that may transcend that of the owners.

Business Arrangements

In the 1998 and 1996 ARMS, farmers were asked about their use of a variety of business arrangements and strategies to acquire inputs and market commodities, along with their use of selected coordinated activities. Farmers reported arrangements to procure inputs that included leasing arrangements for land and machinery, use of custom work, the use of hired and contract labor, forward pricing inputs, and the ownership of a business that provided inputs to the farm. Specific survey questions about coordinated activities focused on participation in either production or marketing contracts and purchases or sales through farmer cooperatives. From a marketing perspective, questions were asked to determine whether farmers sold their crops and livestock through cash markets only, without relying on contracts. These data help establish a perspective about the first four business arrangements highlighted in table 5. Information about farmers' use of alliances and joint ventures to network their farm has not been collected to date.

Farms across the typology incorporate a variety of business arrangements (table 7). Nevertheless, certain practices do tend to be relatively more common on certain classes of farms. For example, methods of acquiring production inputs vary dramatically. Land ownership is the most common mode of access to land by all typology classes. Land ownership, however, is more common among small farms, with 93 percent or more of retired, residential/lifestyle, or low-sales farms reporting that they owned some amount of land.

An examination of differences between higher and lower performing small farms suggests that lower debt burdens could increase the profitability of small farm operations. One strategy that could be used by small farms is to lease farm land and farm equipment, which helps relieve the need for capital financing. Rental of land, for either cash or shares, is most prevalent among family farms with sales greater than $100,000, namely high-sales small farms, large family farms, and very large family farms. Share renting is largely a tool of cash grain farms. Forty-two percent of cash grain farms share rent, and cash grain farms account for 64 percent of all share renters. Given their heavy specialization in cash grain (see "Attributes of Small and Large Farms" section), the high proportion of share rentals among high-sales small farms and large family farms is not surprising.

More than half of large and very large family farms also reported that they forward-priced inputs (contract or agree on prices of inputs to be delivered in the future). Of small farm groups, the high-sales group of farms reported use of pricing tools at a similar rate. These farms, like their large family farm counterparts, tend to produce corn, soybeans, wheat, and other row crops. These are commodities for which inputs such as seed, fertilizers, or chemicals may be more commonly priced for future delivery. Since these farms also tend to produce hogs, cattle, and milk, they may also use forward pricing to help control feed costs. Using cash sales only to market crops or livestock (no production or marketing

Table 7–Selected input procurement and production arrangements, by typology group, 1998

Item	Small family farms[1]					Large family farms[1]	Very large family farms[1]	Non-family farms[2]	All farms
	Limited-resource[3]	Retire-ment[4]	Residential/ lifestyle[4]	Farming-occupation[4]					
				Low-sales	High-sales				
				Number					
Total farms/operators	150,268	290,938	834,321	422,205	171,469	91,939	61,273	42,296	2,064,709
				Percent					
Percent of farms	7.3	14.1	40.4	20.4	8.3	4.5	3.0	2.0	100.0
Input Procurement:									
Own land	70.5	98.6	92.8	95.9	88.6	81.7	85.6	85.9	91.4
Share rent land	*6.9	*3.1	6.4	12.9	35.8	45.6	28.6	10.2	12.2
Cash rent land	27.3	8.6	22.8	31.5	64.3	76.0	63.4	29.4	30.1
Hired labor	19.9	28.5	28.0	43.5	71.4	84.6	89.9	63.7	39.3
Custom work	36.1	33.6	31.5	42.5	68.9	70.8	57.8	51.8	40.4
Machinery leasing	**3.0	*1.3	5.8	5.6	23.3	29.8	36.1	21.0	8.7
Open credit line[5]	31.5	31.2	54.1	53.6	76.3	84.6	77.7	*50.4	51.9
Business owned by farm[5]	d	d	*1.0	*4.4	*2.1	*3.8	*8.1	d	*2.1
Forward price inputs[5]	*8.3	8.7	12.8	16.5	46.7	58.4	52.4	*23.4	19.4
Marketing Options:									
Cash sales only[6]	98.8	97.1	96.2	91.6	66.0	56.9	35.1	74.3	89.1
Options	*2.4	6.9	8.2	8.4	20.9	29.2	25..6	*15.5	10.3
Direct sales to individuals	14.6	6.6	15.4	12.5	9.0	9.5	8.9	*14.5	12.5
Direct sales to retailers	*1.0	*2.0	*3.2	4.2	5.3	*6.2	8.3	*7.7	3.6
Coordinated Activities:									
Production contracts	0.0	**0.5	0.5	*1.2	6.9	10.1	32.3	2.5	2.6
Marketing contracts	*1.2	2.4	3.4	7.2	29.0	35.1	37.1	24.6	8.8
Cooperative membership									
Marketing coop	*6.2	8.7	8.5	15.8	28.6	32.0	28.3	22.3	13.4
Supply coop	15.5	23.8	24.9	34.8	55.4	60.1	45.4	31.1	30.9

d = Data suppressed due to insufficient observations. * = Standard error is between 25 and 50 percent of the estimate.
** = Standard error is between 51 and 75 percent of the estimate.
[1]Small family farms have sales less than $250,000. Large family farms have sales between $250,000 and $499,999. Very large family farms have sales of $500,000 or more.
[2]Nonfamily farms include nonfamily corporations or cooperatives, as well as farms operated by a hired manager.
[3]Limited-resource farms have household income less than $20,000, farms assets less than $150,000, and sales less than $100,000.
[4]Small farms other than limited-resource farms are classified according to the major occupation of their operators. Operators of retirement farms are retired. Operators of residential/lifestyle farms report a nonfarm occupation. Operators of farming-occupation small farms report farming as their major occupation. Farming-occupation farms are further divided into low-sales (sales less than $100,000) and high-sales (sales between $100,000-$249,999).
[5]Data are from the 1996 Agricultural Resource Management Study, version 1.
[6]No production or marketing contracts.
Source: USDA, Economic Research Service, 1998 Agricultural Resource Management Study, version 1.

contracts) tends to be more common among limited-resource, retired, and residential/lifestyle operators than among operators of high-sales, large, and very large farms. Yet, 57 percent of large family farms used only cash sales to market their products.

Options, while used by some operators of retirement, residential/lifestyle, and low-sales farms, were more common on high-sales small farms, large family farms, and very large family farms. High-sales and large family farms also tend to be principal producers of grain and oilseeds, commodities for which use of contracts and commodity exchange pricing tools are more common.

Seven to 15 percent of farms sell directly to consumers through farmers' markets, roadside stands, mail-order, door-to-door marketing, and pick-your-own operations. Some operators sell farm products to retailers (or wholesalers) who then resell the farm product directly to consumers without processing or changing the form of the product. For example, an operator may sell fresh fruit to a supermarket or restaurant.

Production contracts have become relatively common in the production of select commodities, such as broilers and processing vegetables.[3] More recently, contracts have played an increasing role in the production of commodities such as hogs. While a larger portion of very large family farms report use of production contracts, about 1 in 10 high-sales small farms and large family farms use these arrangements as a part of their business plans as well. The remaining typology groups use production contracts much less frequently.

The use of marketing contracts is more common among farmers than the use of production contracts. The most dramatic differences in the use of marketing contracts versus production contracts occur for small farms and large family farms. For example, 1.2 percent of low-sales farms reported production contracts, but 7.2 percent reported marketing contracts, a sixfold difference. Similarly, five times as many high-sales farms reported marketing contracts as production contracts. This difference in reported use of marketing and production contracts reflects the grain and dairy production emphasis of these farms, since marketing contracts are more common among these enterprises. As was the case with production contracts, while farmers in each typology group report use of marketing contracts, larger farms use them most commonly.

Summary

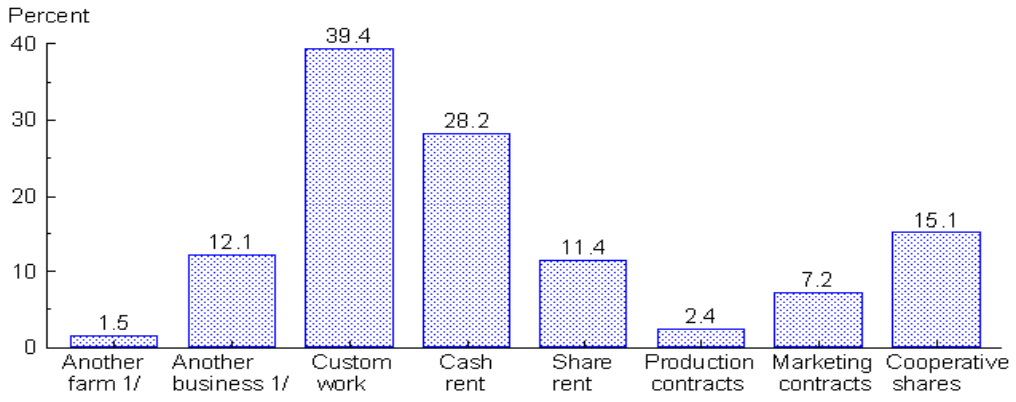
Farmers across the typology use a variety of business links and arrangements. Although the data are not shown, partnerships and family corporations have many kinds of business linkages with farm and nonfarm entities, as one would expect. Proprietorships, even though owned and operated by a single owner (or single family), also have a variety of formal business linkages with landlords, contractors, cooperatives, other farm and farm-related businesses, and nonfarm businesses (fig. 9). As another

[3]Farms frequently enter into two types of contracts. A *production contract* is a legal agreement between a farm operator (contractee or agent) and another person or firm (contractor or principal) 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. 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.

Figure 9

Business arrangements of sole proprietorships, 1998

Even sole proprietorships have business linkages



1/ Data are from the 1996 Agricultural Resource Management Study, version 1.

Source: USDA, Economic Research Service, 1998 Agricultural Resource Management Study, version 1.

example, 34 percent of high-sales farms had production or marketing contracts (table 7), even though the overwhelming majority of these farms (85 percent) were proprietorships (table 6).

The complexity of today's business arrangements means that a focus on business organization of farms by itself is not sufficient to assess the extent of business linkages or the degree to which production or market integration may exist. Farm ownership may reside with a single farmer or family, but proprietorships also have informal arrangements with others to share farm assets, debt, and income.

Traditional classifications of farms by business organization need to be supplemented by information that indicates the degree to which farms participate in alternative business arrangements to gain access to markets and production inputs. These arrangements not only shift production, marketing, and financial risks among participants, but also affect control of decisions, the use of farm resources, and the distribution of income among farm families and other households or business entities.

Contributions by Spouses of Farm Operators

Spouses contribute to the economic performance of farms and the well-being of farm households through a variety of activities both on and off the farm. In addition to helping with day-to-day operations, spouses join in management decisions, especially those related to longer term financial commitments. Spouses also work off-farm for reasons other than earning extra income, including providing benefits such as health insurance. Still, the need to generate additional income was their primary reason for off-farm work, especially on small farms.

Spouses of farm operators contribute to their households in a number of ways, but only a portion of these contributions is measurable. For example, spouses regularly raise children and run the farm household, but these activities are not easily quantified. Some of the work that spouses perform can be measured, however, which reveals the variety and depth of the spouses' contributions to their households' economic well-being. Spouses' contributions to farm businesses and households can be viewed as contributions by women, because over 90 percent of operator spouses are female.

This section uses data from the ARMS. The analysis in this section is limited to the 90 percent of farm households that answered questions about participation of the spouse and operator in work both on or off the farm. ARMS collects data on spouse contributions through work on or off the farm as well as the degree of involvement of the spouse in day-to-day and longer term farm decisions. In addition, analysis of ARMS data gives some insight into both the spouse's and operator's reasons for working off the farm, and ARMS shows how off-farm income is spent. Spouses' contributions through off-farm work are often significant, and their reasons for working off the farm often differ from those of the operators.[4]

Off-farm work is commonly recognized as the area where the spouse spends a sizable portion of time, which is confirmed by ARMS data (table 8). Farm spouses as a group spent 65 percent of their working hours off the farm in 1996 and 35 percent on the farm. Operators did just the opposite, spending 65 percent of their working hours on the farm and only 35 percent off the farm. Nevertheless, spouses make a contribution to the farm business by working on the farm and making management decisions.

Onfarm Work

On average, spouses of farm operators spent much less time working on the farm in 1996 than the operators themselves. Spouses worked an overall average of 366 hours on the farm, compared with 1,525 hours for the operators. There was some variation among typology groups, but the average number of hours for spouses was relatively low in each group, ranging from just over 100 hours for spouses of limited-resource and retired farmers to more than 500 hours for the spouse of farming-occupation, large, and very large farmers. In contrast, only retired operators and residential/lifestyle operators devoted fewer than 1,000 hours to farming.

As one would expect from their relatively low number of hours of work spent on the farm, spouses provided only 17 percent of the total labor used on family farms (fig. 10). Regardless of the typology group, the largest portion of total hours spent on the farm was provided by the operator. Nevertheless, spouses provided a slightly larger portion of work hours than hired laborers.

Onfarm Wages

Wages paid by the farm to spouses were fairly low. Average wages to spouses were highest for spouses on very large farms ($2,100 per year) and large farms ($1,800), with smaller amounts going to spouses in the other groups (table 8). The modest wages of spouses reflected the fact that they spend a limited

[4]Most data in this section are from the 1996 ARMS, but reasons for working off the farm, how income from off-farm jobs was spent, and spouse involvement in specific farm management decisions came from the 1994 Farm Costs and Returns Survey (FCRS), a predecessor to the ARMS survey.

Table 8–Operator and spouse hours of work, by farm typology group, 1996

Item	Small family farms[1]					Large family farms[1]	Very large family farms[1]	All family farms
	Limited-resource[2]	Retire-ment[3]	Residential/ lifestyle[3]	Farming-occupation[3]				
				Low-sales	High-sales			
				Number				
Farm operator households	268,412	240,958	509,647	419,895	178,371	88,950	52,946	1,759,178
Operator:								
				Hours per year per household				
Average hours worked:								
Onfarm[4]	1,181	637	876	1,965	2,863	3,139	2,845	1,525
Off-farm	531	*83	2,022	390	457	143	*165	830
				Percent				
Share of total hours worked:								
Onfarm:	69.0	88.5	30.2	83.5	86.2	95.7	94.5	64.8
Off-farm:	31.0	*11.5	69.8	16.5	13.8	4.3	*5.5	35.2
				Dollars per year per household				
Average annual farm wages	d	d	**10	*97	*1,108	2,741	6,730	481
Spouse:								
				Hours per year per household				
Average hours worked:								
Onfarm[4]	*107	104	260	545	769	689	556	366
Off-farm	*180	233	1,182	678	698	717	626	690
				Percent				
Share of total hours worked:								
Onfarm:	37.4	30.8	18.0	44.6	52.4	49.0	47.0	34.6
Off-farm:	62.6	69.2	82.0	55.4	47.6	51.0	53.0	65.4
				Dollars per year per household				
Average annual farm wages	d	d	52	*118	746	*1,812	2,126	278

d = Data suppressed due to insufficient observations or because the standard error was greater than 75 percent.
* = Standard error is between 25 and 50 percent of the estimate.
** = Standard error is between 51 and 75 percent of the estimate
[1]Small family farms have sales less than $250,000. Large family farms have sales between $250,000 and $499,999. Very large family farms have sales of $500,000 or more.
[2]Limited-resource farms have household income less than $20,000, farm assets less than $150,000, and sales less than $100,000.
[3]Small farms other than limited-resource farms are classified according to the major occupation of their operators. Operators of retirement farms are retired. Operators of residential/lifestyle farms report a nonfarm occupation. Operators of farming-occupation farms report farming as their major occupation. Farming-occupation farms are further divided into low-sales (sales less than $100,000) and high-sales (sales between $100,000 and $249,999).
[4]Includes paid and unpaid labor.
Source: USDA, Economic Research Service, 1996 Agricultural Resource Management Study, version 1.

Figure 10

Percent distribution of hours worked on farm, by farm typology group, 1996

Operators account for a larger share of farm work than either the spouse or hired workers, regardless of typology group

	Small family farms (sales less than $250,000)					Other family farms		
Share of hours provided by:	Limited-resource	Retirement	Residential/ lifestyle	Farming-occupation/ low-sales	Farming-occupation/ high-sales	Large	Very large	All family farms
Operator	86.3	74.0	65.6	70.4	68.8	69.8	71.6	71.0
Spouse	*8.3	11.6	19.8	18.9	18.5	15.2	13.9	16.9
Hired workers	*5.3	*14.4	14.6	10.8	12.7	15.0	14.5	12.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

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

Source: USDA, Economic Research Service, 1996 Agricultural Resource Management Study, version 1.

number of hours on farm-related work and spent a large portion of their time working off the farm and performing unremunerated work.

Paying spouses for their onfarm work may seem redundant, but it has a number of advantages and can make good business sense. Paying the spouse for onfarm work is considered a business expense which reduces the amount of taxable business income, which may reduce the household's income tax payment. In addition to providing the spouse with ready cash, this paycheck provides the basis for Social Security contributions which become a benefit to the spouse in the future. (For information on tax policies relevant to farmers, see the section "Federal Tax Policies Affecting Farmers.")

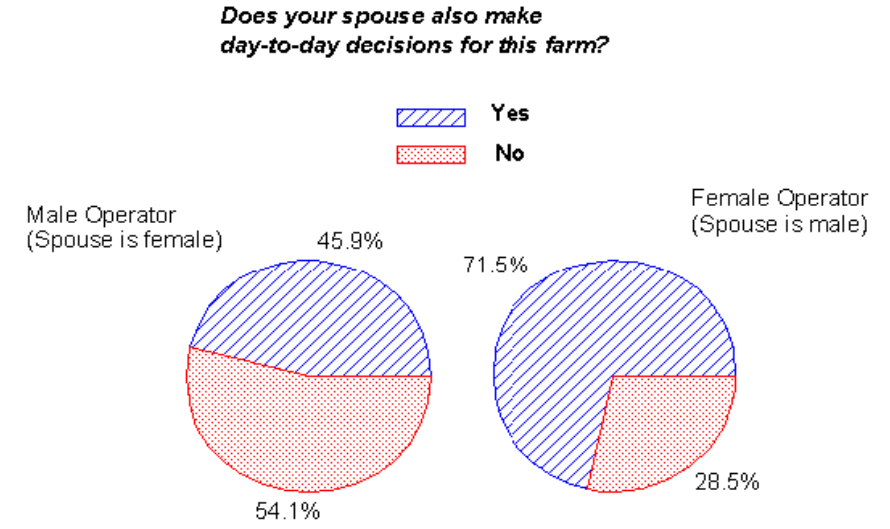
Spouse Involvement in Farm Decisionmaking

Although farm spouses averaged relatively few hours working on the farm, they made an important contribution to the farm business through decisionmaking. About 47 percent of all operators who responded to the ARMS survey question regarding the decisionmaking process indicated that the spouse participated in day-to-day decisions about the farm. On a gender basis, 46 percent of male operators reported that their spouses participated in day-to-day farming decisions, while 71 percent of female operators reported their spouses contributed to these decisions (fig. 11). Within each typology group, between one-third and one-half of the spouses participated in daily decisions (fig. 12).

Figure 11

Spouses' contributions to farming decisions, by gender, 1996

Male spouses are more likely to participate in day-to-day decisions

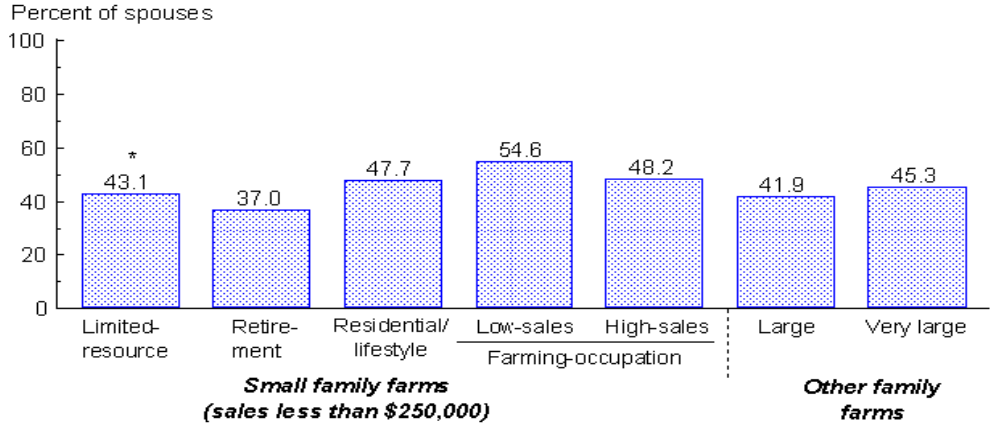


Source: USDA, Economic Research Service, 1996 Agricultural Resource Management Study, version 1.

Figure 12

Share of spouses contributing to day-to-day decisions for the farm, by farm typology group, 1996

Spouses take an active role in decisionmaking on all types of farms



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

Source: USDA, Economic Research Service, 1996 Agricultural Resource Management Study, version 1.

In addition to day-to-day operating decisions, spouses made farm management decisions, especially in combination with the operator (fig. 13). Many long-term financial decisions–obtaining financing, buying or selling land, and buying major farm equipment–were made jointly with both the spouse and operator contributing input. Taking an off-farm job was another area where the spouse made decisions in conjunction with the operator.

Off-Farm Work

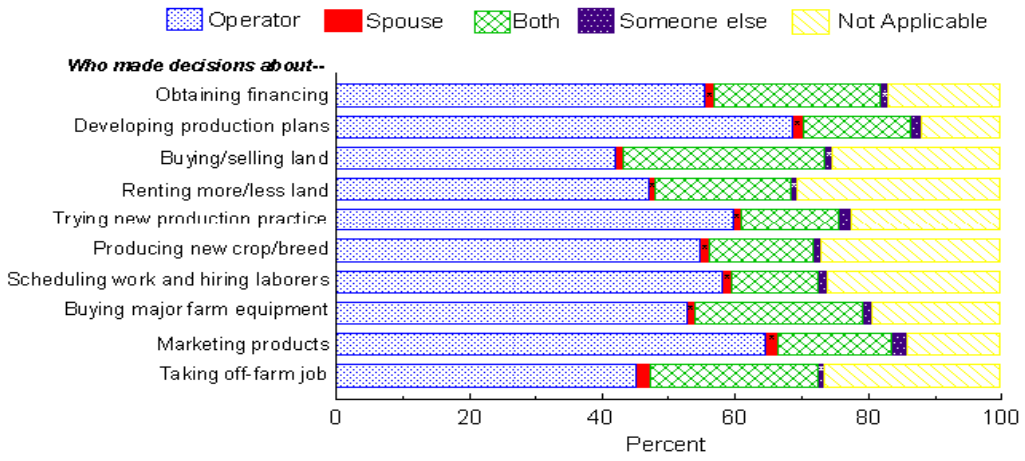
For all farm households, farm spouses averaged 690 hours of off-farm work per year, somewhat less than the 830-hour average for operators (table 8). Spouses worked more off the farm than operators, however, in certain typology groups. For example, spouses on low-sales small farms, high-sales small farms, large farms, and very large farms averaged more hours of off-farm work than the operators. Operators in these groups averaged between 2,000 and 3,000 hours of farm work and had little time left over for off-farm work.

Spouses' average hours of off-farm work varied widely among the typology groups. Spouses of residential/lifestyle farm operators worked off the farm the most, an average of 1,182 hours per year, accounting for 82 percent of their working hours. The picture was similar for residential/lifestyle operators, who averaged 2,022 hours off the farm, accounting for 70 percent of their working hours. At the other extreme, spouses on limited-resource and retirement farms spent an average of about 200 hours working off the farm. Spouses in the remaining groups spent between 600 and 700 hours on off-farm work, and they divided their work time more or less evenly between farm and off-farm work.

Figure 13

Operator and spouse management decisions, 1994

Spouses' opinions figured into many areas of management



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

Source: USDA, Economic Research Service, 1994 Farm Costs and Returns Survey, version 1.

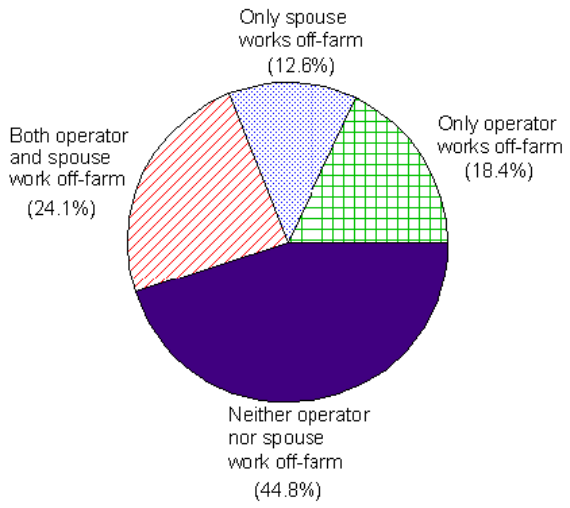
Off-Farm Wages

Farm households relied heavily on off-farm jobs. In 1996, 55 percent of all farm households reported the operator, spouse, or both worked off the farm (fig. 14). This estimate understates participation in off-farm work, because data on work by household members other than the operator and spouse are not available.

Table 9 details the effects of off-farm wages on farm household income. It shows average annual off-farm wages, farm earnings, and total household income for various combinations of off-farm work by the operator and spouse. By comparing the household income of households with and without operators or spouses who worked off-farm, the effects of that work can be gauged. Note that when neither the spouse nor operator worked off-farm, there was still a modest amount of off-farm wages earned by household members other than the operator and spouse. Work by household members other than spouse or operator may also help explain the relative high wage and salary income reported by households with retirement farms.

Total operator household income was higher when some combination of operator and spouse worked off the farm than when neither operator nor spouse worked off the farm. There were two exceptions to this rule, however. First, average annual household income on very large family farms was higher when neither the operator nor spouse worked off the farm than when only the spouse worked off the farm or when both spouse and operator worked off the farm. In this case, having both the operator and spouse concentrate on farming led to higher farm earnings. Alternatively, the farm may have been of such size that neither the operator nor the spouse needed to or had enough available time to work off-farm.

Figure 14
Off-farm work of operator and spouse, 1996
In over half of farm households, either the operator or the spouse (or both) work off-farm



Note: Classification is based on off-farm work by operator and spouse only. Work by other household members is not considered.
Source: USDA, Economic Research Service, 1996 Agricultural Resource Management Study, version 1.

Table 9–Household income, by off-farm work of operator and spouse and by small farm typology, 1996

Item	Small family farms[1]					Large family farms[1]	Very large family farms[1]	All family farms
	Limited-resource[2]	Retirement[3]	Residential/ lifestyle[3]	Farming-occupation[3]				
				Low-sales	High-sales			
	Number							
Farm operator households	268,412	240,958	509,647	419,895	178,371	88,950	52,946	1,759,178
Off-farm work by:[4]								
Operator only	64,624	d	179,380	50,732	*27,504	2,529	*2,902	338,392
Spouse only	d	*29,557	d	102,312	44,519	34,249	15,776	232,377
Both	23,246	d	326,519	67,192	*25,213	*5,656	2,490	454,958
Neither	d	196,038	d	199,659	81,135	46,516	31,778	733,451
	Dollars per household							
Annual off-farm wages and salaries[5]	*5,259	*11,886	57,971	16,316	18,394	13,467	17,429	26,190
Off-farm work by:[4]								
Operator only	13,573	32,362	46,065	18,737	19,914	20,062	46,828	33,016
Spouse only	d	53,040	d	27,787	22,914	22,970	31,361	29,154
Both	16,677	42,516	64,854	26,285	58,248	43,946	55,184	55,789
Neither	d	3,836	d	6,469	3,014	2,405	4,869	3,742
Annual farm earnings[6]	*-2,960	d	-4,719	d	26,530	49,536	145,572	7,561
Off-farm work by:[4]								
Operator only	-6,064	-1,419	-5,029	-3,108	47,106	28,815	175,589	*1,215
Spouse only	d	-3,221	d	-5,493	31,067	51,926	83,025	16,324
Both	-6,018	-3,161	-4,604	5,452	16,974	47,118	69,857	*-930
Neither	d	**1,854	d	**-1,151	20,034	49,196	179,815	12,980
Total household income[7]	10,021	41,238	72,477	32,781	58,990	71,319	179,351	50,984
Off-farm work by:[4]								
Operator only	10,465	89,987	65,948	26,598	96,733	71,527	257,779	54,403
Spouse only	d	93,310	d	41,988	59,560	81,125	121,214	62,289
Both	12,031	65,136	76,571	40,765	78,944	109,253	146,640	68,790
Neither	d	30,155	d	26,947	39,681	59,476	203,614	34,780

d = Data suppressed due to insufficient observations or because the standard error was greater than 75 percent. * = Standard error is between 25 and 50 percent of the estimate. ** = Standard error is between 51 and 75 percent of the estimate

[1]Small family farms have sales less than $250,000. Large family farms have sales between $250,000 and $499,999. Very large family farms have sales of $500,000 or more.

[2]Limited-resource farms have household income less than $20,000, farm assets less than $150,000, and sales less than $100,000.

[3]Small farms other than limited-resource farms are classified according to the major occupation of their operators. Operators of retirement farms are retired. Operators of residential/lifestyle farms report a nonfarm occupation. Operators of farming-occupation farms report farming as their major occupation. Farming-occupation farms are further divided into low-sales (sales less than $100,000) and high-sales (sales between $100,000 and $249,999).

[4]Classification is based on off-farm work by operator and spouse only. Work by other household members is not considered.

[5]Average wages and salaries may include the wages and salaries of household members other than the operator and spouse.

[6]Includes the operator household's share of farm business income (net cash farm income less depreciation), wages paid to the operator and other household income, net rental income from renting farmland, net income from another farm business, and commodities paid to household members for farm work.

[7]Includes off-farm wages and salaries and farm earnings, shown above. Total household income also includes the net income of any nonfarm businesses, interest and dividends, and all other cash off-farm income, which are not shown separately.

Source: USDA, Economic Research Service, 1996 Agricultural Resource Management Study, version 1.

Second, average annual household income on low-sales small farms was about equal when neither the operator nor spouse worked off the farm and when only the operator worked off the farm. Most of the income for low-sales farms with neither the operator nor spouse working off-farm came from unearned off-farm income, such as dividends, interest, and retirement programs (not shown). Low-sales farmers reported farming as their major occupation, but a relatively large share of them were at least 65 years old (see "Attributes of Small and Large Farms"). Many of these older farmers and their spouses received Social Security and other retirement income, even if they reported farming as their occupation.

Reasons for Working Off the Farm

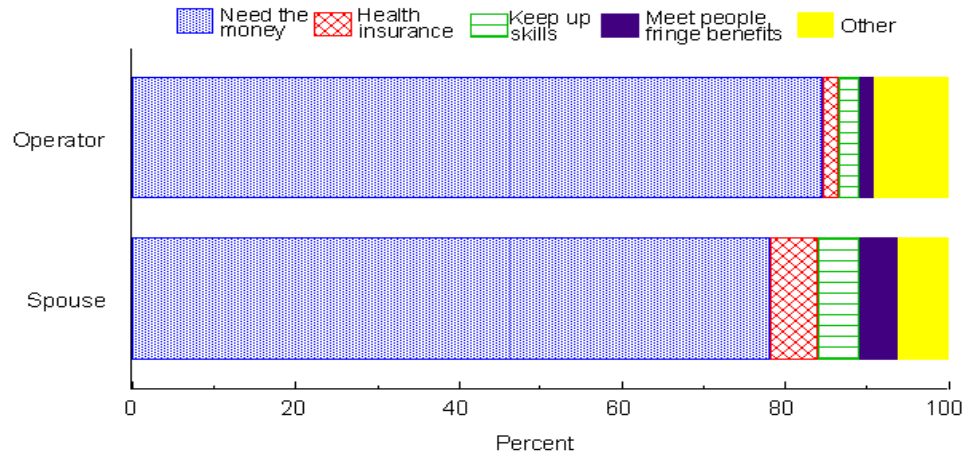
Not surprisingly, "need the money" was overwhelmingly the most important reason for working off the farm for both operators and spouses (fig. 15). However, a higher percentage of operators (85 percent) gave this reason than spouses (78 percent). Spouses were more likely to work off the farm for the purposes of acquiring health insurance (6 percent for spouses versus 2 percent for operators) and keeping up skills (5 percent versus 2 percent). Meeting people and fringe benefits were also more important to spouses than to operators.

Needing money was also the leading reason given by spouses and operators in each typology group (fig. 16). The importance of this reason, however, varied somewhat. The highest percentages of operators and spouses gave this answer on limited-resource farms (85 percent) and residential/lifestyle farms (86 percent). This seems reasonable, since households operating limited-resource farms need–by definition–additional income, and operators of residential/lifestyle farms by definition rely on a nonfarm major occupation.

Figure 15

Reasons given for holding off-farm jobs, 1994

"Need the money" is the most important reason for both operators and spouses



Source: USDA, Economic Research Service, 1994 Farm Costs and Returns Survey, version 1.

Figure 16

Reasons given for holding off-farm jobs, by farm typology group, 1994

"Need the money" is less important for those with retirement, large, and very large farms

	Small family farms (sales less than $250,000)					*Other family farms*	
Reasons:	Limited-resource	Retirement	Residential/ lifestyle	Farming-occupation/ low-sales	Farming-occupation/ high-sales	Large	Very large
Need the money	85.3	63.5	86.2	75.6	70.0	61.7	58.9
Health insurance	*2.1	**3.5	*2.5	6.6	9.5	*8.6	*5.0
Keep up skills	*2.9	*13.5	*2.8	*3.4	*5.6	*7.2	10.5
Meet people, fringe benefits	d	d	*1.9	*5.2	*6.0	*7.8	*10.7
Other things	d	d	6.6	9.2	8.9	14.7	15.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

* = Standard error is between 25 and 50 percent of the estimate.
** = Standard error is between 51 and 75 percent of the estimate.
d = Data suppressed due to insufficient observations.
Source: USDA, Economic Research Service, 1994 Farm Costs and Returns Survey, version 1.

In contrast, less than two-thirds of operators and spouses on retirement, large, and very large family farms reported needing money as their most important motivation for working off-farm. As pointed out in "Farm Household Income and Wealth," households operating retirement farms rely heavily on unearned income, such as Social Security. Reliance on unearned income means they are less likely to be concerned about work-related income. Households operating large and very large farms rely less on off-farm income than other farm households and have an average household income above the average for all U.S. households. Thus, they are less likely than other farm households to need income from off-farm work. Or, alternatively, they may not be able to find suitable off-farm employment in their locality.

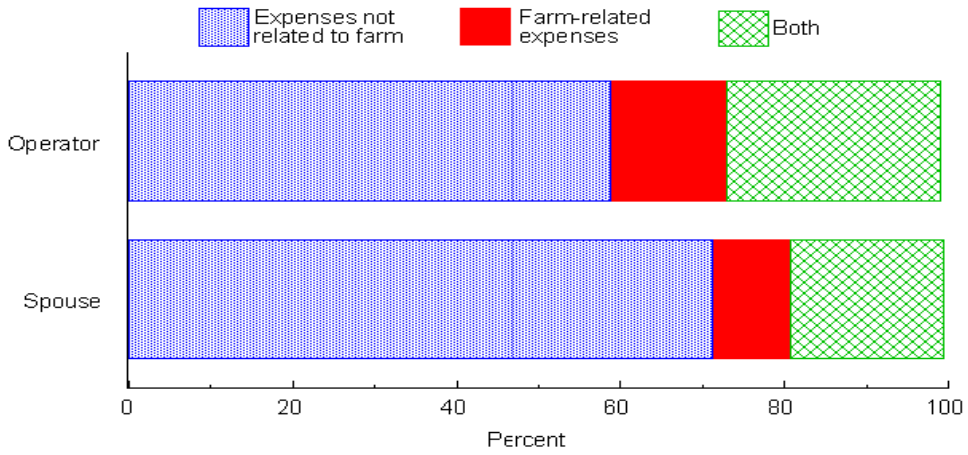
How the Money Was Used

Because most operators and spouses gave needing money as the most important reason for working off the farm, it would be useful to see how the additional income was used. Contrary to conventional wisdom, most farm operators and spouses did not work off the farm to directly support their farming business. Only 14 percent of operators and 9 percent of spouses said that they worked off the farm solely to offset farm- or ranch-related expenses (fig. 17). Larger percentages worked off the farm to partially support farm expenses (26 percent of operators and 19 percent of spouses). Most worked off the farm for reasons not related to the farm business, which could include anything from buying groceries to funding a retirement account.

Figure 17

How farm families used the money from off-farm jobs, 1994

Most operators and spouses used off-farm earnings for expenses not directly related to the farm



Source: USDA, Economic Research Service, 1994 Farm Costs and Returns Survey, version 1.

The share of operators and spouses who reported using the money for nonfarm purposes varied among the typology groups. Only two-fifths of operators used off-farm income for nonfarm purposes in the low- and high-sales groups. In contrast, virtually all spouses of retired operators reported spending for purposes not related to the farm (fig. 18).

Summary

Spouses' contributions to farm households are varied. Their contributions alone, and in combination with the operators, produce a combination of work on and off the farm that benefits farm households. It is this mix of talents and labor that the spouse brings to the farming household, along with those of the operator, that makes the family farm.

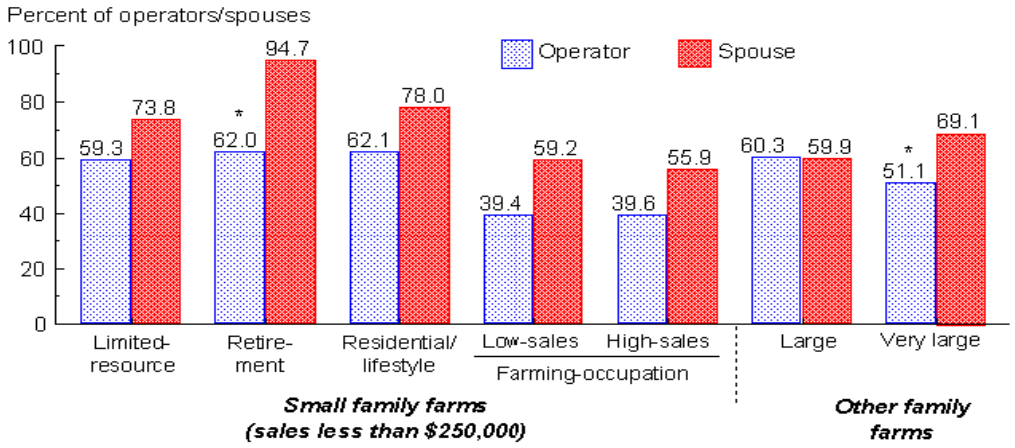
Generally speaking, the highest total farm household income is reached when the spouse alone, or in combination with the operator, works off the farm. While both operator and spouse work off the farm mostly for the money, the spouse is more likely to include other reasons such as health insurance, keeping up skills, and meeting people. Both spouse and operator are most likely to spend the money from off-farm work for something other than the farm.

The spouse usually works on the farm less than the operator. Nevertheless, spouses still provide 17 percent of work hours on family farms, slightly more than hired laborers. In addition, spouses participate in key management decisions that guide the farm on a daily basis and in the long run.

Figure 18

Percent of operators and spouses using money from off-farm jobs for expenses not directly related to the farm, by farm typology group, 1994

Spouses on retirement farms were most likely to spend for nonfarm purposes



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

Source: USDA, Economic Research Service, 1994 Agricultural Resource Management Study, version 1.

Female Farm Operators and Their Farms

Women operate a growing share of farms, rising from 5 percent of farmers in 1978 to 9 percent in 1997. While women manage all types and sizes of farms, they most commonly manage small farms, measured by acres or sales, and specialize in livestock. Fewer women report farming as their primary occupation than their male counterparts, indicating either a part-time focus or retirement. The average income of female-operator households was lower than that of male-operator households, with the difference resulting more from low farm earnings than from low off-farm income. But, recent data show that the average income of female operator households was higher than that of all U.S. female-headed households or females living alone.

Women in farming have generally been characterized as helpmates to male operators (e.g., farm wives), and their contributions to farming have often been underestimated. Women contribute to farm businesses in a variety of ways, with responsibilities that include production, marketing, record keeping, and financial planning activities. Some women have primary responsibility for running a farm business, though these female farm operators, just like male operators, may operate a farm alone or they may share farming responsibilities with others. This section compares the characteristics of female and male operators, their farm businesses, and their households. Spouses' involvement in the farm and in off-farm work was addressed in the previous section.

Women make up a small but growing proportion of farm operators in the United States. When the census of agriculture began collecting information on farm operator gender in 1978, women accounted for 5 percent of all operators (fig. 19). By 1997, that share had grown to 9 percent, because female-operated farms had increased by more than 52,000 while male-operated farms had dropped over 431,000. The number of female operators is likely to be understated because U.S. statistics provide for only one person associated with a farm to be named as the operator (see the box "One Farm, One Operator").

One Farm, One Operator

The census of agriculture defines a farm operator as the person who does the farm work or who makes day-to-day decisions about the farm business. Census data collection procedures allow only one person to be identified as the operator, regardless of any shared management arrangement. Therefore, according to the census, the number of operators is the same as the number of farms.

Listing only one operator per farm has contributed to underestimating the contribution of U.S. women to farm work and farm management. For example, on operations where both husband and wife participate in running the farm, the management role of one or the other is disregarded, most likely the woman's.

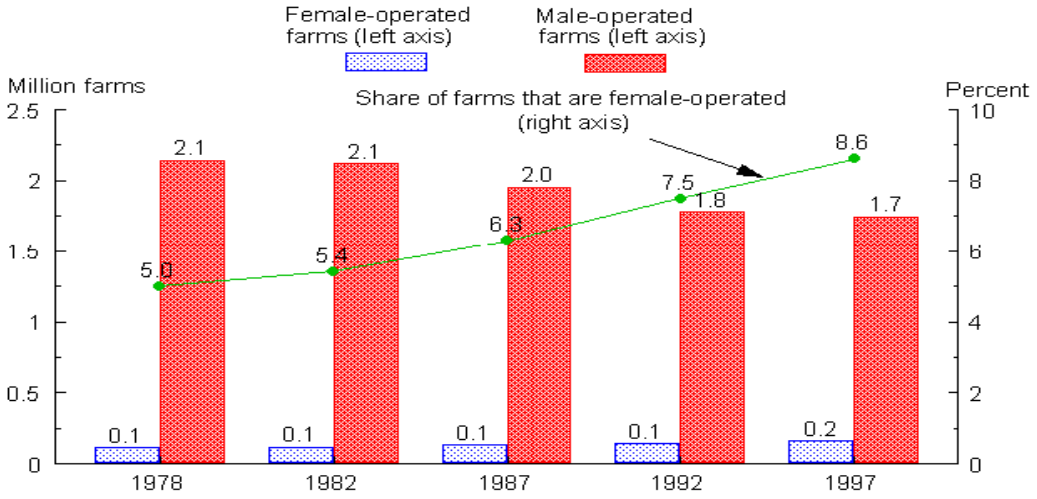
Evidence from Canada, where information on shared management of multi-operator farms is now collected, indicates that the woman's role is most likely to be disregarded. According to Cloutier and Kemp (1994), the 1991 Canadian Census of Agriculture–which historically also had listed one operator for each census farm–provided for naming as many as three operators per farming operation. Of the 100,700 female farm operators identified in that census, 84 percent farmed with their husbands and another 6 percent were also associated with multi-operator farms. Without providing for multiple operators, the management contribution of one or more of the operators would have gone unrecognized.

Like the U.S. census of agriculture, the USDA's Agricultural Resource Management Study (ARMS) allows only one person per farm to be identified as the operator. However, the ARMS has addressed the issue of joint management in some survey years. For example, in 1996, the survey asked the question: "Does your (the operator's) spouse also make day-to-day decisions for this farm/ranch?" in order to determine whether both spouses were operators of their farm. This, of course, limits information on shared management to married couples, but it does at least begin to acknowledge the variety of management arrangements that may exist.

Figure 19

Farms, by gender, 1978-97

The share of farms operated by women increased from 5 percent in 1978 to 9 percent by 1997



Source: Census of Agriculture, various years.

Farm Income, Sales, and Contracts

According to ARMS data, women operated nearly 155,000 U.S. farms in 1996, while men were identified as operators of more than 1.7 million farms (table 10).[5] Female-operated farms were smaller than male-operated farms, averaging 237 acres in size and $37,100 in gross sales, compared with 482 acres and $88,400 in gross sales for male-operated farms. Ninety percent of female-operated farms had less than $50,000 in gross sales, compared with only 72 percent of male-operated farms.

Fewer female-operated farms were in the higher sales classes. Only 8 percent of female-operated farms had sales of $50,000-$249,999 compared with 20 percent of male-operated farms. About 3 percent of female-operated farms and 8 percent of male-operated farms were in the highest sales class, $250,000 and over. Female-operated farms with sales $50,000-$249,999 came nearest to the sales and income figures for the corresponding male-operated farms.

[5]The analysis in this section is limited to the 94 percent of farm operators who answered the question on operator gender. The farm typology is not used extensively in this section due to sample size considerations. Assigning the relatively few female observations in the survey to typology groups greatly reduces the statistical reliability of the resulting estimates.

Table 10–Farms, acres operated, gross cash farm income, and gross value of sales, by operator gender, farm type, and sales class, 1996

Item	Farms		Acres operated		Gross cash income	
	Male	Female	Male	Female	Male	Female
	Number		*Acres per farm*		*Dollars per farm*	
Total farms	1,756,426	154,845	482	237	80,546	24,193
Share of total U.S. (percent)	91.9	8.1	95.8	4.2	97.4	2.6
Sales class:						
Less than $50,000	1,266,124	138,727	218	140	10,803	5,517
$50,000 - $249,999	342,519	*11,787	887	1,025	122,790	104,449
$250,000 or more	147,783	*4,330	1,808	1,210	580,158	404,044
Farm type:						
Cash grain	344,216	3,766	736	984	133,246	131,693
Other field crops[1]	332,871	46,713	352	152	61,333	12,394
Fruit, vegetables, nursery	119,053	*6,604	140	52	176,449	122,230
Beef	603,441	*65,110	561	328	31,406	10,645
Other livestock (including dairy)	356,844	32,652	340	129	98,735	35,862

Note: Includes only farm operations for which gender question was answered. * = Standard error is between 25 and 50 percent of the estimate. [1]Other field crops category includes farms with gross farm income solely from Conservation Reserve Program (CRP) payments.
Source: USDA, Economic Research Service, 1996 Agricultural Resource Management Study, all versions.

Female operators tended to specialize in livestock, with beef cattle producers outnumbering other livestock producers by 2 to 1. As pointed out in "Attributes of Small and Large Farms," beef cattle are a common specialization for operators of small farms in general. Female beef cattle producers, along with producers of other field crops, had the lowest sales and income of all farm types, averaging just over $10,000.

While relatively few female farm operators specialized in cash grain production, cash grain farms had higher average sales and income than most other farm types operated by women, about the same as the average for male-operated farms with the same specialization. Female-operated farms producing fruit, vegetables, and nursery and greenhouse crops also had relatively high income and sales.

A very large share of farm operators marketed their production solely through cash sales, 95 percent of female operators and 86 percent of male operators (table 11). The share of farmers producing under production contracts was the same regardless of gender, about 2 percent, but the share of female operators engaging in marketing contracts (under 4 percent) was about one-third of the share for male operators (12 percent). Although only 34 percent of female operators with contracts used production contracts, these female operators accounted for a disproportionate 71-percent share of the total value of contract production on female-operated farms.

Table 11–Production and marketing contracts, by operator gender, 1996

Item	Operator gender	
	Male	Female
	Number	
Total farms:	1,756,426	154,845
Cash sales only	1,507,939	146,436
Production contracts only	32,788	*2,832
Marketing contracts only	209,344	*5,577
Production and marketing contracts	6,354	d
	Percent	
Share of farms:		
Cash sales only	85.9	94.6
Production contracts only	1.9	*1.8
Marketing contracts only	11.9	*3.6
Production and marketing contracts	0.4	d
Share of contract production:		
Production contracts	34.0	71.1
Marketing contracts	66.0	*28.9
Contract share of total production:		
All farms	31.1	59.8
Sales less than $50,000	*10.7	*6.4
Sales $50,000 - $249,999	25.6	*41.8
Sales $250,000 or more	36.5	71.5

Note: Includes only farm operations for which gender question was answered. d = Data suppressed due to insufficient observations.
* = Standard error is between 25 and 50 percent of the estimate.
Source: USDA, Economic Research Service, 1996 Agricultural Resource Management Study, all versions.

Female-operated farms with production or marketing contracts accounted for a large share of total value of production by female-operated farms, particularly in the highest sales class. On the largest female-operated farms, commodities produced under production and marketing contracts made up 72 percent of the total value of production, compared with 37 percent of total value on the largest male-operated farms.

Sources of Gross Cash Income and Financial Position

The sources of gross income were different for female- and male-operated farms (table 12), reflecting female-operated farms' greater specialization in livestock production. On average, the livestock share of gross cash farm income was slightly larger than the crop share for female-operated farms, in contrast to male-operated farms, where the livestock share trailed the crop share.

Government payments–which are generally associated with crops but not livestock–were smaller for female-operated farms, nearly 40 percent below the $3,100 average for male operators, but the payments

Table 12–Sources of farm business income and farm financial position, by operator gender, 1996

Item	Operator gender	
	Male	Female
	Dollars per farm	
Gross cash farm income:	80,546	24,193
Livestock	28,946	9,582
Crops	40,206	8,730
Government payments	3,124	1,917
Other farm income	8,269	*3,964
	Percent	
Share of gross cash farm income from:		
Livestock	35.9	39.6
Crops	49.9	36.1
Government payments	3.9	7.9
Other farm sources	10.3	16.4
Debt/asset ratio	7.8	10.0
	Percent of farms	
Farm financial performance:[1]		
Favorable	59.1	46.4
Marginal income	30.8	45.4
Marginal solvency	5.2	d
Vulnerable	4.9	d

Note: Includes only farm operations for which gender question was answered. d = Data suppressed due to insufficient observations.
* = Standard error is between 25 and 50 percent of the estimate.
[1]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 more than 40 percent;
Vulnerable: negative net farm income and debt/asset ratio more than 40 percent.
Source: USDA, Economic Research Service, 1996 Agricultural Resource Management Study, all versions.

accounted for 8 percent, on average, of gross cash farm income for female operators compared with 4 percent for males.

Most farms, whether operated by women or men, had fairly low average levels of farm debt relative to farm assets. The debt/asset ratio in 1996 was 10 percent and 8 percent, respectively, for female and male operators. However, men were more likely than women to have positive net farm income and be classified in the favorable or marginal solvency groups.

The difference in financial position between male- and female-operated farms can be largely explained by differences in size. In general, farms with sales less than $50,000 (which includes 90 percent of female-operated farms) are more likely than other farms to have negative income and thus fall in the marginal income category (Hoppe and others, 1996, p. 22).

Business Organization, Tenure, and Program Participation

Sole proprietorship was the most common type of business organization–regardless of operator gender–accounting for 81 percent of female-operated farms and 87 percent of male-operated farms (table 13). The remaining 19 percent of female-operated farms operated under formal agreements with others that could specify such elements as shares of ownership, management responsibilities, or sharing of income and expenses.

More than three-fourths of female farmers owned all the land they operated, compared with half of male farmers. This correlates with the observation that operators of small farms, in general, are less likely to rent land.

Table 13–Business organization and land tenure, by operator gender, 1996

Item	Operator gender	
	Male	Female
	Number of farms	
Total farms	1,756,426	154,845
Business organization:		
Sole proprietorship	1,532,967	125,386
Partnership	114,859	*7,666
Family corporation	94,148	d
Nonfamily corporation or cooperative	14,452	d
Land tenure:		
Full owner	873,874	121,041
Part owner	726,169	*27,994
Tenant	156,382	*5,809
	Percent of farms	
Business organization:		
Sole proprietorship	87.3	81.0
Partnership	6.5	*5.0
Family corporation	5.4	d
Nonfamily corporation or cooperative	0.8	d
Land tenure:		
Full owner	49.8	78.2
Part owner	41.3	*18.1
Tenant	8.9	*3.8

Note: Includes only farm operations for which gender question was answered. d = Data suppressed due to insufficient observations.
* = Standard error is between 25 and 50 percent of the estimate.
Source: USDA, Economic Research Service, 1996 Agricultural Resource Management Study, all versions.

Women also play an important role as farm landlords, even if they do not farm. The most current comprehensive data on farm landlords is for 1988 from the 1987 AELOS. Although AELOS is dated, it does indicate the importance of female landlords. About 40 percent of landlords were women, which reflects widows retaining ownership of farmland after the death of their husbands and leasing it out for income (Hoppe and others, 1995, p. 3).

Relatively few female and male farm operators reported receipt of government payments, but the programs in which they participated differed (table 14). Of farms receiving government payments, one-fourth of those operated by women received transition payments compared with three-fourths of those operated by men. The opposite was true with regard to enrollment in the CRP, i.e., three-fourths of female operators and one-fourth of male operators receiving government payments were enrolled in the CRP. Among women whose farms received income solely from CRP enrollment, two-thirds were 65 years old or older.

Table 14–Participation in government programs, by operator gender, 1996

Item	Operator gender	
	Male	Female
	Number	
Total farms	1,734,819	155,532
Farms receiving:		
Any government payment(s)	640,877	46,401
Transition payments	473,708	12,075
Farms enrolled in the Conservation Reserve Program (CRP)	166,214	*35,132
Farms w/ CRP sole source of gross farm income	65,095	*30,546
Under 65	35,250	*10,276
65 or over	*29,845	*20,270
	Dollars per farm	
Government payments per farm	3,559	1,901
Government payments per participating farm	9,635	6,371
	Percent	
Share of farms:		
Receiving any government payments	36.9	29.8
Receiving transition payments	27.3	7.8
Enrolled in CRP	9.6	22.6
With CRP sole source of gross farm income	3.8	19.6

Note: Includes only farm operations for which gender question was answered. * = Standard error is between 25 and 50 percent of the estimate.
Source: USDA, Economic Research Service, 1996 Agricultural Resource Management Study, all versions.

Operator Characteristics

Female operators were less likely than males to report farming as their major occupation. While 28 percent of female operators reported farming as their primary occupation and an equal share reported they were "retired," the largest share of female farm operators–45 percent–reported "something else" as their primary occupation (table 15). In contrast, almost half of male operators reported farming as their primary occupation, and only one-third reported "something else."

About half of female operators were married, compared with over 90 percent of male operators. While the share of married male operators was fairly consistent across all age groups (90 percent or higher after age 35), the share of married female operators ranged from a high of 91 percent for female operators aged 35-44 to a low of 27 percent for female operators 65 or over. Many women are not identified as operators of their farms until later in life after their husbands' deaths.

Operator Household Income

Generally speaking, female-operator households experienced relatively low incomes (table 16). Their average household income was lower than that of male-operator households. On the other hand, the average household income of female-operator households was higher than that of all U.S. female-headed households ($28,300) or females living alone ($21,900).

The lower average income for female-operator households resulted more from low farm earnings than from low off-farm income. Average farm earnings were about $11,500 lower for female-operator households than for male-operator households. In contrast, off-farm income for the households of both female and male operators was about the same.

Despite relatively low income from farming, the average net worth for female-operator households with sales under $50,000 approached a quarter million dollars, about $60,000 less than the value for households of male-operated farms in the same sales class. For households with farms in the $50,000 - $249,999 sales class, household net worth was about the same, regardless of gender. For households with farms realizing gross sales of $250,000 or more, average net worth of female operators exceeded a half million dollars, compared with nearly a million dollars for male operators.

Farm Typology

There were few important gender differences among the typology groups. Residential/lifestyle farms made up the largest share of both male- and female-operated farms (fig. 20). Female-operated farms, however, were less likely than male-operated farms to be in the high-sales group or in the large and very large group.

Regardless of typology group, average household income for female operators did not exceed the average for all U.S. households by a statistically significant amount (fig. 21). In contrast, three typology groups–the residential/lifestyle group and the large and very large group–showed male-operator households with average household income exceeding the U.S. average by a statistically significant margin. For all farm typology groups, female-operator households showed the same general pattern of dependence on off-farm income as male-operator farms (not shown). Regardless of gender, only operators of large and very large farms reported less than half of their household income came from off-farm sources.

Table 15–Occupation, age, education level, and marital status of farm operators, by gender, 1996

Item	Operator gender	
	Male	Female
	Number	
Total operators	1,756,426	154,845
Operator occupation:		
Farming	859,165	43,615
Something else	565,838	*69,124
Retired	331,423	42,105
	Years	
Average age	55.8	56.5
	Percent of operators	
Operator age:		
Under 35	6.9	d
35 to 44	18.8	*11.2
45 to 54	22.4	36.1
55 to 64	18.5	18.2
65 or over	33.3	28.8
Operator occupation:		
Farming	48.9	28.2
Something else	32.2	44.6
Retired	18.9	27.2
Operator education level:		
Less than high school	19.4	*9.9
Completed high school	41.8	42.0
Some college	20.9	*24.2
Completed college or more	17.9	23.9
Married operators[1]	91.4	48.6
Under 35 years of age	81.2	d
35 to 44 years of age	90.8	90.5
45 to 54 years of age	95.6	*42.5
55 to 64 years of age	93.3	59.6
65 years of age or more	89.9	*26.9

Note: Includes only farm operations for which gender question was answered. d = Data suppressed due to insufficient observations. * = Standard error is between 25 and 50 percent of the estimate.

[1] Based on operators with data on gender and marital status in version 1 only.

Source: USDA, Economic Research Service, 1996 Agricultural Resource Management Study, all versions.

Table 16–Farm household income and net worth, by operator gender, 1996

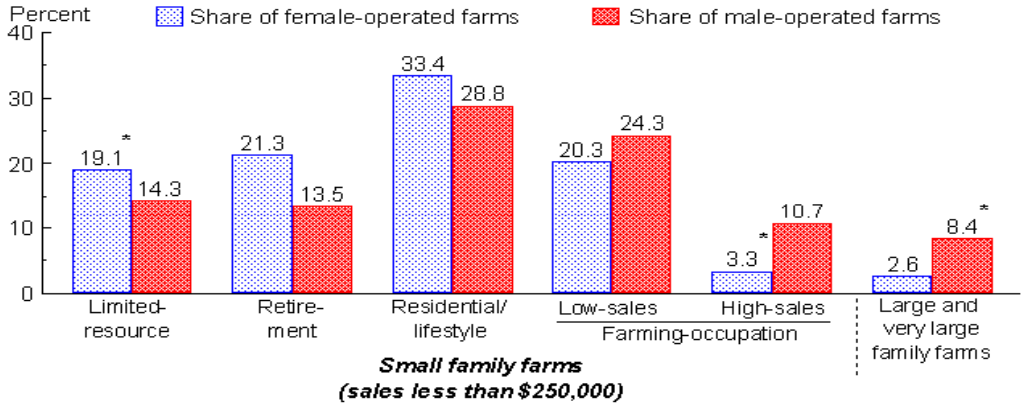
Item	Operator gender	
	Male	Female
	Number	
Total households	1,689,481	153,633
	Dollars per household	
Total household income	52,550	38,318
Farm earnings	8,539	**-3,017
Off-farm income	44,010	41,335
	Percent	
Share from:		
Farm earnings	16.2	**-7.9
Off-farm sources	83.8	107.9
Operator household income compared with U.S. average[1]	111.5	81.3
Households with:		
Positive household income and–		
Loss from farming	48.3	67.9
0 - 49 percent from farming	27.4	21.5
50 percent or more from farming	17.2	8.4
Negative household income	7.0	*2.2
	Dollars per household	
Operator household income by sales class:		
Less than $50,000	44,185	36,959
$50,000 - $249,999	56,688	*45,653
$250,000 or more	115,233	63,575
Operator household net worth	418,910	281,262
Operator household net worth by sales class:		
Less than $50,000	310,621	248,551
$50,000 - $249,999	574,758	577,078
$250,000 or more	997,252	*532,618

Note: Includes only farm operations for which gender question was answered. * = Standard error is between 25 and 50 percent of the estimate. ** = Standard error is between 51 and 75 percent of the estimate.
[1]In 1996, income for all U.S. households averaged $47,123.
Source: USDA, Economic Research Service, 1996 Agricultural Resource Management Study, version 1.

Figure 20

Distribution of farm operator households, by gender and farm typology, 1996

Residential lifestyle farms predominated regardless of the operator's gender



Note: Includes only farms for which operator gender was reported. Because of small sample size, large and very large farms are combined.

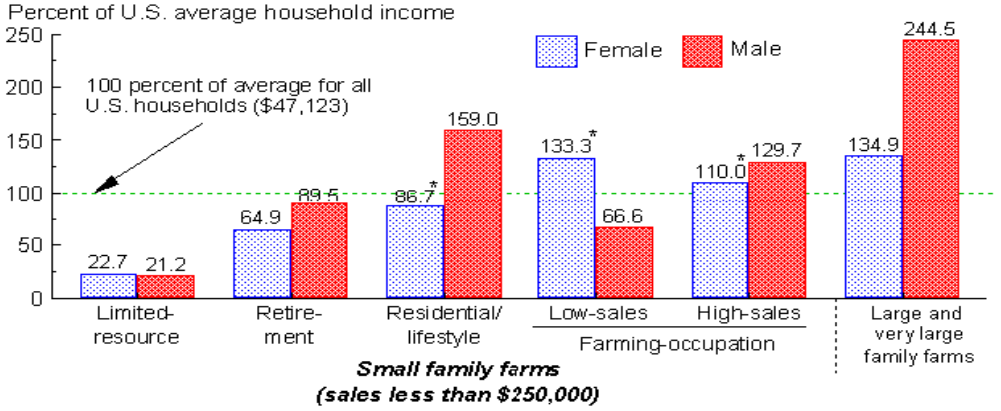
* = Standard error is between 25 and 50 percent of the estimate.

Source: USDA, Economic Research Service, 1996 Agricultural Resource Management Study, version 1.

Figure 21

Operator household income compared with U.S. average household income, by gender and farm typology, 1996

Male farmers operating a residential/lifestyle or a large or very large farm received household income exceeding the U.S. average by a statistically significant amount



Note: Includes only farms for which operator gender was reported. Because of small sample size, large and very large farms are combined.

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

Source: USDA, Economic Research Service, 1996 Agricultural Resource Management Study, version 1.

Summary

Nearly 155,000 female-operated farms accounted for 4 percent of the more than $160 billion in agricultural sales as measured by the ARMS in 1996. Farms operated by women are generally smaller, both in sales and acres, than male-operated farms, and female operators control a relatively small share of resources used in agricultural production. Nevertheless, the trend in the farm sector, as in the Nation, indicates a growing presence of women.

Because of their small size relative to male-operated farms, female-operated farms are more likely to have negative net farm income and thus are less likely to be in a favorable financial position. Like most households with small farms, households of female operators rely heavily on off-farm income.

Largely because of low farm earnings, average total household income of female-operator households is less than the average for male-operator households and below the average for all U.S. households. Nevertheless, the average household income of female-operator households was higher than that of all U.S. households with a female head or females living alone.

Female operators are less likely than males to produce commodities under contract, but among those who contract, females are more likely to have production contracts and males are more likely to engage in marketing contracts. Female operators are less likely than males to receive transition payments, but females are more likely than males to be enrolled in the CRP.

Farm Business Financial Performance

More than three-fifths of farms ended 1998 with a profit. These farms accounted for more than three-fourths of the value of production and nearly two-thirds of acres operated. Financial performance of farms and the economic condition of farm households vary considerably across the farm typology. Larger family farms, as a group, tend to have economic cost/output ratios less than one, meaning they generate farm profits that can be used to retire debt, expand farm or nonfarm businesses, or support family living expenditures. On average, most small farm groups did not report adequate income to cover expenses. They subsidized the costs of their farming activities with income from off-farm sources.

The financial condition of farm operator households and the financial performance of farms they manage differ considerably among household units classified by the farm typology. This analysis illustrates the diversity of U.S. farm operations, addressing the farm and nonfarm financial characteristics of all farm operator households, including those with limited farm sales. Farm operator households are commonly believed to rely primarily on their farms for their income (Gale and Harrington, 1993). In reality, off-farm income is important to most farm households.

Financial Position

Farm business financial performance measures vary substantially among the various farm typology groups (table 17). Each farm is classified into one of four financial performance categories based on the net income and debt/asset ratio or solvency position of the farm business. Farm businesses classified as favorable (positive net farm income and debt/asset ratios less than 40 percent) are considered to be in the strongest financial condition, while those in the vulnerable group (negative net farm income and debt/asset ratios greater than 40 percent) are perceived to be exposed to the greatest risk. About 59 percent of all farms were in the favorable group in 1998, while fewer than 5 percent of all farms were classified as vulnerable.

Since this classification system evaluates the financial condition of farm businesses, it is most meaningful when applied to those operations where farming provides a substantial portion of household income, namely high-sales small farms, large family farms, and very large family farms. Only 4 or 5 percent of these farms were in a vulnerable financial position. While 6 percent of residential/lifestyle farm businesses were classified as vulnerable, their households generated sufficient income from off-farm sources to offset losses from farming activities.

A majority of farms were profitable, with 63 percent having positive net income in 1998 (table 18). The profitable farm businesses accounted for 77 percent of the value of production and nearly two-thirds of the acres operated by farms, including nonfamily farms. About 5 percent of agricultural output was produced by farm operations in a vulnerable financial position. A majority of these farms were very small, less than $10,000 in sales, and focused on the production of beef, grains, or field crops.

Table 17–Number of farms and financial performance classification, by farm typology group, 1998

Item	Small family farms[1]					Large family farms[1]	Very large family farms[1]	All family farms
	Limited-resource[2]	Retirement[3]	Residential/lifestyle[3]	Farming-occupation[3]				
				Low-sales	High-sales			
	Number							
Number of farms and households	150,268	290,938	834,321	422,205	171,469	91,939	61,273	2,022,413
	Percent							
Financial performance[4]								
Favorable	55.2	68.5	52.9	59.3	66.4	66.7	59.5	58.6
Marginal income	34.3	30.3	38.0	35.1	19.3	17.3	13.2	32.7
Marginal solvency	d	d	3.2	*2.1	9.6	11.0	22.0	3.9
Vulnerable	d	d	6.0	3.5	4.7	5.0	5.4	4.7

d = Data suppressed due to insufficient observations. * = Standard error is between 25 and 50 percent of the estimate.

[1]Small family farms have sales less than $250,000. Large family farms have sales between $250,000 and $499,999. Very large family farms have sales of $500,000 or more.

[2]Limited-resource farms have household income less than $20,000, farm assets less than $150,000, and sales less than $100,000.

[3]Small farms other than limited-resource farms are classified according to the major occupation of their operators. Operators of retirement farms are retired. Operators of residential/lifestyle farms report a nonfarm occupation. Operators of farming-occupation farms report farming as their major occupation. Farming-occupation farms are further divided into low-sales (sales less than $100,000) and high-sales (sales between $100,000 and $249,999).

[4]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 more than 40 percent;
Vulnerable: negative net farm income and debt/asset ratio more than 40 percent.

Source: USDA, Economic Research Service, 1998 Agricultural Resource Management Study, version 1.

Standard Financial Performance Measures

Comparison of farm financial performance measures, based on recommendations by the Farm Financial Standards Council (1995) reveals differences in viability of farms in the various typology groups (table 19). Generally speaking, limited-resource, retirement, residential/lifestyle, and low-sales farms ran negative

Table 18–Characteristics of farms, by financial position, 1998[1]

Item	Financial performance[2]				All farms
	Favorable	Marginal income	Marginal solvency	Vulnerable	
			Number		
Total farms	1,207,537	676,668	82,857	97,647	2,064,709
			Percent		
Distribution of:					
Farms	58.5	32.8	4.0	4.7	100.0
Value of production	61.9	17.7	15.1	5.2	100.0
Acres operated	58.2	29.9	6.2	5.7	100.0
			Acres per farm		
Land operated	451	413	696	548	453
			Percent		
Sales less than $10,000	49.2	62.1	*19.4	54.9	52.5
Type of farm:					
Cash grain	19.9	15.7	23.0	19.2	18.6
Other field crops	24.9	16.9	13.9	18.5	21.5
High-value crops	7.3	7.2	*10.2	*14.2	7.7
Beef	29.7	35.2	21.4	28.5	31.1
Hogs	1.9	*2.8	na	*4.8	2.5
Dairy	5.6	2.0	12.9	*2.6	4.5
Other livestock	10.7	20.2	12.6	*12.0	14.0

na = Not applicable. * = Standard error is between 25 and 50 percent of the estimate.

[1]Unlike the other tables in this section, this table includes nonfamily farms. Thus, the total count of farms presented here is slightly higher than in the other tables. The focus of the rest of the section is family farms, but nonfamily farms are included here to get complete estimates of the distribution of farms, value of production, and acres operated across the typology.

[2]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 more than 40 percent;
Vulnerable: negative net farm income and debt/asset ratio more than 40 percent.

Source: USDA, Economic Research Service, 1998 Agricultural Resource Management Study, version 1.

Table 19–Selected financial performance measures, by farm typology group, 1998

Item	Small family farms[1]					Large family farms[1]	Very large family farms[1]	All family farms
	Limited-resource[2]	Retirement[3]	Residential/ lifestyle[3]	Farming-occupation[3]				
				Low-sales	High-sales			
				Dollars per farm				
Balance sheet:								
Total assets	76,108	442,270	291,525	560,567	772,106	1,219,986	2,334,272	498,213
Total liabilities	9,270	*7,234	25,152	38,416	117,560	196,485	466,034	53,144
Net worth	66,838	435,036	266,373	522,151	654,547	1,023,501	1,868,237	445,069
Working capital[4]	*3,865	23,303	12,429	38,884	75,710	135,954	226,778	36,355
Net farm income	d	**2,936	*1,324	d	25,277	52,866	213,083	12,142
				Dollars per household				
Income measures:								
Total household income	9,924	45,659	72,081	34,773	50,180	106,541	209,105	59,734
Off-farm income	13,153	47,158	76,390	37,186	28,717	47,252	33,240	56,628
Family living expenses	15,291	21,897	33,791	20,494	28,911	35,568	46,508	27,981
				Percent				
Profitability measures:								
Return on assets[5]	-13.6	*-0.9	-1.9	-2.8	d	2.2	8.1	d
Return on equity[6]	-16.8	*-1.1	-2.9	-3.7	-1.7	d	7.6	*-1.1
Operating profit margin[7]	-102.1	*-23.1	-27.3	-38.6	d	7.6	19.0	d
Solvency measure:								
Debt/asset ratio[8]	12.2	*1.6	8.6	6.8	15.2	16.1	20.0	10.7
				Ratio				
Repayment capacity measure:								
Debt coverage ratio[9]	d	*4.07	1.39	1.53	2.81	3.38	4.32	2.80
Financial efficiency measures:								
Asset turnover ratio[10]	0.13	0.04	0.07	0.07	0.22	0.28	0.42	0.16
Operating expense ratio[11]	1.34	1.04	1.20	0.97	0.77	0.74	0.72	0.81
Economic cost/Output ratio[12]	2.11	1.27	1.38	1.46	1.07	0.98	0.86	1.06

d = Data suppressed due to insufficient observations or because the standard error is greater than 75 percent of the estimate. * = Standard error is between 25 and 50 percent of the estimate. ** = Standard error is between 51 and 75 percent of the estimate. [1]Small family farms have sales less than $250,000. Large family farms have sales between $250,000 and $499,999. Very large family farms have sales of $500,000 or more. [2]Limited-resource farms have household income less than $20,000, farm assets less than $150,000, and sales less than $100,000. [3]Small farms other than limited-resource farms are classified according to the major occupation of their operators. Operators of retirement farms are retired. Operators of residential/lifestyle farms report a nonfarm occupation. Operators of farming-occupation farms report farming as their major occupation. Farming-occupation farms are further divided into low-sales (sales less than $100,000) and high-sales (sales between $100,000 and $249,999). [4]Working capital = current assets - current liabilities. [5]Return on assets = (net farm income + interest - charge for unpaid operators' labor and management) / total assets. [6]Return on equity = (net farm income - charge for unpaid operators' labor and management) / net worth. [7]Operating profit margin = (net farm income + interest - charge for unpaid operators' labor and management) / gross farm income. [8]Debt / asset ratio = total liabilities / total assets. [9]Debt coverage ratio = (net farm income + off-farm income + depreciation + interest - estimated income tax expense - family living expenses) / (scheduled principal and interest payments). [10]Asset turnover ratio = gross farm income / total assets. [11]Operating expense ratio = total cash operating expenses / gross cash farm income. [12]Economic cost / Output ratio = (total cash operating expenses + benefits + charge for unpaid operators' labor and management) / gross farm income.
Source: USDA, Economic Research Service, 1998 Agricultural Resource Management Study, version 1.

operating profit margins, did not cover the full economic costs of production, and generated inadequate farm income to report positive returns to assets and equity. These small family operations accounted for about 16 percent of the value of production in 1998.

Limited-resource farms operated with small asset bases and used little debt financing. Moreover, low levels of working capital (an average of $3,900 per farm)–defined as current assets minus current liabilities–suggest that these operations had little cushion for financial emergencies. While the debt/asset ratio for these farms was only slightly higher than the ratio for all farms in 1998, these farms were generally too small to operate efficiently and generated negative returns to assets and equity. On average, off-farm income was not adequate to cover family living expenses, suggesting that some of these households were liquidating or borrowing against both farm and nonfarm assets to cover basic living costs.

Even though retirement farms held more assets than limited-resource farms and generated a positive net farm income, they also relied on off-farm income to meet living expenses and service farm debt. Retirement farms appeared to exercise fairly tight cost control measures, with an operating expense ratio of 1.04, which was much better than the corresponding measure for limited-resource and residential/lifestyle farms. Retired farmers' heavy participation in the CRP may have helped reduce costs relative to income. The CRP provides income with relatively few expenditures.

Residential/lifestyle farms had a higher debt/asset ratio than retirement farms or low-sales small farms, possibly due to significant mortgage debt on farm dwellings. This debt may easily have been serviced by the substantial off-farm income that these households received. Residential/lifestyle farms had relatively low working capital ($12,400) to serve as a cushion in emergencies.

On average, limited-resource, retirement, and residential/lifestyle farms did not report adequate gross farm income to cover operating expenses; their operating expense ratio was greater than 1. They subsidized the costs of their farming activities with income from off-farm sources. In contrast, low- and high-sales small farms were more likely to generate sufficient income to cover operating expenses (operating expense ratio less than or equal to 1). But, only high-sales small farms produced enough revenue, on average, to come close to meeting full economic costs of production. The economic cost/output ratio for this group was 1.07, which means that economic costs and output were nearly equal. On average, these farms had substantial working capital and household off-farm income to contribute to family living expenses and to augment farm income shortfalls.

Family farms with 1998 sales of $250,000 or more appear to be viable economic units. Their assets averaged $1,220,000 for large family farms and $2,334,300 for very large family farms. They had manageable debt levels, generated sufficient farm income (on average) to cover operating expenses and economic costs, and recorded rates of return on assets and equity comparable to small, nonfarm corporations. With economic cost/output ratios less than one, the large and very large family farms that produce 54 percent of the total value of production generated returns that could be used to retire debt, make new farm investments, make off-farm investments, or support family living.

While debt/asset ratios averaged 16 percent for large farms and 20 percent for very large farms, these groups generated average operating profit margins of 8 percent and 19 percent, respectively. Although farm households in these groups received substantial off-farm income, the majority of their household income came from farming.

Lenders Serving the Farm Typology Groups

Although many farmers operate with seasonal production loans that are taken out and repaid within the same calendar year, only 43 percent of farm operators reported any debt outstanding as of December 31, 1998 (table 20). Year-end loan balances were reported by 29 percent of limited-resource and 13 percent of retirement farms. At the other extreme, about three-fourths of high-sales small farms and large family farms, as well as 81 percent of very large family farms, reported debt outstanding at year-end. This suggests that operations most frequently incurring debt are larger, more efficient units, which are best positioned to benefit from the strategic use of credit.

Banks provided about 48 percent of the outstanding debt reported by farm operators at the end of 1998, accounting for a substantial portion of total farm debt (44 to 54 percent) for each group. The Farm Credit System (FCS) supplied 21 percent of all reported debt, servicing the credit needs of retirement, large, and very large farms more than those of other typology groups.

The Farm Service Agency (FSA) provided about 6 percent of all reported debt, which is understandable, given its role as a lender of last resort. In addition to making loans to farmers directly, FSA also guarantees loans made by other lenders. These loans are not included in the estimates of debt held by FSA. Loans guaranteed by FSA are included in the estimates of debt held by the lenders who made the loan. Without the guarantees, some farmers would not be able to obtain loans from nongovernment sources.

Large and very large operations owed about 43 percent of all debt reported at the end of 1998. These farms owed 55 percent of FCS debt, but only 41 percent of bank debt. The FSA appears to be serving smaller operations, with 52 percent of its loans going to small farms where the operators report farming as their major occupation. In contrast, only 31 percent of FCS debt and 35 percent of bank debt was reported by these operations.

Debt Repayment Capacity

Comparing debt reported by farm operators with the maximum level of debt that they could service with current income from farm and off-farm sources provides a measure of the extent to which farm operators use their available credit capacity. Lenders generally require that no more than 80 percent of a loan applicant's available income be used for repayment of principal and interest on loans. For farm operators, this income available for debt service[6] can be used to determine the maximum amount of loan payment the farmer could make.

Given current market interest rates and an established repayment period, the maximum debt that the farmer could carry with this loan payment can be determined. Using average rates reported in the 1998 ARMS for real estate and nonreal estate loans and a 7-year repayment period, maximum feasible debt conceptually measures the line of credit that could be available to farmers. Maximum loan eligibility of farmers unable to report positive 1998 income available for debt service was limited to 10 percent of net worth. If such farmers reported negative net worth or family living expenses in excess of total household income, maximum feasible debt was limited to $100.

[6]Measured as: net farm income + off-farm income - income taxes - family living expenses + depreciation + interest

Table 20–Reported farm debt, by lender, by farm typology group, 1998

Item	Small family farms[1]					Large family farms[1]	Very large family farms[1]	All family farms
	Limited-resource[2]	Retirement[3]	Residential/ lifestyle[3]	Farming-occupation[3]				
				Low-sales	High-sales			
	Number							
Number of farms	150,268	290,938	834,321	422,205	171,469	91,939	61,273	2,022,413
Number of farms with debt	42,858	38,246	359,717	183,042	130,217	68,638	49,899	872,526
	Percent							
Percent of farms with debt	28.5	13.1	43.1	43.4	75.9	74.7	81.4	43.1
	Dollars per farm							
Average debt								
Farm Credit System	d	**3,096	2,475	6,391	23,163	50,547	120,350	10,701
Commercial banks	4,138	*3,480	12,897	20,404	52,304	84,518	205,929	24,910
Life insurance companies	d	d	**225	**164	**1,595	*3,536	*25,643	*1,220
Farm Service Agency	*244	d	*1,284	3,726	10,109	7,715	*21,071	3,179
Individuals and others	**3,501	**860	9,029	6,411	22,713	40,115	54,755	10,873
Unspecified lender	d	d	**182	*414	*1,425	5,355	12,524	904
All lenders[4]	*7,868	*7,617	25,977	37,474	111,510	191,262	436,653	51,522
	Percent distribution by typology group							
Farm Credit System	d	4.2	9.5	12.5	18.3	21.5	33.9	100.0
Commercial banks	1.2	2.0	21.3	17.1	17.8	15.4	25.1	100.0
Life insurance companies	d	d	*7.6	*2.8	11.1	*13.2	63.7	100.0
Farm Service Agency	0.6	d	16.7	24.5	27.0	11.0	20.1	100.0
Individuals and others	*2.3	*1.1	34.3	12.4	17.7	16.8	15.3	100.0
Unspecified lender	d	d	*8.3	9.6	13.3	26.9	41.8	100.0
All lenders	1.1	2.1	20.8	15.2	18.3	16.9	25.6	100.0
	Percent distribution by lender							
Farm Credit System	d	*40.7	9.5	17.1	20.8	26.4	26.9	20.6
Commercial banks	*52.6	*45.5	49.3	54.4	47.0	44.0	47.0	48.1
Life insurance companies	d	d	**0.9	**0.4	*1.4	*1.8	*5.9	*2.4
Farm Service Agency	*3.1	d	*4.9	9.9	9.1	4.0	*4.8	6.2
Individuals and others	*42.7	**11.3	34.7	17.1	20.4	21.0	12.6	21.0
Unspecified lender	d	d	**0.7	*1.1	*1.3	2.8	2.9	1.8
All lenders	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

d = Data suppressed due to insufficient observations or because the standard error is greater than 75 percent of the estimate. * = Standard error is between 25 and 50 percent of the estimate. ** = Standard error is between 51 and 75 percent of the estimate. [1]Small family farms have sales less than $250,000. Large family farms have sales between $250,000 and $499,999. Very large family farms have sales of $500,000 or more. [2]Limited-resource farms have household income less than $20,000, farm assets less than $150,000, and sales less than $100,000. [3]Small farms other than limited-resource farms are classified according to the major occupation of their operators. Operators of retirement farms are retired. Operators of residential/lifestyle farms report a nonfarm occupation. Operators of farming-occupation farms report farming as their major occupation. Farming-occupation farms are further divided into low-sales (sales less than $100,000) and high-sales (sales between $100,000 and $249,999). [4]Outstanding loan balances for the operation's four largest loans were reported on the survey, with the credit source identified from a list of 16 potential lenders. Thus, the total loans from all lenders reported here is less than total liabilities reported in table 19. Source: USDA, Economic Research Service, 1998 Agricultural Resource Management Study, version 1.

Farm debt repayment capacity use (DRCU), computed as actual debt expressed as a percentage of maximum feasible debt, effectively measures the extent to which farmers are using their available lines of credit. ARMS data indicate that, in 1998, farm households used about 30 percent of the debt that could be supported by current household income and equity positions (table 21). This analysis does not include any nonfarm debt owed by the farm operator's household.

DRCU varied widely by typology group. At one extreme, retirement farms owed about 7 percent of the debt that they could service with current income from all sources. DRCU was also relatively low (16 percent) for residential/lifestyle farms. For limited-resource operations, low-sales small farms, and very large farms, DRCU fell between 34 and 44 percent. DRCU was highest for high-sales small farms (57 percent) and large family farms (48 percent). This means that these two groups of farms had the smallest amount of credit reserves that could be used to help overcome an unanticipated need for funds.

Farms can often meet short-term income shortfalls with savings and sale of liquid assets. However, if DRCU exceeds 1.2–meaning that the operation owes 20 percent more debt than can be serviced with current income–the risk of default increases. About 42 percent of all operations reporting debt outstanding at the end of 1998 had DRCU greater than 1.2, and these farms owed 43 percent of all debt. About two-fifths of high-sales small farms with debt and one-third of larger family farms with debt reported incomes insufficient to meet all debt service commitments at the end of 1998.

Debt repayment, however, may be a particularly severe problem for limited-resource and retirement farms. Among indebted farms in 1998, a larger share of the limited-resource and retirement farms with debt (nearly 90 percent) had a DRCU greater than 1.2. About 60 percent of indebted low-sales small farms were also in the high DRCU group.

In the remaining typology groups, the share of indebted farms having a DRCU greater than 1.2 was lower, between 26 and 39 percent. But these larger family farms accounted for a majority of total production and owe a substantial portion of total debt. Thus, if these larger family farms were to encounter any widespread difficulty in meeting their debt service commitments from savings or other sources, there could be substantial impact on the sector's average performance, including a rise in nonperforming and problem loans for lenders.

Summary

Large and very large family farms are generally economically viable units. On average, they owned substantial assets, had manageable debt levels, generated enough farm income to cover operating expenses and economic costs, and recorded reasonable rates of return on assets and equity. Households operating these larger farms also did well when compared with nonfarm households. Households in both these groups had an average household income well above the average for all U.S. households, largely due to farm earnings (see "Farm Household Income and Wealth").

Financial statistics show a real difference between these larger family farms and small family farms. The National Commission on Small Farms, in fact, examined financial statistics by sales class when they drew the line between large and small farms at $250,000 of sales. One reason for selecting that level of sales was that average returns on equity were positive for farms with sales above $250,000 and negative for farms with sales between $50,000 and $249,999 (U.S. Dept. Agr., Nat'l. Comm. on Small Farms, 1998, p. 18).

Table 21–Debt repayment capacity utilization calculation, by farm typology group, 1998

Item	Small family farms[1]					Large family farms[1]	Very large family farms[1]	All family farms
	Limited-resource[2]	Retirement[3]	Residential/ lifestyle[3]	Farming-occupation[3]				
				Low-sales	High-sales			
	Dollars per farm							
Net farm income	d	**2,936	*1,324	d	25,277	52,866	213,083	12,142
Income for debt coverage[4]	d	23,465	34,026	20,125	40,337	83,067	224,824	35,519
Principal/interest payments	1,258	*996	3,689	5,508	17,287	28,247	69,472	7,763
Debt coverage margin[5]	d	22,468	30,337	14,617	23,050	54,819	155,352	27,756
Maximum loan payment[6]	4,031	20,737	30,755	20,126	38,933	76,998	200,181	33,038
Maximum feasible debt[7]	21,079	111,776	161,391	113,290	207,683	409,808	1,051,161	175,961
Total liabilities	9,270	*7,234	25,152	38,416	117,560	196,485	466,034	53,144
	Percent							
Debt repayment capacity utilization (DRCU)[8]	44.0	*6.5	15.6	33.9	56.6	48.0	44.3	30.2
	Number							
Number with DRCU greater than 1.2	37,035	33,524	93,704	110,305	50,879	24,194	16,281	365,923
	Percent							
Farms with DRCU greater than 1.2:								
Percent of all farms	24.6	11.5	11.2	26.1	29.7	26.3	26.6	18.1
Percent of farms with debt	*86.4	87.7	26.0	60.3	39.1	35.2	32.6	41.9
Percent of debt	46.6	51.3	28.5	51.4	52.8	48.5	38.0	43.1

d = Data suppressed due to insufficient observations or because the standard error is greater than 75 percent of the estimate. * = Standard error is between 25 and 50 percent of the estimate. ** = Standard error is between 51 and 75 percent of the estimate. [1]Small family farms have sales less than $250,000. Large family farms have sales between $250,000 and $499,999. Very large family farms have sales of $500,000 or more. [2]Limited-resource farms have household income less than $20,000, farm assets less than $150,000, and sales less than $100,000. [3]Small farms other than limited-resource farms are classified according to the major occupation of their operators. Operators of retirement farms are retired. Operators of residential/lifestyle farms report a nonfarm occupation. Operators of farming-occupation farms report farming as their major occupation. Farming-occupation farms are further divided into low-sales (sales less than $100,000) and high-sales (sales between $100,000 and $249,999). [4]Income for debt coverage = net farm income + off-farm income + depreciation + interest - estimated income tax expense - family living expenses. [5] Debt coverage margin = income for debt coverage - principal and interest payments. [6]Maximum loan payment is that which could be made while maintaining a debt coverage margin of 1.25. Maximum loan payment = 80 percent of income for debt coverage. [7]Maximum feasible debt is the maximum of 1) that loan which could be repaid with the maximum loan payment at 1998 ARMS reported average interest rate over a 7-year loan term, 2) 10 percent of net worth, or 3) $100. [8]Debt repayment capacity utilization = Total liabilities / maximum feasible debt. DRCU measures the extent to which the farm operation is utilizing its capacity to service debt from current income.

Source: USDA, Economic Research Service, 1998 Agricultural Resource Management Study, version 1.

The financial picture is more mixed for small farms than for large and very large farms. Generally speaking, limited-resource, retirement, residential/lifestyle, and low-sales farms did not cover economic costs in 1998, and they did not generate enough farm income to report positive returns to assets and equity. High-sales small farms, however, were more like large and very large farms in some respects. On average, high-sales small farms generated sufficient income to cover operating expenses, and nearly covered economic costs.

Generally, farms need to be in the upper end of the small farm spectrum to generate income from farming near the average for all U.S. households (Perry and others, 1998). This does not mean that all households operating small farms other than those with high sales are low-income, but rather points out the importance of off-farm income for meeting family living expenses and debt service needs.

Farm Household Income and Wealth

A large share of farm households are dual career, like their nonfarm counterparts. Off-farm work is not the sole purview of small farm households. Operators and spouses across the typology work off-farm or manage nonfarm businesses. Decisions about how to allocate labor, management skills, and other resources between farm and nonfarm employment affects the level and sources of income of farm households. In 1998, approximately 88 percent of money income, on average, came from nonfarm sources. But the portion of income from nonfarm sources varied across the typology, with households of very large farms earning only 15 percent of household income from off-farm sources. Unlike income, net worth from farm sources accounted for the majority of wealth of farm households regardless of typology group.

Farm operator households' income averaged $59,700 in 1998, which was about 15 percent higher than the $51,900 average for all U.S. households. For all family farms, only 12 percent of farm operator household income came from farming in 1998, but that share varied by the farm typology (table 22). Wages and salaries were the single largest source of income, accounting for about half of total household income. Although farm operator households' dependence on off-farm income is commonly viewed as a recent development, one-fourth to one-third of farm operators worked off-farm in the 1930's and 1940's (fig. 22). The proportion of operators working at least some days off-farm has remained stable since the late 1960's. The biggest shift has not been the share of operators working off-farm but, instead, operators spending more of their work days in off-farm jobs.

A large share of farm households today are dual career, or "bivocational," households like their nonfarm counterparts (table 23). Off-farm work is not the sole purview of small farm operators and households, since operators and spouses across the typology hold off-farm jobs. By definition, almost all residential/lifestyle operators hold an off-farm job along with 61 percent of their spouses. But one in six operators of large and very large family farms work off-farm. A large share of their spouses hold off-farm jobs for a variety of reasons, as discussed earlier.

In addition to off-farm work that generates wages and salaries, some operators also earn net income from operating a second business, a second farm, or some other pursuit. A farm household's sources and level of income depend on a combination of decisions on allocating labor, management skills, and other resources between farming and other activities.

Table 22–Operator household income, by farm typology group, 1998

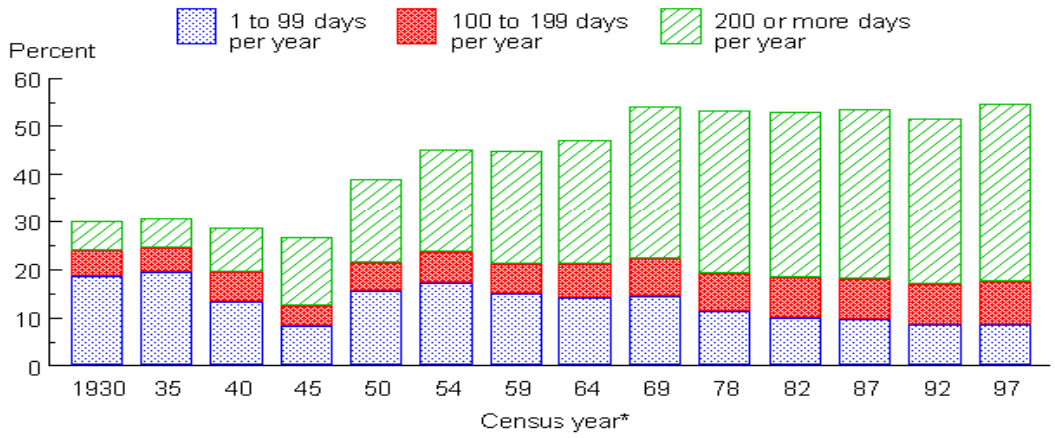
Item	Small family farms[1]					Large family farms[1]	Very large family farms[1]	All family farms
	Limited-resource[2]	Retirement[3]	Residential/lifestyle[3]	Farming-occupation[3]				
				Low-sales	High-sales			
				Number				
Total households	150,268	290,938	834,321	422,205	171,469	91,939	61,273	2,022,413
				Dollars per household				
Total household income	9,924	45,659	72,081	34,773	50,180	106,541	209,105	59,734
Farm earnings	*-3,230	d	-4,309	*-2,413	21,463	59,288	175,866	7,106
Off-farm income	13,153	47,158	76,390	37,186	28,717	47,252	33,240	52,628
Earned[4]	7,035	16,445	67,752	21,468	20,759	31,054	21,639	39,148
Unearned[4]	6,119	30,713	8,638	15,718	7,957	16,198	11,601	13,480
				Percent				
Operator household income compared with U.S. average[5]	19.1	88.1	139.0	67.1	96.8	205.5	403.2	115.2
Share from off-farm sources[6]	132.5	103.3	106.0	106.9	57.2	44.4	15.9	88.1
Households with:								
Positive household income and–								
Loss from farming	57.3	58.2	71.1	47.2	10.9	6.7	4.0	53.2
0-24 pct. from farming	19.7	28.2	23.4	16.4	10.0	*10.8	*3.7	20.0
25-49 pct. from farming	d	6.5	2.4	11.5	13.5	7.5	6.9	6.1
50-74 pct. from farming	d	d	1.3	6.1	15.3	16.6	18.7	4.9
75 pct. or more from farming	d	d	d	7.6	33.8	45.5	55.6	9.4
Negative household income[7]	*9.8	d	*1.5	11.2	16.5	13.0	11.1	6.4
				Dollars per household				
Nonmoney income[8]	1,868	5,437	5,174	5,097	4,667	4,382	4,882	4,862
				Dollars per farm				
Depreciation[9]	*843	*1,562	2,307	5,267	17,024	34,648	67,726	7,409

d = Data suppressed due to insufficient observations or because the standard error is greater than 75 percent of the estimate. * = Standard error is between 25 and 50 percent of the estimate. [1]Small family farms have sales less than $250,000. Large family farms have sales between $250,000 and $499,999. Very large family farms have sales of $500,000 or more. [2]Limited-resource farms have household income less than $20,000, farm assets less than $150,000, and sales less than $100,000. [3]Small farms other than limited-resource farms are classified according to the major occupation of their operators. Operators of retirement farms are retired. Operators of residential/lifestyle farms report a nonfarm occupation. Operators of farming-occupation farms report farming as their major occupation. Farming-occupation farms are further divided into low-sales (sales less than $100,000) and high-sales (sales between $100,000 and $249,999). [4]Earned income comes from off-farm self-employment or wage or 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. [5] Average farm household income divided by U.S. average household income ($51,855). [6]Income from off-farm sources can be more than 100 percent of total household income if earnings of the operator household from farming activities are negative. [7]Household income can be negative if the loss from farming is larger than income from off-farm sources. Alternatively, farming and off-farm activities may both result in a loss, or off-farm activities may result in a loss that is larger than farm earnings. [8]Imputed rental value of the farm operator's dwelling, plus the value of farm products used or consumed on the farm. Nonmoney income is generally presented on a per-farm basis in the farm's income statement, but one can safely assume it accrues mostly to operator households. [9]Depreciation is used to calculate net income for the farm business. Thus, it is properly expressed on a per-farm basis, rather than a per-household basis. Source: USDA, Economic Research Service, 1998 Agricultural Resource Management Study, version 1.

Figure 22

Farm operators reporting off-farm work, 1930-97

Farm operators worked off-farm as early as the 1930's



*Data for 1974 are unavailable.

Source: Census of Agriculture, various years.

Table 23–Farm business arrangements, by farm typology group, 1998

Item	Small family farms[1]					Large family farms[1]	Very large family farms[1]	All family farms
	Limited-resource[2]	Retire-ment[3]	Residential/ lifestyle[3]	Farming-occupation[3]				
				Low-sales	High-sales			
				Number				
Number of farms	150,268	290,938	834,321	422,205	171,469	91,939	61,273	2,022,413
Percent of farms	7.3	14.1	40.4	20.4	8.3	4.5	3.0	100.0
				Percent				
Operator occupation:								
Farming	35.4	na	na	100.0	100.0	95.1	96.3	39.2
Something else	30.1	na	100.0	na	ns	*3.9	3.0	43.8
Retired	34.6	100.0	na	na	na	d	d	17.0
Operator had off-farm job	45.5	*17.6	95.6	27.3	21.8	16.9	14.4	53.0
Spouse had off-farm job	15.3	17.2	60.6	39.5	45.7	49.0	34.8	43.1
Net income from another farm	d	d	*1.5	2.0	2.4	*2.9	4.5	1.7
Net income from another business	d	4.1	19.2	9.7	11.3	*15.8	8.3	12.6

d = Data suppressed due to insufficient observations. na = Not available. * = Standard error is between 25 and 50 percent of the estimate. [1]Small family farms have sales less than $250,000. Large family farms have sales between $250,000 and $499,999. Very large family farms have sales of $500,000 or more. [2]Limited-resource farms have household income less than $20,000, farm assets less than $150,000, and sales less than $100,000. [3]Small farms other than limited-resource farms are classified according to the major occupation of their operators. Operators of retirement farms are retired. Operators of residential/lifestyle farms report a nonfarm occupation. Operators of farming-occupation farms report farming as their major occupation. Farming-occupation farms are further divided into low-sales (sales less than $100,000) and high-sales (sales between $100,000 and $249,999). Source: USDA, Economic Research Service, 1998 Agricultural Resource Management Study, version 1.

Operator household income is defined to be consistent with the Bureau of the Census Current Population Survey (CPS) definition of money income for all U.S. households. Household income consists of the operator household's share of net cash income, less depreciation, plus any other farm-related or off-farm income the household may receive in cash. No adjustments are made to income for receipts of noncash items, such as farm products consumed by the farm family. Farm operator household net worth is 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, only the operator household's share is included. (See the box "Defining Operator Household Income and Net Worth.")

Level and Sources of Income

The level and sources of income varied widely across the farm typology groups (table 22). Households operating very large farms had the highest average household income, $209,100, about four times the average for all U.S. households. These households received only 16 percent of their income from off-farm sources, much less than the other groups. Seventy-four percent of these households relied on farming for at least half of their income.

Average household income for households operating these very large farms varied somewhat regionally. Statistically significant differences between regional averages and the $209,100 U.S. average for the group occurred in only two regions: the Prairie Gateway ($134,300) and the Eastern Uplands ($90,200). Households operating very large farms in the Eastern Uplands also received 31 percent of their income from off-farm sources, nearly double the 16-percent average for all operator households in the group. (See the box, "Geographic Units," in "Attributes of Small and Large Farms" for a description of the geography used here.)

Households operating residential/lifestyle farms or large farms also had income above the average for all U.S. households. But the sources of income differed between the two groups. Households with residential/lifestyle farms earned virtually all of their income from off the farm, largely from earned sources (self-employment or wage or salary jobs). About 71 percent had positive household income but a loss from farming, a substantially larger percentage than any other farm typology group. As mentioned in the discussion of farm attributes, 32 percent of residential/lifestyle farms specialized in beef, which in the case of cow-calf enterprises can have relatively low labor requirements that mesh well with off-farm work.

In contrast, households with large farms earned only 44 percent of their income from off-farm sources, and most (62 percent) of these households earned at least half of their income from farming. Only 10 percent of the operators with large farms specialized in beef cattle. The most common specialization for large family farms was cash grain (44 percent of farms, from "Attributes of Small and Large Farms").

Households operating retirement farms or high-sales small farms had an average income that did not differ from the average for all U.S. households by a statistically significant amount. About 58 percent of the households with retirement farms had positive household income, but a loss from farming. Another 28 percent received less than 25 percent of their income from farming. In other words, most income of households with retirement farms came from off the farm, and 67 percent of their total income was from unearned sources, such as Social Security and investments. Although the operators of

Defining Operator Household Income and Net Worth

Household Income. 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 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 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 operator household's share of farm business income (net cash farm income less depreciation), wages paid to the operator, and net rental income from renting farmland. Adding other farm-related earnings 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.)

Net Worth. ARMS is also the source of data for estimates of operator households' net worth. Farm operator household net worth is defined as the difference between the operator household's 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.

Note that household income and net worth are calculated only for "family farms," defined as farms organized as proprietorships, partnerships, and family corporations. Family farms exclude farms organized as nonfamily corporations or cooperatives, as well as farms with hired managers. Family farms are closely held (legally controlled) by their operator and the operator's household.

retirement farms reported that they were retired, households on these farms reported $16,400 of off-farm income (on average) from earned sources. The off-farm work was performed by household members other than the operator, or by the operator part-time.

Households operating high-sales small farms relied much more heavily on farming than did their counterparts with retirement farms. Forty-nine percent of the households with farms in this group received at least half their income from farming, and farming accounted for 43 percent of the group's total household income, on average.

The two remaining groups–low-sales and limited-resource households–received income below the average for all U.S. households. Most of their income came from off-farm sources, with unearned

income accounting for more than two-fifths of their off-farm income. This reflects the relatively high percentage of elderly farmers in these groups. Approximately a third of limited-resource farmers reported they were retired, and nearly half were at least 65 years old. Lower-sales farmers reported farming as their major occupation, but 36 percent were at least 65 years old. Many of these older farmers received Social Security income by scaling back their farming activities and restricting their off-farm work.

The Farm's Other Contributions

Earnings of the operator household from farming activities are not a complete measure of the contributions of the farm to the economic well-being of the farm operator's household. A focus on money income (as defined in the CPS) leaves out other resources the farm business makes available to the household.

Excluded Income

Household income excludes nonmoney income, or the imputed rental value of the farm dwelling plus the value of farm products consumed on the farm, largely food and firewood. Nonmoney income represents a business contribution to household income because it frees up household cash that would otherwise be spent on shelter, food, and heating fuel.

Based on reported farm survey data, estimates of average nonmoney income for 1998 were fairly low for each typology group, ranging from $1,900 to $5,400 (table 22). However, for low-income farm households–such as those operating limited-resource farms–any income (cash or otherwise) can be critical. Nonfarm households may also receive nonmonetary income. For example, the Bureau of the Census estimated that the imputed annuity value of the equity of owner-occupied housing averaged $3,400 per U.S. household in 1998 (U.S. Department of Commerce, Bureau of the Census, 1999, pp. 49 and A-4). For all farm households, the estimate of nonmoney income was $4,900 per household, 40 percent higher than for all U.S. households.

In addition, depreciation is an expense deducted from farm income, but it may not actually be used by the business for reinvestment during the current year. Thus, at least part of depreciation may be available to the household, after allowing for sharing of farm income with other households involved with the farm. Depreciation increases with farm size and is largest for high-sales small farms, large family farms, and very large family farms.

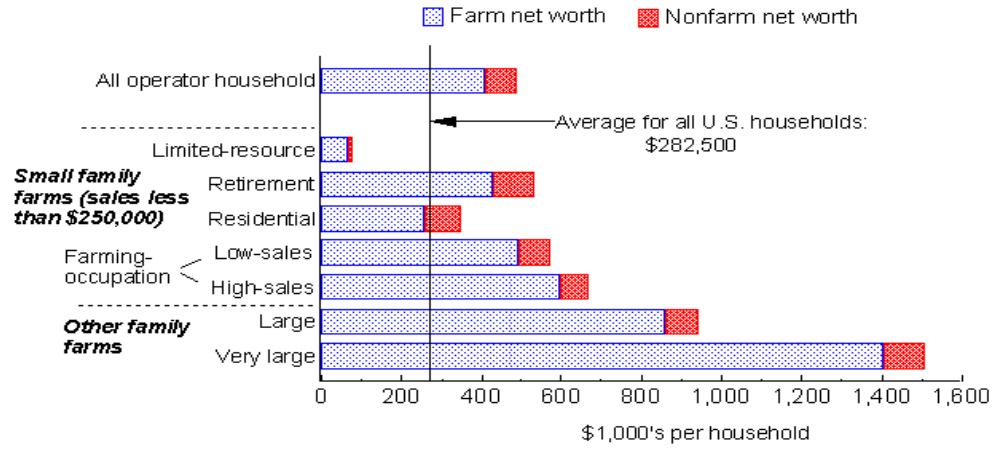
Net Worth

The earnings of operator households from farming do not reflect the large net worth of many farm operator households. Each group of farm households in the typology had an average household net worth above the $282,500 average for all U.S. households in 1998, except for households operating limited-resource farms (fig. 23). For operators engaged in farming as a principal occupation, household net worth ranged from $576,400 for low-sales small farms to $1.5 million for very large family farms. Seventy-four percent to 93 percent of operator household net worth came from farm-related sources in 1998, reflecting the capital-intensive nature of farming. Unlike income, net worth from farm sources accounted for most of the wealth of farm households regardless of typology group.

Figure 23

Average farm operator household net worth, by farm typology group, 1998

Most farm operator households' wealth is held as farm assets

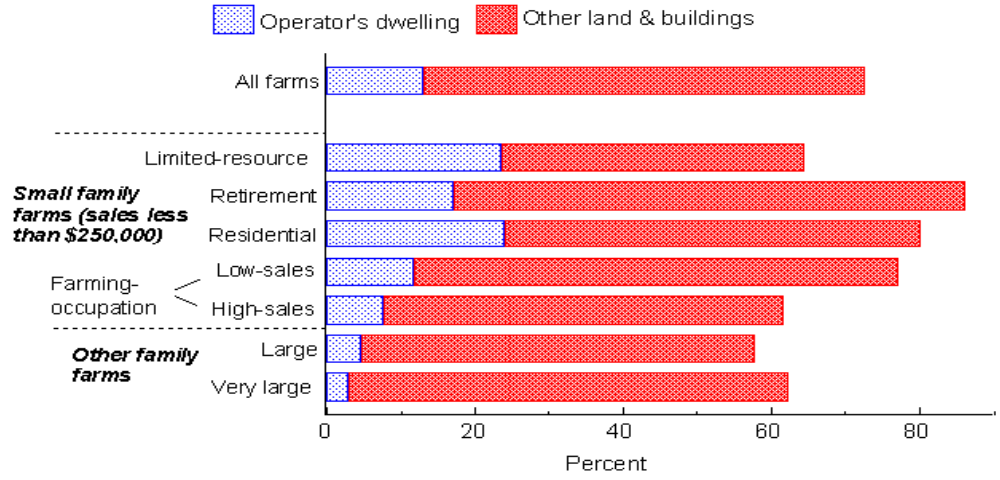


Note: Household net worth data are not collected for nonfamily farms.
Source: USDA, Economic Research Service, 1998 Agricultural Resource Management Study, version 1, for farm operator households. Federal Reserve System and U.S. Department of the Treasury, 1998 Survey of Consumer Finances, for all U.S. households (Kennickell and others, 2000, p. 7).

Most of the net worth of operator households is illiquid and not readily available for household spending, since it is largely based on assets necessary for farming. Real estate alone, including operator dwellings, made up 73 percent of all farm assets in 1998 (fig. 24). However, current assets tend to be liquid. (Current assets include cash, assets that will be turned into cash within a year, and assets that will be used up by the business within a year.) Farms may have inventories of crops, livestock, and production inputs that can be sold (table 24). They may also have accounts receivable that will likely yield cash in a short time. Of course, current liabilities must also be paid within 1 year. Working capital–the excess of current assets over current liabilities that could be drawn upon in business or household emergencies–was discussed in the "Farm Business Financial Performance" section.

Note, however, that not all assets, liquid or otherwise, are held by the operator household (see "Business Organization and Arrangements of Farms"); they may be shared with other households and not be entirely available to the operator household. For example, consider a partnership between two brothers, where both of the brothers bring assets to the farm business. The farm's assets are shared by the two brothers and their households. Very large family farms had the smallest share of total farm assets held by the operator household in 1998, 76 percent. Even after accounting for multiple ownership of farm assets, the households of these very large family farms still had net worths that were, on average, five times as large as the net worth of all U.S. households.

Figure 24
Share of farm business assets in real estate, 1998
Most farm assets are in real estate



Note: Includes both assets held by the operator household and assets held by others.

Source: USDA, Economic Research Service, 1998 Agricultural Resource Management Study, version 1.

Summary

The information presented in this section has policy implications for any discussion of farm households. Regardless of the type of farm, farm households rely to some extent on off-farm income. Virtually all income, on average, comes from off-farm sources for households operating limited-resource, retirement, residential/lifestyle, or low-sales farms. Even households with large and very large farms receive substantial off-farm income (an average of $47,300 and $33,200, respectively), although most of their income comes from farming activities. And as shown in figure 22, opportunities to find employment in either the local nonfarm economy or within some reasonable commuting distance have been important to farm operators and their households for decades.

In addition, both operators and spouses may work off-farm, giving farm households dual career characteristics like their nonfarm counterparts. With the higher educational attainment of younger farm operators and spouses, the trend toward dual careers and multiple jobs is likely to continue. More technology lessening the need for onfarm labor could even accelerate this trend. For the 834,000 residential/lifestyle farmers, the nonfarm economy is particularly important, since most of them do not generate positive income from farming. For operators of retirement farms, the status of retirement programs and the returns on investments are also critical.

Table 24–Current assets, noncurrent assets, and household net worth, by farm typology group, 1998

Item	Small family farms[1]					Large family farms[1]	Very large family farms[1]	All family farms
	Limited-resource[2]	Retirement[3]	Residential/lifestyle[3]	Farming-occupation[3]				
				Low-sales	High-sales			
				Number				
Total households	150,268	290,938	834,321	422,205	171,469	91,939	61,273	2,022,413
				Dollars per farm				
Total farm business assets	76,108	442,270	291,525	560,567	772,106	1,219,986	2,334,272	498,213
Total current assets[4]	6,790	25,191	17,702	50,470	114,727	208,740	399,862	53,298
Livestock inventory	3,193	2,680	5,345	9,533	19,014	36,074	73,662	10,301
Crop inventory	*1,851	1,688	2,586	10,340	43,612	77,382	122,332	14,527
Purchased inputs inventory	*209	217	440	1,133	5,226	12,129	21,837	2,121
Sunk costs	**191	154	*1,438	694	3,094	8,065	24,298	2,140
Prepaid insurance	116	d	d	445	1,225	2,233	3,986	539
Accounts receivable	*155	d	d	2,415	5,641	15,415	56,736	3,944
Other current assets	1,230	*20,228	7,702	28,325	42,557	72,855	153,747	23,670
Total noncurrent assets	69,318	417,079	273,823	510,097	657,379	1,011,246	1,934,409	444,915
Real estate	49,123	381,470	233,516	433,484	476,931	707,104	1,459,630	362,160
Farm equipment	16,543	30,856	32,124	57,548	132,691	235,694	335,782	63,072
Breeding stock	3,601	4,583	8,020	17,802	42,397	58,110	119,489	17,808
Investment in co-ops	*50	*171	162	1,264	5,360	10,338	19,508	1,875
				Dollars per household				
Farm business assets held by operator household	75,351	437,102	281,320	531,967	711,396	1,038,469	1,777,871	456,977
				Percent				
Share of farm business assets held by operator household	99.0	98.8	96.5	94.9	92.1	85.1	76.2	91.7
Share of total assets that are current	8.9	5.7	6.1	9.0	14.9	17.1	17.1	10.7
Household net worth	78,718	535,943	347,909	576,402	669,458	944,533	1,508,151	492,195
Farm	66,092	429,926	256,571	494,745	599,501	859,591	1,405,548	408,377
Nonfarm	12,626	106,017	91,338	81,657	69,957	84,943	102,603	83,818

d = Data suppressed due to insufficient observations. * = Standard error is between 25 and 50 percent of the estimate. ** = Standard error is between 51 and 75 percent of the estimate.

[1]Small family farms have sales less than $250,000. Large family farms have sales between $250,000 and $499,999. Very large family farms have sales of $500,000 or more.

[2]Limited-resource farms have household income less than $20,000, farm assets less than $150,000, and sales less than $100,000.

[3]Small farms other than limited-resource farms are classified according to the major occupation of their operators. Operators of retirement farms are retired. Operators of residential/lifestyle farms report a nonfarm occupation. Operators of farming-occupation farms report farming as their major occupation. Farming-occupation farms are further divided into low-sales (sales less than $100,000) and high-sales (sales between $100,000 and $249,999).

[4]Cash, assets that will be turned into cash within a year, and assets that will be used up by the business within a year.

Source: USDA, Economic Research Service, 1998 Agricultural Resource Management Study, version 1.

Nevertheless, operators of many small farms may be interested in improving their earnings from farming, and activities such as extension education, innovative marketing programs, and credit targeted specifically at small farms may assist them. Trying to raise earnings from farming may be particularly appropriate for limited-resource farmers. Even modest improvements in household income could be important to these low-income farmers.

Not all the benefits of farming are included in the estimate of farm earnings, as measured here on a cash or money basis. Though typically not large, nonmoney income could be an important source of income to many low-income farm households. Moreover, the farm also affords an opportunity for wealth accumulation, especially since nonfarm demand for land affects the value of farm real estate, the largest source of asset holdings of all farm typology groups. Finally, for farmers operating limited-resource, retirement, and residential/lifestyle farms, a rural life may be more important than the level of farm income (Perry and Johnson, 1999, pp. 7-10).

Government Payments and Use of Selected Management Strategies

Large farms (sales of $250,000 or more) received a disproportionate share of payments relative to their share of farms. These farms have higher participation rates and are more likely to produce traditional program commodities. Program payments–particularly conservation reserve payments–are also important to retirement farms, making up a larger share of their gross cash income. Most farms, however, do not receive government payments. Only 36 percent of all farms received government payments of any kind.

This section reviews provisions of the Federal Agriculture Improvement and Reform Act of 1996 that pertain to government payments to farmers. It then identifies which farms received government payments, determines the distribution of these payments among farms in 1998, and provides limited information about changes in farmers' use of management strategies in response to the Act. Several programs provide payments to farmers, so individual programs are examined in some detail. Individual programs differ in the amount of payments that they provide and the types of farms that participate.

Federal Agriculture Improvement and Reform Act of 1996

The Act, signed into law on April 4, 1996, removed many planting restrictions imposed on producers who participated in traditional commodity programs (Young and Westcott, 1996).[7] While eliminating target prices, deficiency payments, and acreage reduction programs (ARP's), the Act provided for fixed–but declining–production flexibility contract (transition) payments, nonrecourse marketing assistance loans with marketing loan repayment provisions, and loan deficiency payments (LDP's) for the 1996-2002 contract crops of wheat, rice, corn, sorghum, barley, oats, and upland cotton. Eligibility for production flexibility contract payments depended upon whether a farm had at least one crop acreage

[7]Detailed discussion of specific provisions of the Act are available from several sources. Nelson and Schertz (1996) provide a concise description of the provisions of the Act. Young and Shields (1996) make a comparison of the Act's provisions with those of the Food, Agriculture, Conservation and Trade Act of 1990, as amended. Young and Westcott (1996) present a comprehensive analysis of the expected impacts of the Act. The Farm Service Agency maintains a web site (USDA, Farm Serv. Agency, 1999) with program fact sheets.

base in a production adjustment program for any of the crop years 1991 through 1995 (or acreage that was considered planted under program rules). Thus, while the new Act made payments independent of prices, the eligibility of producers for production flexibility contract payments was tied to having a program acreage base. The same eligibility requirements extended to loan deficiency payments for wheat, feed grains, cotton, and rice. Crops produced on farms that did not have a production flexibility contract were not eligible for transition payments, nonrecourse loans, or LDP's. Note that although oilseeds are not contract commodities, all production of oilseeds is eligible for nonrecourse loans and LDP's. Under the Act, producers of contract crops or oilseeds who are eligible for a nonrecourse loan–but agree to forgo the loan–can receive LDP's.[8]

To receive payments under production flexibility contracts, farms were required to enroll in the 7-year program when the one-time signup was held. Farms with CRP contracts expiring after the signup are an exception; these farms may enroll when their CRP contract expires. Initial production flexibility contracts began with the 1996 crop and extend through the 2002 crop. Initial participation in the program was very high, with 89 percent of estimated eligible farms and 99 percent of the estimated eligible acreage being enrolled in the program (USDA, 1996).

Government Program Payments Available in 1998

Program payments are appropriated for a fiscal year, but may be distributed over 2 or more calendar years, depending on the program. Government payments received by farmers in calendar year 1998 included the following:

- LDP's from both the 1997 and 1998 crops.[9]
- Transition payments, or–more specifically–transition payments for 1998 crops, less advanced payments for 1998 crops received in 1997, plus advanced payments for 1999 crops.
- CRP payments.
- Disaster Assistance Program payments, which include all market loss or disaster assistance payments, but exclude Federal Crop Insurance indemnity and other indemnity payments.[10]
- Wetland Reserve Program (WRP) payments.
- Environmental Quality Incentive Program (EQIP) payments.
- All other State and Federal agricultural program payments.

The 1998 Agricultural Resource Management Study (ARMS) asked farm operators specifically about receipt of the payments listed above. To help minimize the amount of information farmers had to

[8]Producers of extra-long staple cotton are eligible for loans, but the market loan repayment and LDP provisions do not apply to them.

[9]LDP's (and nonrecourse loans) are available for eligible commodities from the time of harvest until the final loan availability date. Depending on the crop, the final loan availability date is March 31 or May 31 following the year in which the crop is harvested.

[10]Ongoing Natural Disaster Assistance Programs include the Emergency Conservation Program, Noninsured Crop Disaster Assistance Program, Emergency Loan Assistance, Emergency Haying and Grazing Assistance. Also, specific programs (such as the Crop Loss Disaster Assistance Program and the Dairy Production Disaster Assistance Programs) were enacted in 1998 to provide emergency financial assistance to farmers who suffered losses due to specific natural disasters.

provide, respondents were asked to report total transition payments received during 1998. No attempt was made to associate transition payments with a specific crop (wheat, rice, corn, sorghum, barley, oats, or cotton). In addition, farmers were not asked if transition payments were solely for the 1998 crop (less advanced payments received in 1997), or if the payments reported also included advanced payments for the 1999 crop program. Only the data needed to develop indicators of the structure and financial position of farm operations within the 1998 calendar year were collected. Nevertheless, survey responses support analysis of the distribution of payments among farms. The data also enable us to explain which type of payment is received by farms within different typology groups, adding depth to existing information about which program features farmers choose to use.

Farms Receiving Government Payments

In 1998, 36 percent of farms reported receiving government payments of some type from participation in commodity, conservation, or other environmental programs (table 25). Government payments amounted to 5 percent of gross cash income from farming for all farms. For farms that reported receiving government payments, payments were twice as important, 9 percent of total cash income. Farms vary in the commodities they produce, in ownership structure, in size of operation, and in decisions regarding land use for production or conservation. Each of these characteristics affects how government payments are distributed among farms. They also affect how important government payments are to farms, as reflected in the contribution of payments to farm income.

Larger farms received a disproportionate share of payments relative to their numbers, with the largest 8 percent of farms (sales of $250,000 or more), receiving 47 percent of all Government farm payments. These larger farms, accounted for 15 percent of farms that reported receipt of a Government program payment, indicating that they participated at a higher rate than farms in the lower sales classes.

In other words, a larger share of farms of this size had a program history or acreage base that made them eligible to participate in farm programs under the 1996 Act. While information on base acreage distributed by size of farm is not available, farmers reported acreage and crop values for wheat, feed grain, cotton, soybean, and rice production. Large-farm operations produced over half of these commodities measured in acreage or value of production.

In addition, the 19 percent of farms that specialized in cash grains (defined to include oilseeds) received nearly two-thirds of all Government program payments in 1998. Cash grain farms participated at a very high rate relative to all farms, second only to cotton farms, and accounted for 42 percent of all farms that reported receipt of payments.

Results from the 1998 survey mirror results from earlier in the 1990's. In 1993, the Farm Costs and Returns Survey (FCRS) indicated that the largest 6 percent of farms received a third of all payments. The persistence of a high concentration of payments among the largest farms between 1993, a year that reflected earlier farm legislation, and 1998, a year that reflected implementation of the 1996 act, is not surprising. Key payments in 1998, including production flexibility contract and LDP payments, were available to farms with a historical grounding in the commodity programs. Thus, the distribution of payments relative to numbers of farms should be similar.

The farm typology provides more detail to the sales class analyses discussed above. Typically, limited-resource, retirement, and residential/lifestyle farms do not report large amounts of crops on

Table 25—Distribution of government payments among farms, 1998

Item	Distribution of payments by reporting farms (%)	Farms (no.)	Distribution of farms (%)	Reporting farms (no.)	Distribution of reporting farms (%)	Farms reporting payments (%)	Payment as share of gross cash income (%)	Distribution of selected crop value of production[1] (%)	Distribution of selected crop planted acreage[1] (%)	Payment per farm ($)	Payment per reporting farm ($)
All farms	100.0	2,064,709	100.0	750,777	100.0	36.4	5.3	100.0	100.0	4,488	12,343
Sales class:											
$500,000 or more	21.9	67,862	3.3	38,653	5.1	57.0	2.5	26.1	21.7	29,846	52,400
$250,000 to $499,999	25.0	96,029	4.7	72,101	9.6	75.1	6.9	27.6	26.8	24,081	32,072
$100,000 to $249,999	26.5	197,639	9.6	147,895	19.7	74.8	7.8	28.1	29.0	12,437	16,620
$50,000 to $99,999	10.5	148,355	7.2	96,823	12.9	65.3	8.6	9.7	11.9	6,590	10,097
$10,000 to $49,999	12.2	470,937	22.8	216,682	28.9	46.0	8.7	7.4	9.0	2,409	5,235
Less than $10,000	3.9	1,083,888	52.5	178,623	23.8	16.5	7.6	1.1	1.7	331	2,011
Farm acres operated:											
2,000 acres or more	29.9	83,667	4.1	62,761	8.4	75.0	6.5	29.2	32.5	33,165	44,212
1,000 to 1,999 acres	26.0	101,607	4.9	81,837	10.9	80.5	7.6	29.0	27.9	23,715	29,444
500 to 999 acres	22.5	190,775	9.2	137,585	18.3	72.1	6.4	22.9	21.0	10,910	15,128
250 to 499 acres	12.5	295,835	14.3	168,117	22.4	56.8	4.7	11.8	11.3	3,930	6,916
100 to 249 acres	7.2	480,029	23.2	178,434	23.8	37.2	3.0	5.9	6.0	1,385	3,727
Less than 100 acres	1.9	912,795	44.2	122,043	16.3	13.4	0.8	1.2	1.4	190	1,421
Farm type:											
Cash grain	59.9	384,871	18.6	317,643	42.3	82.5	12.0	78.3	74.4	14,418	17,470
Cotton	5.6	13,462	0.7	12,322	1.6	91.5	11.3	6.3	4.5	38,763	42,350
Other crop	17.7	590,161	28.6	188,111	25.1	31.9	3.0	7.8	8.4	2,784	8,736
Beef	8.2	642,683	31.1	136,570	18.2	21.3	3.1	2.8	5.5	1,184	5,570
Hog	2.8	51,605	2.5	22,936	3.1	44.4	4.3	2.1	2.5	4,955	11,150
Dairy	3.7	93,880	4.5	49,578	6.6	52.8	1.2	1.2	3.0	3,609	6,834
Other livestock	2.1	288,047	14.0	23,617	3.1	8.2	2.0	1.5	1.8	686	8,371
Farm typology:[2]											
Small family farms											
Limited-resources	*1.2	150,268	7.3	30,022	4.0	20.0	*9.8	*0.8	*1.3	*722	*3,615
Retirement	4.9	290,938	14.1	81,684	10.9	28.1	12.8	0.9	1.0	1,566	5,578
Residential/lifestyle	8.9	834,321	40.4	197,692	26.3	23.7	7.2	8.0	7.9	993	4,189
Farming occupation/low-sales	12.9	422,205	20.4	186,787	24.9	44.2	7.9	10.4	13.8	2,833	6,403
Farming occupation/high-sales	23.8	171,469	8.3	129,644	17.3	75.6	8.0	25.4	26.6	12,870	17,022
Large family	24.3	91,939	4.5	70,096	9.3	76.2	7.0	26.8	26.1	24,539	32,185
Very large family	19.8	61,273	3.0	35,597	4.7	58.1	3.1	23.4	19.7	29,971	51,589
Nonfamily farms	4.1	42,296	2.0	19,255	2.6	45.5	1.6	4.3	3.7	8,970	19,704

* = Standard error is between 25 and 50 percent of the estimate. [1]Selected crops include wheat, rice, corn, sorghum, barley, oats, cotton, and soybeans. [2]Small family farms have sales less than $250,000. Limited-resource farms have household income less than $20,000, farm assets less than $150,000, and sales less than $100,000. Small farms other than limited-resource farms are classified according to the major occupation of their operators. Operators of retirement farms are retired. Operators of residential/lifestyle farms report a nonfarm occupation. Operators of farming-occupation farms report farming as their major occupation. Farming-occupation farms are further divided into low-sales (sales less than $100,000) and high-sales (sales between $100,000 and $249,999). Large family farms have sales between $250,000 and $499,999. Very large family farms have sales of $500,000 or more. Nonfamily farms include nonfamily corporations or cooperatives, as well as farms operated by a hired manager.
Source: USDA, Economic Research Service, 1998 Agricultural Resource Management Study, version 1.

which payments have traditionally been based, focusing instead on the production of beef, hay, and other commodities. In total, only a fifth of limited-resource farms, and about a fourth of residential/lifestyle and retirement farms reported receipt of any government payments. Although more low-sales farms received government payments, less than half of these small farms reported government payments. In contrast, three-quarters of high-sales and large family farms received government payments, reflecting their tendency to specialize in cash grains.

Payments Farmers Receive

In an apparent anomaly, government payments made up a larger share of gross cash income for retirement farms (13 percent) than for high-sales small farms (8 percent) and large farms (7 percent). In fact, retirement farms reported receiving a larger share of payments than they had of key base acreage commodities. The source of government payments for retirement farms was not production flexibility contract, loan deficiency, market loss, or disaster assistance payments. Three-fourths of the payments received by members of this group of small farms were CRP payments (fig. 25). CRP payments also are a large source of payments reported by other small farms, except for high-sales farms. Moreover, for retirement and limited-resource farms who report payments, the CRP is not only an important source of total payments, but also a relatively large share of total cash farm income (table 26).

For larger farm businesses, government payments form a smaller share of total cash income, declining in a relatively linear manner from about 8 percent for high-sales farms to 3 percent for very large farms. For the larger farms that reported payments, transition payments made up nearly three-fifths of total payments. Adding in loan deficiency and disaster payments accounted for nearly 90 percent of the payments received by these farms. These results reflect not only the relatively high level of participation of these farms in the programs, but also their large share of production of commodities for which base acreage is determined. In 1998, high-sales small farms, large family farms, and very large family farms together accounted for 80 percent of the combined value of wheat, feed grains, cotton, rice, and soybean production.

Farmers' Use of Management Strategies

The 1996 Act reduced constraints on individual farm decisionmaking that were previously imposed as a condition for the receipt of payments, providing farmers with greater latitude to make changes in their production plans. In response to these changes in government farm programs, the 1996 ARMS asked farmers about their use of selected pricing, liquidity, and operating strategies in their businesses. Questions were written to ask if use of eight specific items had changed during calendar year 1996. The items of interest were:

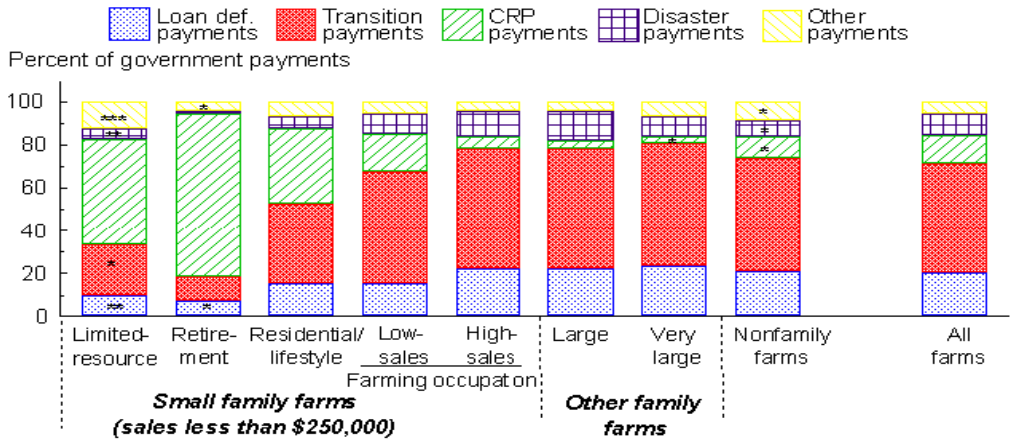
- Forward contracting of commodity sales.
- Spreading sale of commodities over the year.
- Hedging or using futures or options.
- Forward pricing inputs.
- Having cash on hand or assets that could be converted into cash.
- Keeping an open line of credit.
- Diversifying the farm into other crop or livestock enterprises.
- Hiring custom work to be done.

The question about change in use of these eight management items was followed by a question that asked whether use of the item changed as a result of change in farm programs.

Figure 25

Composition of government payments for recipient farms, by farm typology group, 1998

The composition of government payments varies widely among the typology groups



* = Standard error is between 25 and 50 percent of the estimate.
** = Standard error is between 51 and 75 percent of the estimate.
*** = Standard error is between 76 and 100 percent of the estimate.

Source: USDA, Economic Research Service, 1998 Agricultural Resource Management Study, version 1.

The 1996 Act was enacted in April 1996, after a majority of producers had made production plans. Thus, the questions asked of producers about their use of management strategies in 1996 focused largely on pricing and liquidity, which still could have been changed during the calendar year. Responses to questions such as those posed to farmers about 1996 form a benchmark against which farmers' use of management strategies can be assessed using data from forthcoming surveys.

Farmers' responses showed great differences in the use of the selected management strategies across the typology groups (table 27). Of the three commodity pricing strategies (forward contracts, spreading sales, and hedging or futures/options), spreading sales was the strategy reported as being most often used by farmers. Even then, only about two-fifths of all farmers used this strategy. Only one-fifth of farmers reported use of forward price contracts. The least used pricing strategy of the three asked about in 1996 was hedging or use of futures or options. About 1 in 10 farmers reported using this strategy. But as with the other pricing tools, its use increased among larger farms.

On the input side, a fifth of farmers reported that they forward-priced agricultural inputs. Use of this approach to management of input costs ranged from less than 10 percent of retirement and limited-resource farmers to nearly 60 percent of large farm operations.

The most-often-used strategies were those related to the maintenance of a farm's liquidity. More than 60 percent of farmers reported they kept cash on hand or maintained assets that could be converted into cash while more than half reported that they maintained an open line of credit. Both small and large farm operations used these management approaches extensively.

Table 26—Number of farms, average program payments, and payments' contribution to farm income, by program and farm typology, 1998

Item	Small family farms[1]					Large family farms[1]	Very large family farms[1]	Nonfamily farms[2]	All farms
	Limited-resource[3]	Retirement[4]	Residential/ lifestyle[4]	Farming-occupation[4]					
				Low-sales	High-sales				
Total farms	150,268	290,938	834,321	422,205	171,469	91,939	61,273	42,296	2,064,709
Average gross cash farm income ($)	7,361	12,255	13,780	35,800	161,036	348,769	977,037	566,289	84,651
Average government payment per farm ($)	*722	1,566	993	2,833	12,870	24,539	29,971	8,970	4,488
Percent of gross cash farm income (%)	*9.8	12.8	7.2	7.9	8.0	7.0	3.1	1.6	5.3
Average transition payment per farm ($)	*172	178	370	1,489	7,137	13,714	17,141	4,738	2,300
Average loan deficiency payment per farm ($)	**68	*114	149	430	2,865	5,436	7,082	1,860	898
Average CRP payment per farm ($)	*355	1,179	348	491	781	961	*850	*925	585
Average disaster payment per farm ($)	*36	27	57	254	1,466	*3,277	2,778	*692	446
Farms receiving government payments	30,022	81,684	197,692	186,787	129,644	70,096	35,597	19,255	750,777
Percent of all farms (%)	20.0	28.1	23.7	44.2	75.6	76.2	58.1	45.5	36.4
Average gross cash farm income ($)	13,350	17,308	30,404	49,264	163,785	362,918	964,596	414,763	141,217
Average government payment ($)	*3,615	5,578	4,189	6,403	17,022	32,185	51,589	19,704	12,343
Percent of gross cash income (%)	*27.1	32.2	13.8	13.0	10.4	8.9	5.3	4.8	8.7
Transition payment, share of total (%)	*23.8	11.4	37.2	52.5	55.5	55.9	57.2	52.8	51.3
Loan deficiency payment, share of total (%)	**9.4	*7.3	15.1	15.2	22.3	22.2	23.6	20.7	20.0
CRP payment, share of total (%)	49.2	75.3	35.1	17.3	6.1	3.9	*2.8	*10.3	13.0
Disaster payment, share of total (%)	**5.0	1.7	5.7	9.0	11.4	13.4	9.3	*7.7	9.9
Farms with no government payments	120,246	209,254	636,629	235,418	41,825	21,843	25,676	23,041	1,313,932
Percent of all farms (%)	80.0	71.9	76.3	55.8	24.4	23.8	41.9	54.5	63.6
Average gross cash farm income ($)	*5,866	*10,283	8,618	25,118	152,517	303,365	994,287	692,915	52,329

* = Standard error is between 25 and 50 percent of the estimate. ** = Standard error is between 51 and 75 percent of the estimate.

[1]Small family farms have sales less than $250,000. Large family farms have sales between $250,000 and $499,999. Very large family farms have sales of $500,000 or more.

[2]Nonfamily farms include nonfamily corporations or cooperatives, as well as farms operated by a hired manager.

[3]Limited-resource farms have household income less than $20,000, farm assets less than $150,000, and sales less than $100,000.

[4]Small farms other than limited-resource farms are classified according to the major occupation of their operators. Operators of retirement farms are retired. Operators of residential/lifestyle farms report a nonfarm occupation. Operators of farming-occupation farms report farming as their major occupation. Farming-occupation farms are further divided into low-sales (sales less than $100,000) and high-sales (sales between $100,000 and $249,999).

Source: USDA, Economic Research Service, 1998 Agricultural Resource Management Study, version 1.

Table 27—Farm operators' use of selected management strategies, by farm typology, 1996

Strategy	Small family farms[1]					Large family farms[1]	Very large family farms[1]	Nonfamily farms[2]	All farms
	Limited-resource[3]	Retire-ment[4]	Residential/ lifestyle[4]	Farming-occupation[4]					
				Low-sales	High-sales				
					Percent				
Pricing:									
Forward contract sales of commodities	*8.1	*13.8	12.4	18.0	54.9	53.5	52.7	**25.4	20.9
Change in use due to change in programs	d	d	**4.1	*3.8	*8.9	12.3	14.1	**5.7	4.4
Spread sales of commodities over the year	*24.0	26.7	32.9	39.2	64.1	68.6	61.5	*31.8	37.9
Change in use due to change in programs	d	d	*5.5	5.3	*8.6	9.4	7.7	**6.0	5.0
Hedge or use futures/options	d	*4.3	*7.6	7.5	28.5	35.8	34.7	**16.6	11.0
Change in use due to change in programs	d	d	d	*3.0	5.1	13.7	13.3	d	2.7
Forward price agricultural inputs	*8.3	8.7	12.8	16.5	46.7	58.4	52.4	*23.4	19.4
Change in use due to change in programs	d	d	*1.9	*3.6	5.4	*11.1	13.0	**4.3	3.4
Liquidity:									
Have cash on hand or assets that can be converted into cash	43.8	48.5	65.8	63.1	79.1	86.3	80.4	*47.5	61.9
Change in use due to change in programs	d	*16.4	6.0	*9.7	*11.6	*16.1	8.2	**6.1	8.8
Keep a line of credit open, including credit cards	31.5	31.2	54.1	53.6	76.3	84.6	77.7	*50.4	51.9
Change in use due to change in programs	d	d	*4.0	*9.3	*11.0	*15.3	8.7	d	6.6
Operating:									
Diversify your farm/ranch into other crop or livestock enterprise	13.9	9.8	24.1	25.3	43.6	52.5	47.2	**29.1	25.1
Change in use due to change in programs	d	d	*6.6	6.2	6.9	11.4	9.2	**4.3	5.6
Hire work to be custom done	22.4	30.3	35.2	41.6	64.3	58.3	63.9	*37.7	39.1
Change in use due to change in programs	d	d	*4.5	*4.7	*7.9	*9.6	*7.3	**5.0	5.2

d= Data suppressed due to insufficient observations. * = Standard error is between 25 and 50 percent of the estimate. ** = Standard error is between 51 and 75 percent of the estimate.
[1]Small family farms have sales less than $250,000. Large family farms have sales between $250,000 and $499,999. Very large family farms have sales of $500,000 or more. [2]Nonfamily farms include nonfamily corporations or cooperatives, as well as farms operated by a hired manager. [3]Limited-resource farms have household income less than $20,000, farm assets less than $150,000, and sales less than $100,000. [4]Small farms other than limited-resource farms are classified according to the major occupation of their operators. Operators of retirement farms are retired. Operators of residential/lifestyle farms report a nonfarm occupation. Operators of farming-occupation farms report farming as their major occupation. Farming-occupation farms are further divided into low-sales (sales less than $100,000) and high-sales (sales between $100,000 and $249,999).
Source: USDA, Economic Research Service, 1998 Agricultural Resource Management Study, version 1.

Even though the 1996 Act was in place for only two-thirds of the year, change was reported in the use of each of the strategies by approximately 3 to 9 percent of farmers. As with original use of the strategies, change in use was more common among larger farm operations. For example, one in seven operators of large and very large family farms reported changes in the use of forward contracts and futures or options. Large farms, where there is a heavy emphasis on the production of grains, tended to show large adjustment in the use of pricing and liquidity management strategies. In fact, the largest of any increase was the adjustment that large farms made to enhance farm liquidity through the maintenance of cash or credit reserves.

Summary

Concentration of government program payments among farms has persisted after the advent of production flexibility contracts and the increased use of loan deficiency and disaster payments in 1998. In fact, the largest 8 percent of farms received 47 percent of payments in 1998, comparable to the 33 percent of payments received by the largest 5 percent of farms in 1993.

In another similarity to earlier distributions, the approximately 10 percent of farms with the largest net cash incomes continued to receive about half of total payments. A larger share of these farms report payments than other groups and they account for more than half of the production of key crops such as wheat, corn, cotton, or soybeans.

Newly developed information from the farm typology illustrates differences among farms in importance and source of payments. In 1998, payments were a larger share of the gross incomes of retirement farms than of any other group. This occurred not from the large absolute amount of payments that these farms received, but rather from the amount of payments they received in relationship to the small volume of output generated. Sources of payments mattered as well. A large share of the payments received by retirement farms came not from production-related programs, but from the CRP.

Despite the public discourse about farm programs, not all farms are eligible for program payments. In fact, only 36 percent of all farms received government payments in 1998. Over 70 percent of limited-resource, retirement, and residential/lifestyle farms received no government payments in 1998. Producers of program crops are eligible for transition payments only if they had an acreage base in at least one program crop and participated in an ARP for any of the crop years 1991 through 1995. Loan deficiency payments are made available to eligible producers of wheat, rice, corn, sorghum, barley, oats, upland cotton, soybeans, and minor oilseeds under specific market conditions. CRP is targeted at land meeting specific criteria concerning erodibility and other environmental considerations and retires land for 10 to 15 years. Disaster assistance programs are available to help producers of crop and livestock who may be eligible after suffering loss due to natural disaster.

Federal Tax Policies Affecting Farmers

Several provisions of the tax code are specifically aimed at lowering, or even eliminating, taxes that farm operators face. Recent changes to Federal estate tax provisions will make it easier to pass farms on to the next generation by exempting most small family farms from payment of the tax. The ability to transfer larger farms, combined with preferential treatment for farmland and other business assets, could, however, help to accelerate the trend toward fewer and larger farms.

Federal tax policies can have important effects on the number and size of farms, their organizational structure, and the amount and relative mix of land, labor and capital inputs. The most important Federal taxes for farmers are the Federal income tax, the self-employment tax, and estate and gift taxes. In 1996, farmers paid about $19.2 billion in Federal income taxes on their farm and off-farm income. They also paid $1.8 billion in self-employment taxes. In contrast, Federal estate and gift taxes were relatively small, with taxes on farm estates estimated at only about $500 million. While, in the aggregate, the Federal income tax imposes the largest tax burden on the broadest group of farmers, the relative importance of each tax varies with the size and other aspects of the farm business.

This section discusses the most important features of Federal tax law and how they affect the various farm types. The box, "Internal Revenue Service Data and Typology," highlights how the farm typology is adapted for this section of the report so that it can be used with publicly available Internal Revenue Service (IRS) data.

The Federal Income Tax and Self-employment Tax

The primary Federal taxes on income are the income tax and the self-employment tax. Since most farmers operate as sole proprietors, partnerships or Subchapter S corporations, the individual income tax is more important than the corporate income tax, and is levied on income from farming, as well as on wages, interest, dividends, capital gains, and other taxable sources of income. The self-employment tax is the counterpart to the Social Security or payroll tax on wage and salary income. The self-employment tax equals both the employer's and the employee's share of the Social Security tax.

Federal Income Tax

In recent years, the Federal income tax has changed dramatically. While top marginal tax rates were increased, both individual and business taxpayers have been provided with several new or expanded tax credits and deductions. These include child and education tax credits; an expanded earned income tax credit; reduced capital gains taxation; and targeted tax relief for farmers, including income averaging and increased deductions for self-employed health insurance costs. The net effect is a reduced Federal income tax burden for most farmers.

Farmers' Tax Payments and Tax Base. In 1996, farm sole proprietors paid $19 billion in Federal income taxes on their farm and nonfarm incomes (table 28). Most of this amount was paid by farmers whose major occupation was something other than farming and was therefore paid mostly on nonfarm income. IRS data indicate that a majority of farmers' incomes come from off-farm sources (table 29), similar to the results from ARMS data. The only groups of farmers receiving more than a negligible portion of their income from farming were large family farmers and those small family farmers whose major occupation was farming. Only farmers operating high-sales small farms received a majority of their income from farming.

Overall, farm sole proprietors have reported a net taxable loss from farming since 1980 (on IRS Form 1040, Schedule F), and the net loss was $7.1 billion in 1996. This amount is composed of $8.9 billion in profits reported by about one-third of all farm sole proprietors, and $16 billion in losses reported by the remaining two-thirds. While a majority of farmers in the limited-resource, low-sales, high-sales, and large family farm groups reported farm profits, the total amount of farm income from Schedule F was

Internal Revenue Service Data and Typology

Information on a variety of taxable income and other tax variables for farmers is not available from Agricultural Resource Management Study (ARMS) data. Because of tax rules such as cash accounting, capital expensing, and other deductions and tax credits, farmers' taxable income in any given year may be dramatically different from USDA's measures of farm financial performance (GAO, 1993) or USDA's measures of household income.

For tax analysis, the Internal Revenue Service (IRS) compiles an annual stratified sample of individual income tax returns. Farm observations include individual farmers and materially-participating landlords who file Schedule F (profit or loss from farming), but exclude corporate farms and partnerships. Because the IRS data do not include the partnerships and corporate farms included in ARMS, and because the IRS data may include farms with sales under $1,000 that are excluded from ARMS, the databases are not directly comparable (Compson and Durst, 1992).

The IRS data do not allow an exact duplication of the ERS farm typology, primarily because the IRS data lack the major occupation variable. To approximate the categories in the farm typology, different criteria were developed for IRS data. These criteria use various combinations of gross farm sales, household income, nonfarm income and social security benefits. Large and very large farms were combined into a single category, due to sample size considerations.

With the exception of the residential/lifestyle category, which contains nearly twice as many farms, the number of farms in each category is very similar to the 1996 count of farms by the ERS typology. The large number of residential/lifestyle farms reflects the fact that many households file Schedule F for tax purposes but may not be considered farms by the USDA. Furthermore, about 220,000 farms with gross sales under $10,000 identified farming as their major occupation in the ARMS data. Many of these farms probably reported farm losses for tax purposes and were classified as residential/lifestyle farms because the IRS data do not contain the major occupation variable.

Typology for IRS Data

Farm. Any individual tax return with Schedule F.

Small family farms. Farms with farm sales less than $250,000.

- **Limited-resource farms.** Small family farms with (1) sales less than $100,000 and (2) household income less than $10,000.
- **Retirement farms.** Small family farms with (1) gross social security benefits, (2) farm sales less than $50,000, and (3) the secondary taxpayer not the only person over age 65.
- **Farming-occupation farms.** Small family farms with (a) combined farm income greater than nonfarm income, or (b) farm sales greater than $10,000 and nonfarm income less than $50,000.
  - **Low-sales.** Sales less than $100,000.
  - **High-sales.** Sales between 100,000 and $249,999.
- **Residential/lifestyle farms.** A residual category for small family farms if not selected as a limited-resource, retirement, or farming-occupation farm.

Large family farms. Farms with farm sales of $250,000 or more.

Table 28–Farmers' Federal income taxes, self-employment taxes, and earned income credit, by farm typology group, 1996

Item	Small family farms					Large family farms	All family farms
	Limited-resource	Retire-ment	Residential/ lifestyle	Farming-occupation			
				Low-sales	High-sales		
Number of farmers[1]	218,383	261,926	1,167,321	336,498	151,970	82,865	2,218,964
Percent of farmers	9.8	11.8	52.6	15.2	6.8	3.7	100.0
Income taxes after credits:[2]							
Percent of group	13.7	77.6	88.4	65.3	62.4	74.5	74.0
Amount (mil. dol.)	7.7	2,789.6	13,560.2	865.7	466.1	1,560.3	19,249.6
Average per farmer (dol.)	35	10,650	11,617	2,573	3,067	18,829	8,675
Self-employment taxes after credits:[3]							
Percent of group	40.0	22.4	24.9	50.5	78.1	81.3	35.7
Amount (mil. dols.)	29.7	102.2	682.7	251.7	336.3	350.2	1,752.8
Average per farmer (dol.)	136	390	585	748	2,213	4,226	790
Earned income credit:[4]							
Total credit:							
Percent of group	22.3	--	5.9	12.8	21.6	9.5	9.3
Amount (mil. dols.)	61.6	--	85.3	61.9	42.4	10.4	266.6
Refundable portion:							
Percent of group	15.2	--	4.0	9.4	8.4	3.9	5.9
Amount (mil. dols.)	43.9	--	58.7	37.0	15.1	3.3	161.8
Average per farmer (dol.)	201	--	50	110	99	40	73

Note: Typology groups used for Internal Revenue Service (IRS) data differ from those used for Agricultural Resource Management Study (ARMS) data. For more information, see the box "Internal Revenue Service Data and Typology."

[1]Includes farm sole proprietors, but excludes farms organized as partnerships or Subchapter S corporations.

[2]Income taxes remaining after the child and dependent care tax credit, foreign tax credit, and the portion of the earned income credit used to offset Federal income taxes.

[3]Self-employment taxes remaining after the portion of the earned income credit used to offset other Federal taxes.

[4]These figures understate the current situation because of a change in 1999 that restored an estimated $70 million in total credits to about 50,000 farm households that were previously disqualified due to selling breeding and dairy livestock.

Source: Compiled by USDA, Economic Research Service from special tabulations by Department of Treasury, Internal Revenue Service.

positive only for the high-sales and large family farm groups. Farm income was also positive for low-sales farms with gross sales over $50,000, a subgroup not shown in the table. Thus, while some typology groups (or a majority within those groups) may report net profits, losses in the residential/lifestyle group, containing more than half the farms, make the total income for all farms negative.

Because net farm profit or loss on Schedule F does not include some farm income reported on other tax forms, a more complete measure combines capital gains from selling business assets (such as culled livestock and land) and farm rental income. The combined measure of farm income reveals an

Table 29–Income reported for Federal income taxes by farm proprietors, by farm typology group, 1996

Item	Small family farms					Large family farms	All family farms
	Limited-resource	Retirement	Residential/lifestyle	Farming-occupation			
				Low-sales	High-sales		
Schedule F (farm operations):							
Profit:							
Percent of group	50.6	26.1	19.6	50.8	76.5	76.6	34.2
Amount (mil. dol)	338.9	302.0	681.0	1,752.6	2,542.6	3,298.2	8,915.2
Loss:							
Percent of group	49.4	73.9	80.4	49.2	23.5	23.4	65.8
Amount (mil. dol.)	-660.2	-1,601.3	-9,420.1	-2,135.4	-727.8	-1,482.5	-16,027.2
Total:							
Amount (mil. dol.)	-321.3	-1,299.3	-8,739.1	-382.8	1,814.8	1,815.6	-7,112.0
Capital gains from business assets:							
Percent of group	18.7	25.4	12.3	23.5	40.2	32.3	18.8
Amount (mil. dol.)	156.8	1,271.3	1,399.8	1,946.4	727.7	748.7	6,250.7
Farm rental income:[1]							
Percent of group	1.2	7.5	2.0	2.3	0.8	3.4	2.6
Amount (mil. dol.)	*5.1	233.1	112.7	183.4	*27.9	51.9	614.2
Combined farm income (mil. dol.)[2]	-159.4	205.1	-7,226.5	1,747.0	2,570.4	2,616.2	-247.1
Off-farm income (mil. dol.)[3]	138.2	19,002.7	88,236.6	7,588.7	2,234.3	5,178.9	122,379.3
Total household income (mil. dol.)[4]	-21.2	19,207.8	81,010.1	9,335.7	4,804.7	7,795.1	122,132.2
Percent from off-farm[5]	100.0	98.9	100.0	81.3	46.5	66.4	100.0

Note: Typology groups used for Internal Revenue Service (IRS) data differ from those used for Agricultural Resource Management Study (ARMS) data. For more information, see the box "Internal Revenue Service Data and Typology."

* Estimate should be used with caution because sample contains 10 or fewer tax returns.

[1]Includes only crop-share farm rental income. Cash rental income is not reported separately for tax purposes.

[2]Net profit or loss on Schedule F plus capital gain from selling business assets, plus farm rental income.

[3]Household income minus combined farm income.

[4]The sum of all income reported on IRS Form 1040, including tax-exempt interest, social security and pension benefits not subject to taxes.

[5]When combined farm income is negative, the percent from off-farm sources is limited to 100 percent.

Source: Compiled by USDA, Economic Research Service from special tabulations by Department of Treasury, Internal Revenue Service.

aggregate taxable loss for all farms of $247 million in 1996, the first loss since the mid-1980's. Most typology groups are profitable by this measure, with only residential/lifestyle and limited-resource farms reporting losses as a group.

Important Provisions for Farmers. Several provisions in the tax code help to reduce farmers' income tax burdens. Some provisions specifically target farmers, such as income averaging and, to a lesser extent, cash accounting. Other provisions apply to all taxpayers, such as capital gains and capital expensing provisions, but farmers may be more affected because of the nature of the farm business. Some of these provisions became effective after 1996 and are not reflected in the tables.

Cash accounting. Compared with other businesses, farmers' taxable incomes are more frequently reduced because of cash accounting. Under the cash method of accounting, expenses are deducted in the year they are paid and income is recognized in the year it is received. Inventories are ignored, making the cash method different from the accrual method, which is required for most businesses, including other small businesses that keep inventories. Simplified recordkeeping is the primary justification for allowing farmers to use cash accounting. Most family farmers use cash accounting and can therefore alter the timing of income and expenses, which may help minimize income subject to higher tax brackets when revenue is unusually high.

Income averaging. Another way that farmers avoid higher tax brackets from income variability is income averaging. Following a decade when income averaging was not available, farmers became the only taxpayers able to income average beginning with the 1998 tax year. The new income averaging provision is fundamentally simpler–but more restrictive–than the income averaging available to all taxpayers prior to 1986 because it is available only for farm income. Under the new income averaging provision, a farmer can elect to shift farm income to the preceding three years and pay tax at the rate applicable to each year. If the marginal tax rate was lower during one or more of the preceding years, the farmer will owe less tax than without income averaging.

Lower taxes on capital gains. Capital gains are an important source of income for many farmers. The income tax system has historically treated gain from the sale of investment assets as capital gain and taxed it at lower rates than ordinary income. During the 1986-97 period, a maximum long-term capital gains tax rate of 28 percent meant that only those high-income taxpayers in tax brackets above 28 percent paid a capital gains rate lower than their ordinary tax rates. In contrast to the earlier period, all taxpayers currently pay a lower rate on capital gains. Under current law, taxpayers in the 15-percent bracket pay a 10-percent tax on capital gains, and taxpayers in higher brackets pay a 20-percent capital gains tax.

Although assets used in the farm business are not capital (or investment) assets, gains from their sale are treated as capital gains while losses are treated as ordinary losses. Examples of such assets are farmland and livestock held for draft, breeding, or dairy purposes. Nearly two-fifths of all farmers reported capital gains in 1996, three times the average for other taxpayers. Capital gains income is distributed more evenly among farmers than other taxpayers, although half of all gains are still reported by farmers in the top 5 percent of the adjusted gross income (AGI) distribution.

Preferential capital gains treatment encourages investment in farmland and livestock by both farm and nonfarm investors. Because capital gains taxes are not paid until an asset is sold and the gain is realized, the law provides an incentive to delay some sales. In farming, this affects real estate by reducing the amount of farmland available on the market. Lower capital gains tax rates lessen this lock-in effect, but estate tax provisions continue to discourage many farmers from selling land before death. Leasing, therefore, continues to be important for many farmers because Federal tax policies contribute to low asset turnover and concentrated ownership (Monke and Durst, 1998, p. 7).

Expensing of machinery and equipment costs. Both the administrative burden and the cost of capital are reduced for small farm businesses by the ability to immediately deduct up to $19,000 of investment in farm machinery and equipment in 1999. Amounts over $19,000 must generally be depreciated over a 7-year period. While only about 10 percent of all farms invest more than $19,000 in any year, about half of large and very large family farms invest more than the annual limit. In contrast,

95 percent of farms with business receipts less than $100,000 invest less than the annual limit. The amount that can be expensed is scheduled to increase to $25,000 after 2002, allowing an even greater number of small family farms to fully expense their capital investment.

Earned Income Tax Credit. One of the most significant tax developments for lower income farmers in recent years is the expansion of the earned income tax credit (EITC). The EITC was originally established in 1975 to help offset the self-employment or payroll tax for certain low-income taxpayers. It has since been greatly expanded so that most recipients of the credit receive a cash refund, because the amount of their credit exceeds their self-employment and income taxes owed. The EITC is phased out if earned income or modified adjusted gross income exceeds a specified threshold amount. Households with children are eligible for a larger credit. Both the number of beneficiaries and the credit amount has increased during the 1990's because of legislative changes.

The EITC provided a total benefit of $267 million to an estimated 206,000 low-income farm households in 1996. Twenty-two percent of limited-resource farm households (and a similar percentage of low-sales households) received the EITC, compared with about 9 percent of all farm households (table 29). After using the credit to offset income and self-employment taxes, a balance of nearly $162 million was refunded to about 130,000 farm households. Fifteen percent of limited-resource farms received EITC refunds, compared with only 6 percent of all farm households.

Self-employment Taxes

In addition to income taxes, farmers also pay another Federal tax on farm net income. The self-employment tax is paid on earned income from business activities, and is comparable to the employees' and employers' share of the social security payroll tax. The tax base and tax rates for the self-employment tax have increased over the past 15 years, increasing the burden of this tax relative to the income tax, especially for lower income taxpayers who pay relatively little in Federal income taxes. Farm sole proprietors paid $1.8 billion in self-employment taxes in 1996 (table 28). About half of this amount was paid by the one-fourth of farmers who are either farming-occupation small family farmers or large family farmers. This reflects the fact that most taxable farm profits are reported by these groups. Overall, income taxes far exceed self-employment taxes. For lower income farmers, however, the self-employment tax comprises a larger share of the Federal tax burden than the income tax. Limited-resource farmers paid four times as much self-employment tax as they paid in Federal income taxes (fig. 26).

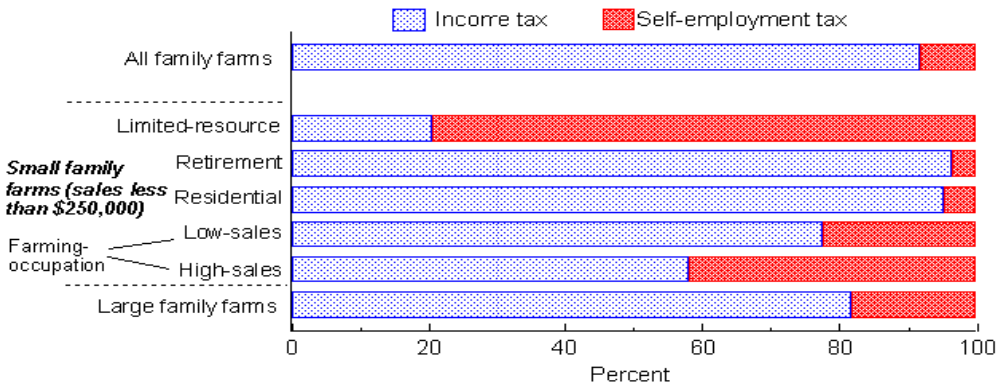
Federal Estate and Gift Taxation

The current Federal estate and gift tax system applies a single tax rate structure and a cumulative lifetime credit to both gifts and transfers of money and other property at death. As a result of the unified lifetime credit, individuals can transfer a specified amount of cash and other property without Federal estate or gift tax liability. All transfers to one's spouse and gifts of up to $10,000 annually to any individual are also exempt from tax. Transfers in excess of the exempt amount are taxed on a graduated scale that rises to a maximum rate of 55 percent on taxable estates above $3 million.

Figure 26

Share of Federal tax burden on income, by type of tax and farm typology group, 1996

Except for limited-resource farms, the income tax accounts for most of the Federal tax burden



Note: Typology groups used for Internal Revenue Service (IRS) data differ from those used for Agricultural Resource Management Study (ARMS) data. For more information, see the box "Internal Revenue Service Data and Typology."

Source: Compiled by USDA, Economic Research Service from special tabulations by Department of Treasury, Internal Revenue Service.

Farmers' Estate Tax Liabilities: Who Owes Tax and How Much

Farmers paid an estimated $500 million in Federal estate taxes in 1996. This is a very small share of all Federal taxes paid by farmers, and most farmers or their heirs never pay such taxes. Nonetheless, the impact of Federal estate and gift taxes on the ability to transfer the family farm to the next generation has been a major concern of farmers and their representatives for many years. In the 1970's, this concern led to the enactment of two special provisions for farmers and other small business owners. The first provision permits farmland to be valued for estate tax purposes at its farm value rather than its fair market value, which might reflect the land's value for development or other uses. The second provision allows estate taxes to be paid over a 15-year period rather than within 9 months of the date of death, as required for other estates.

Despite these special provisions, over the years, increasing farm size and appreciating land values have increased farm estate values and taxes. In 1996, an estimated 6 percent of farm estates owed Federal estate taxes, compared with just over 1 percent of all other estates. However, only about 2 percent of farms with sales less than $100,000 owed Federal estate taxes. At the same time, about one out of every 5 farms with sales over $100,000 owed Federal estate and gift taxes.

Recent Estate and Gift Tax Changes

Continued concern for the effects of Federal estate taxes on family farms and small businesses was the primary impetus for the recent changes to Federal estate and gift tax laws. These changes will

significantly alter the effect of Federal estate and gift taxes on the farm sector for the next several years. These changes include an increase in the unified credit, a new family business exclusion, modifications to the installment payment provision and special use valuation, and additional estate tax benefits for the donation of a conservation easement.

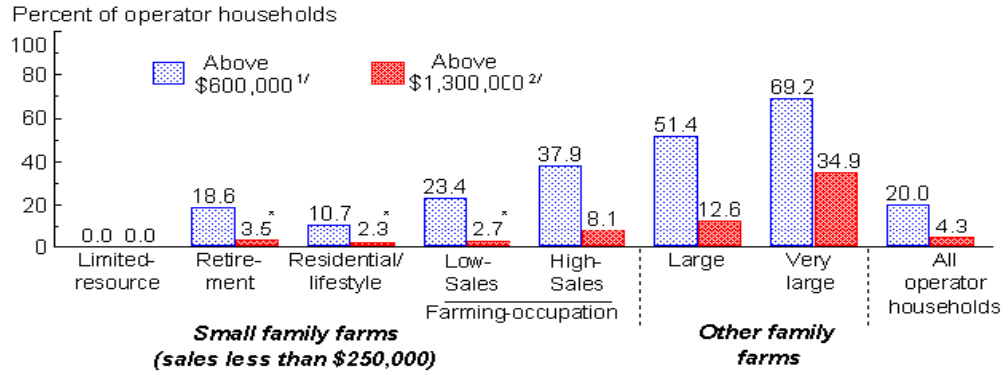
Increase in Unified Credit. The number of estates required to file a return and pay Federal estate taxes is largely determined by the unified credit, which provides a basic exemption from estate taxes. As a result of the recent changes, the amount of an individual's total estate exempt from tax will increase from the $600,000 that applied between 1987 and 1997 to $1 million by 2006. Increasing the unified credit will reduce both the number of farm estates required to file an estate tax return and the number of those that owe Federal estate tax. While households with larger farms will receive the greatest benefits from the increased credit, a number of small farm households with net worth in excess of $600,000 will also benefit (fig. 27).

New Family Business Exclusion. Beginning in 1998, a new exclusion for the first $675,000 of value in a qualified family-owned business also became available to farmers and other small business owners. The exclusion is in addition to any benefits from special use valuation and the unified credit. However, the total amount excluded by the family business exclusion and the unified credit is limited to $1.3 million. Thus, as the unified credit increases, the exclusion for farms and other family-held businesses declines to $300,000 by 2006. With minimal planning, the new exclusion eliminates the tax on farm estates of up to $1.3 million. Only a small portion of operator households have a net worth above the $1.3 million level.

Figure 27

Share of operator households with net worth above $600,000 and $1.3 million, by farm typology group, 1996

The net worth for most small farm households falls below the $1.3 million level



Note: Household net worth data are not collected for nonfamily farms.
* = Standard error is between 25 and 50 percent of the estimate.
1/ $600,000 = Level of the unified credit in 1996.
2/ $1,300,000 = Level of the combined unified credit and family-owned business exclusion after 1997.
Source: USDA, Economic Research Service, 1996 Agricultural Resource Management Study, version 1.

Lower Interest Rate for Installment Payments. Since farms and other small businesses hold significant amounts of wealth in the form of business assets, those that do owe Federal estate taxes can often face a liquidity problem. The installment payment provision, which allows qualifying farms or closely held businesses to pay estate taxes over 15 years rather than within 9 months after death, directly addresses this liquidity problem. Prior to 1998, a 4 percent interest rate applied to the tax on the first $1 million of total qualifying asset value with amounts in excess subject to the normal interest rate for underpayment of tax. Beginning in 1998, the interest rate was reduced to 2 percent on the deferred taxes on the first $1 million in taxable value. The interest rate on amounts above $1 million in taxable value was reduced to 45 percent of the normal rate applicable to tax underpayment. However, the existing deduction for interest costs associated with installment payments was repealed. Since only large farm estates are subject to tax, they will be the primary beneficiaries of the more favorable installment payment provisions. Beginning in 1999, the $1 million value is indexed for inflation.

Indexed Cap on Special Use Value. For estate tax purposes, most assets are valued at their fair market value at the owner's death. Farm estates, however, have been able to use the special use valuation provision to value qualified farm and ranch property at its value for agricultural purposes, rather than at its value for development. While the reduction from the special use value provision varies with the individual property, the provision has reduced the average value of farmland and buildings by about 50 percent in recent years. However, the maximum reduction in value has been limited to $750,000 since 1981. Even though this cap had not been changed for nearly 20 years, only about 10 percent of farms electing special use valuation were affected by the cap. Beginning in 1999, the cap is indexed for inflation, ensuring that most farms will continue to be unaffected by the cap. Larger farms near urban areas where development pressure is the greatest will be the primary beneficiaries of the increased cap.

Exclusion for the Donation of a Conservation Easement. A conservation easement is a real property interest that includes a perpetual restriction on the property's use. The purpose of such an easement can include preserving land for outdoor public recreation or education, preserving natural habitat, or preserving open space. Farmers and other landowners who donate a qualifying conservation easement to a charity or other qualifying organization can realize substantial estate tax savings. In addition to the deduction for the value of the easement, an exclusion of up to 40 percent of the value of the underlying land subject to a qualified conservation easement (and located within 25 miles of a metropolitan area, a national park or wilderness area, or within 10 miles of an Urban National Forest) became available beginning in 1998.

The exclusion is based on the value of the property after the conservation easement is placed, and does not include any retained development rights to use the land for any commercial purpose except farming. The maximum exclusion was limited to $100,000 in 1998, but increases by $100,000 each year until it reaches $500,000 in 2002 and thereafter. This new exclusion provides additional incentives for landowners, especially those with large farms near urban areas, to donate a conservation easement within the designated areas.

Summary

In summary, while the top marginal income tax rates have increased in the 1990's, farmers continue to use several provisions to reduce their taxable income. Recent legislative changes have also created new tax benefits for capital gains income, income averaging, and capital expensing. Cash accounting is an

important benefit for farmers that reduces their recordkeeping burden and allows many farmers to reduce fluctuations in their taxable income. While a majority of limited-resource, farming-occupation, and large farms reported a net farm profit for tax purposes, only high-sales small farms and large family farms reported a net profit as a group.

As the tax base and tax rates for the self-employment tax have increased, it has become an increasing burden relative to the income tax. Overall, income taxes far exceed self-employment taxes. But for limited-resource farmers, self-employment taxes greatly exceed income taxes. The effect of both income and self-employment taxes on lower income households, however, has been reduced in recent years by the expansion of the earned income tax credit.

Although the number of farms subject to the estate tax has increased in recent years, Federal estate and gift taxes have had little negative effect on the ability of families operating small farms to transfer their farms to the next generation. Nevertheless, the recent changes to Federal estate tax provisions will make it easier to transfer the family farm business across generations by reducing the likelihood that the farm or some of its assets would need to be sold to pay Federal estate taxes. The increased unified credit exempts most small family farms from both the payment of tax and the requirement to file an estate tax return. Some small farms will also benefit from the new family business exclusion and the lower interest rate on installment payments. However, much of the benefit from the estate tax changes will be captured by the largest farm estates. Combined, these changes will allow substantially larger farm estates to be transferred to the next generation with little or no Federal estate tax. The ability to transfer larger farms, combined with the preferential treatment for farmland and other business assets and the associated pre- and post-death holding requirements, could increase competition for farmland and help to accelerate the trend toward fewer and larger farms.

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Appendix: Sources of Data

Most of the data in this report are from the Agricultural Resource Management Study (ARMS). ARMS collects financial data on U.S. farm businesses and information about farm operators and their households. The ARMS is designed and conducted each year by the Economic Research Service (ERS) and the National Agricultural Statistics Service (NASS), both agencies of the U.S. Department of Agriculture. ARMS was formerly called the Farm Costs and Returns Survey (FCRS). For information about the ARMS sample design, see the ***Survey Administration Manual*** (USDA, Nat'l. Stat. Serv., 1999a).

Both 1998 and 1996 ARMS data are used extensively in this report. ARMS data for 1998 are used to depict structural and financial conditions. These data were the most current available when the report was being completed in mid-2000. Slightly older 1996 ARMS data are used to reflect the most current ARMS data available when research began on the more specialized topics in this report. In addition, 1994 FCRS data are used to examine the reasons for working off the farm, how income from off-farm jobs was spent, and spouse involvement in specific farm management decisions. The 1994 data are the most recent information available on these topics.

The target population of the ARMS is all farming units in the 48 contiguous States that sell or normally would sell at least $1,000 of agricultural products during the calendar year covered by the survey.[1] The annual survey collects financial data on farm businesses and basic information on the farm operator and the operator household.

The relative standard error (RSE), a measure of sampling variability, is available from survey results. The RSE is the standard error of the estimate expressed as a percentage of the estimate. Any estimate with an RSE greater than 25 percent is identified in the figures and tables. Standard errors can also be used to evaluate the statistical differences between ARMS-based estimates. Differences are stressed in the text only when estimates are significantly different at the 95-percent confidence level or higher.

Different versions of the ARMS questionnaire are used each year, and each version collects information useful for a specific purpose. Most of the information in this report came from version 1, which contained data necessary to calculate operator household income. Version 1 of the 1998 ARMS had 8,400 observations.

The ARMS collects detailed information about one operator per surveyed farm. In the case of farms with more than one operator, detailed information is collected about the primary operator and limited information is collected about secondary operators. Similarly, the survey collects detailed information about one, primary household per farm and limited information about households of secondary operators.

In this report, the terms “household” and “family” are used interchangeably, although the ARMS actually collects household data. There is a technical difference between a family and a household. A family is made up of two or more people who live together and who are related by blood, marriage, or adoption. A household consists of all the people (related and unrelated) who live together in a housing unit. The ARMS also includes people dependent on the household who live elsewhere, such as college students living away from home.

Data sources other than ARMS are also used in this report. The section on tax policy uses data from the Internal Revenue Service (IRS) in addition to ARMS data. Census of agriculture data are used throughout the report to provide historical perspective. The census of agriculture began in 1840 (U.S. Dept. Agr., Nat’l. Agr. Stat. Serv., 1999c, p. vii), which allows following trends over long periods of time. In contrast, ARMS (or FCRS) is a relatively new survey, beginning in 1985 when data were collected for the 1984 calendar year.

Data from the ERS Economic Indicators of the Farm Sector (EIFS), which go back to 1910, are also used to provide historic perspective. Note that financial information from EIFS and ARMS differ conceptually. ARMS financial data relate strictly to the farm business, while the official EIFS sector estimates include all participants in the farm sector, not just the farm business. For example, the income of farm businesses estimated from ARMS includes the income of those with ownership interest in the operation–farm operators, partners, and shareholders. In addition to these participants, EIFS's sector estimates include others, such as contractors and landlords, who share the risks of production.

[1]Both ARMS and FCRS (its predecessor) exclude Alaska and Hawaii, largely for cost reasons.

Appendix Tables: Government Payments by Typology, Specialization, and Region

Appendix table 1–Number of farms, average program payments, and payments' contribution to gross cash farm income, by program and farm typology, 1998

Item	Small family farms[1]				
	Limited-resource[2]	Retire-ment[3]	Residential/ lifestyle[3]	Farming-occupation[3]	
				Low-sales	High-sales
All farms	150,268	290,938	834,321	422,205	171,469
Average gross cash farm income ($)	7,361	12,255	13,780	35,800	161,036
Average government payment ($)	*722	1,566	993	2,833	12,870
Percent of gross cash farm income (%)	*9.8	12.8	7.2	7.9	8.0
Average transition payment per farm ($)	*172	178	370	1,489	7,137
Average loan deficiency payment per farm($)	**68	*114	149	430	2,865
Average CRP payment per farm($)	*355	1,179	348	491	781
Average disaster payment per farm ($)	*36	27	57	254	1,466
Farms receiving government payments	30,022	81,684	197,692	186,787	129,644
Percent of all farms (%)	20.0	28.1	23.7	44.2	75.6
Average gross cash farm income ($)	13,350	17,308	30,404	49,264	163,785
Average government payment ($)	*3,615	5,578	4,189	6,403	17,022
Percent of gross cash income (%)	*27.1	32.2	13.8	13.0	10.4
Average transition payment ($)	*859	633	1,560	3,365	9,439
Average loan deficiency payment per farm ($)	*339	*406	631	973	3,790
Average CRP payment per farm ($)	*1,779	4,200	1,470	1,109	1,033
Average disaster payment per farm ($)	*181	97	240	575	1,939
Farms receiving loan deficiency payments	*3,204	14,544	60,664	70,107	76,420
Percent of all farms (%)	*2.1	5.0	7.3	16.6	44.6
Average gross cash farm income ($)	*50,071	40,108	48,276	53,511	163,284
Average government payment ($)	*8,747	5,293	5,821	8,639	20,628
Percent of gross cash income (%)	17.5	*13.2	12.1	16.1	12.6
Average loan deficiency payment per farm ($)	*3,177	2,279	2,056	2,591	6,429
Farms receiving transition payments	16,756	33,118	121,900	127,648	106,454
Percent of all farms (%)	11.2	11.4	14.6	30.2	62.1
Average gross cash farm income ($)	16,193	19,823	36,310	53,749	163,670
Average government payment ($)	*3,978	5,031	4,538	7,384	18,058
Percent of gross cash income (%)	*24.6	25.4	12.5	13.7	11.0
Average transition payment per farm ($)	*1,539	1,562	2,530	4,924	11,495
Farms receiving CRP payments	*16,224	47,407	59,947	36,683	20,581
Percent of all farms (%)	*10.8	16.3	7.2	8.7	12.0
Average gross cash farm income ($)	5,927	13,735	18,897	44,735	175,576
Average government payment ($)	*4,290	7,928	5,763	10,449	24,253
Percent of gross cash income (%)	*72.4	57.7	30.5	23.4	13.8
Average CRP payment per farm ($)	*3,293	7,237	4,849	5,647	6,510
Farms receiving disaster payments	**4,976	*10,180	25,955	39,197	41,449
Percent of all farms (%)	**3.3	*3.5	3.1	9.3	24.2
Average gross cash farm income ($)	*23,955	*18,419	52,544	59,136	167,004
Average government payment ($)	**2,576	*5,053	6,244	9,280	22,000
Percent of gross cash income (%)	*10.8	27.4	11.9	15.7	13.2
Average disaster payment per farm ($)	**1,089	780	1,827	2,738	6,064
Farms with no government payments	120,246	209,254	636,629	235,418	41,825
Percent of all farms (%)	80.0	71.9	76.3	55.8	24.4
Average gross cash farm income ($)	*5,866	*10,283	8,618	25,118	152,517

See footnotes at end of table.

Continued–

Appendix table 1–Number of farms, average program payments, and payments' contribution to gross cash farm income, by program and farm typology, 1998 (continued)

Item	Large family farms[1]	Very large family farms[1]	Nonfamily-farms[4]	All farms
Total farms	91,939	61,273	42,296	2,064,709
Average gross cash farm income ($)	348,769	977,037	566,289	84,651
Average government payment ($)	24,539	29,971	8,970	4,488
Percent of gross cash farm income (%)	7.0	3.1	1.6	5.3
Average transition payment per farm ($)	13,714	17,141	4,738	2,300
Average loan deficiency payment per farm ($)	5,436	7,082	1,860	898
Average CRP payment per farm ($)	961	*850	*925	585
Average disaster payment per farm ($)	*3,277	2,778	*692	446
Farms receiving government payments	70,096	35,597	19,255	750,777
Percent of all farms (%)	76.2	58.1	45.5	36.4
Average gross cash farm income ($)	362,918	964,596	414,763	141,217
Average government payment ($)	32,185	51,589	19,704	12,343
Percent of gross cash income (%)	8.9	5.3	4.8	8.7
Average transition payment per farm ($)	17,988	29,505	10,407	6,326
Average loan deficiency payment per farm ($)	7,130	12,191	4,086	2,469
Average CRP payment per farm ($)	1,260	*1,463	*2,032	1,609
Average disaster payment per farm ($)	*4,299	4,782	*1,521	1,226
Farms receiving loan deficiency payments	48,134	20,408	7,084	300,565
Percent of all farms (%)	52.4	33.3	16.7	14.6
Average gross cash farm income ($)	352,394	888,137	387,710	192,091
Average government payment ($)	36,657	66,661	31,629	19,926
Percent of gross cash income (%)	10.4	7.5	8.2	10.4
Average loan deficiency payment per farm ($)	10,383	21,264	11,105	6,166
Farms receiving transition payments	61,514	25,756	10,361	503,508
Percent of all farms (%)	66.9	42.0	24.5	24.4
Average gross cash farm income ($)	362,594	972,301	595,683	165,156
Average government payment ($)	33,986	61,630	28,857	15,150
Percent of gross cash income (%)	9.4	6.3	4.8	9.2
Average transition payment per farm ($)	20,497	40,779	19,339	9,433
Farms receiving CRP payments	12,063	5,666	*7,238	205,807
Percent of all farms (%)	13.1	9.2	*17.1	10.0
Average gross cash farm income ($)	383,123	924,415	**228,869	90,620
Average government payment ($)	39,422	61,316	*14,692	12,646
Percent of gross cash income (%)	10.3	6.6	d	14.0
Average CRP payment per farm ($)	7,323	*9,192	*5,405	5,869
Farms receiving disaster payments	23,874	8,956	*3,094	157,682
Percent of all farms (%)	26.0	14.6	7.3	7.6
Average gross cash farm income ($)	334,860	1,023,169	375,839	185,382
Average government payment ($)	39,982	67,419	28,599	19,969
Percent of gross cash income (%)	11.9	6.6	7.6	10.8
Average disaster payment per farm ($)	12,621	19,007	*9,467	5,836
Farms with no government payments	21,843	25,676	23,041	1,313,932
Percent of all farms	23.8	41.9	54.5	63.6
Average gross cash farm income ($)	303,365	994,287	692,915	52,329

d = Data suppressed because the standard error is greater than 75 percent of the estimate. * = Standard error is between 25 and 50 percent of the estimate. ** = Standard error is between 51 and 75 percent of the estimate. [1]Small family farms have sales less than $250,000. Large family farms have sales between $250,000 and $499,999. Very large family farms have sales of $50,000 or more. [2]Limited-resource farms have household income less than $20,000, farm assets less than $150,000, and sales less than $100,000. [3]Small farms other than limited resource farms are classified according to the major occupation of their operators. Operators of retirement farms are retired. Operators of residential/lifestyle farms report a nonfarm occupation. Operators of farming-occupation farms report farming are their major occupation. Farming-occupation farms are further divided into low-sales (sales less then $100,000) and high-sales(sales between $100,000 and $249,999). [4]Nonfamily farms include nonfamily corporations or cooperatives, as well as farms operated by a hired manager. Source: USDA, Economic Research Service, 1998 Agricultural Resource Management Study, version 1.

Appendix table 2–Number of farms, average program payments, and payments' contribution to farm income, by program and farm specialization, 1998

Item	Cash grain	General crop	High value crops[1]	Livestock	All farms
Total farms	386,026	442,970	159,275	1,076,438	2,064,709
Average gross cash farm income ($)	121,027	49,990	234,197	63,742	84,651
Average government payment ($)	14,443	4,464	994	1,445	4,488
Percent of gross cash farm income (%)	11.9	8.9	0.4	2.3	5.3
Average transition payment ($)	8,082	1,790	*451	711	2,300
Average loan deficiency payment per farm ($)	3,327	643	*217	232	898
Average CRP payment per farm ($)	796	1,447	**46	234	585
Average disaster payment per farm ($)	1,577	352	*122	127	446
Farms receiving government payments	318,798	187,580	11,534	232,865	750,777
Percent of all farms (%)	82.6	42.3	7.2	21.6	36.4
Average gross cash farm income ($)	138,780	94,369	678,860	155,663	141,217
Average government payment ($)	17,489	10,542	13,722	6,681	12,343
Percent of gross cash income (%)	12.6	11.2	2.0	4.3	8.7
Average transition payment per farm ($)	9,786	4,228	*6,227	3,285	6,326
Average loan deficiency payment per farm ($)	4,028	1,518	*2,993	1,074	2,469
Average CRP payment per farm ($)	964	3,418	**642	1,083	1,609
Average disaster payment per farm ($)	1,909	832	**1,685	585	1,226
Farms receiving loan deficiency payments	196,957	34,730	*2,182	66,695	300,565
Percent of all farms (%)	51.0	7.8	*1.4	6.2	14.6
Average gross cash farm income ($)	165,517	243,061	*1,041,660	216,226	192,091
Average government payment ($)	21,548	24,344	39,625	12,192	19,926
Percent of gross cash income (%)	13.0	10.0	*3.8	5.6	10.4
Average loan deficiency payment per farm ($)	6,520	8,197	15,820	3,749	6,166
Farms receiving transition payments	266,499	86,532	4,650	145,827	503,508
Percent of all farms (%)	69.0	19.5	*2.9	13.5	24.4
Average gross cash farm income ($)	145,397	149,910	*916,750	186,346	165,156
Average government payment ($)	18,756	15,101	*22,332	8,360	15,150
Percent of gross cash income (%)	12.9	10.1	*2.4	4.5	9.2
Average transition payment per farm ($)	11,706	9,165	*15,445	5,246	9,433
Farms receiving CRP payments	47,585	103,293	*3,617	51,313	205,807
Percent of all farms (%)	12.3	23.3	*2.3	4.8	10.0
Average gross cash farm income ($)	162,179	27,654	*97,082	150,555	90,620
Average government payment ($)	25,269	8,663	**2,739	9,657	12,646
Percent of gross cash income (%)	15.6	31.3	**2.8	6.4	14.0
Average CRP payment per farm ($)	6,455	6,208	**2,047	4,913	5,869
Farms receiving disaster payments	82,482	22,403	*2,273	50,524	157,682
Percent of all farms (%)	21.4	5.1	*1.4	4.7	7.6
Average gross cash farm income ($)	170,565	222,442	**690,257	170,430	185,382
Average government payment ($)	25,609	24,582	**19,335	8,746	19,969
Percent of gross cash income (%)	15.0	11.1	*2.8	5.1	10.8
Average disaster payment per farm ($)	7,380	6,963	*8,554	2,695	5,836
Farms with no government payments	67,228	255,390	147,741	843,573	1,313,932
Percent of all farms (%)	17.4	57.7	92.8	78.4	63.6
Average gross cash farm income ($)	36,844	17,394	199,482	38,368	52,329

* = Standard error is between 25 and 50 percent of the estimate. ** = Standard error is between 51 and 75 percent of the estimate.
[1]Vegetables, fruits, tree nuts, and horticultural specialties.
Source: USDA, Economic Research Service, 1998 Agricultural Resource Management Study, version 1.

Appendix table 3–Number of farms participating in government programs, average program payments, and payments' contribution to farm income, by program and resource region,[1] 1998

Item	Heartland	Northern Crescent	Northern Great Plains	Prairie Gateway	Eastern Uplands
Total farms	453,900	320,576	88,238	280,066	288,840
Average gross cash farm income ($)	92,281	80,737	146,279	77,236	23,807
Average government payment ($)	7,223	2,249	14,870	6,796	404
Percent of gross cash farm income (%)	7.8	2.8	10.2	8.8	1.7
Average transition payment per farm ($)	4,111	1,096	6,672	3,462	160
Average loan deficiency payment per farm ($)	1,434	392	2,803	1,279	*106
Average CRP payment per farm ($)	818	314	3,047	959	*49
Average disaster payment per farm ($)	488	167	1,690	*930	**32
Farms receiving government payments	294,822	118,104	67,069	115,449	34,408
Percent of all farms (%)	65.0	36.8	76.0	41.2	11.9
Average gross cash farm income ($)	120,412	118,380	163,829	143,708	67,112
Average government payment ($)	11,120	6,104	19,563	16,486	3,391
Percent of gross cash income (%)	9.2	5.2	11.9	11.5	5.1
Average transition payment per farm ($)	6,329	2,975	8,778	8,398	1,343
Average loan deficiency payment per farm ($)	2,208	1,064	3,688	3,102	*890
Average CRP payment per farm ($)	1,259	852	4,009	2,326	*414
Average disaster payment per farm ($)	751	453	2,224	*2,257	**266
Farms receiving loan deficiency payments	140,459	30,604	38,051	50,452	5,399
Percent of all farms (%)	30.9	9.5	43.1	18.0	1.9
Average gross cash farm income ($)	164,997	181,146	184,886	220,828	139,729
Average government payment ($)	15,464	11,597	25,948	26,095	11,897
Percent of gross cash income (%)	9.4	6.4	14.0	11.8	8.5
Average loan deficiency payment per farm ($)	4,635	4,107	6,501	7,099	5,673
Farms receiving transition payments	223,690	70,228	49,287	84,529	14,941
Percent of all farms (%)	49.3	21.9	55.9	30.2	5.2
Average gross cash farm income ($)	142,037	140,144	203,568	166,613	86,024
Average government payment ($)	12,788	7,513	23,137	19,361	4,972
Percent of gross cash income (%)	9.0	5.4	11.4	11.6	5.8
Average transition payment per farm ($)	8,341	5,004	11,945	11,470	3,094
Farms receiving CRP payments	72,471	33,978	27,802	30,221	6,936
Percent of all farms (%)	16.0	10.6	31.5	10.8	2.4
Average gross cash farm income ($)	91,179	48,422	*148,920	122,259	44,173
Average government payment ($)	11,725	4,711	21,551	19,475	*2,642
Percent of gross cash income (%)	12.9	9.7	*14.5	15.9	*6.0
Average CRP payment per farm ($)	5,121	2,963	9,671	8,886	2,054
Farms receiving disaster payments	59,077	16,018	24,053	34,347	1,954
Percent farms receiving disaster payments (%)	13.0	5.0	27.3	12.3	0.7
Average gross cash farm income ($)	148,485	158,471	203,171	167,352	200,682
Average government payment ($)	14,857	10,099	26,861	22,270	*10,371
Percent of gross cash income (%)	10.0	6.4	13.2	13.3	*5.2
Average disaster payment per farm ($)	3,748	3,343	6,201	*7,587	**4,674
Farms with no government payments	159,078	202,472	21,168	164,617	254,432
Percent with no government payments (%)	35.0	63.2	24.0	58.8	88.1
Average gross cash farm income ($)	40,144	58,779	*90,675	30,617	17,951

See footnotes at end of table.

Continued–

Appendix table 3–Number of farms participating in government programs, average program payments, and payments' contribution to farm income, by program and resource region,[1] 1998 (continued)

Item	Southern Seaboard	Fruitful Rim	Basin and Range	Mississippi Portal	All farms
Total farms	214,363	233,338	98,661	86,728	2,064,709
Average gross cash farm income ($)	55,268	179,186	57,682	72,032	84,651
Average government payment ($)	1,337	3,127	2,990	7,199	4,488
Percent of gross cash farm income (%)	2.4	1.7	5.2	10.0	5.3
Average transition payment per farm ($)	653	1,481	1,172	3,769	2,300
Average loan deficiency payment per farm ($)	257	693	765	1,711	898
Average CRP payment per farm ($)	148	*299	*501	*386	585
Average disaster payment per farm ($)	126	420	402	711	446
Farms receiving government payments	43,637	35,621	14,048	27,620	750,777
Percent of all farms (%)	20.4	15.3	14.2	31.8	36.4
Average gross cash farm income ($)	142,394	374,839	153,066	178,760	141,217
Average government payment ($)	6,566	20,485	21,002	22,604	12,343
Percent of gross cash income (%)	4.6	5.5	13.7	12.6	8.7
Average transition payment per farm ($)	3,206	9,698	8,231	11,836	6,326
Average loan deficiency payment per farm ($)	1,263	*4,538	5,372	5,372	2,469
Average CRP payment per farm ($)	726	*1,960	*3,518	*1,212	1,609
Average disaster payment per farm ($)	*620	2,752	2,824	2,233	1,226
Farms receiving loan deficiency payments	5,970	*12,172	7,139	10,319	300,565
Percent of all farms (%)	2.8	*5.2	7.2	11.9	14.6
Average gross cash farm income ($)	356,330	**281,685	199,094	301,264	192,091
Average government payment ($)	22,219	*28,186	30,074	39,111	19,926
Percent of gross cash income (%)	6.2	10.0	15.1	13.0	10.4
Average loan deficiency payment per farm ($)	9,234	*13,280	10,571	14,377	6,166
Farms receiving transition payments	19,907	22,052	6,879	11,995	503,508
Percent of all farms (%)	9.3	9.5	7.0	13.8	24.4
Average gross cash farm income ($)	202,098	338,090	209,288	268,673	165,156
Average government payment ($)	10,235	22,931	34,388	36,926	15,150
Percent of gross cash income (%)	5.1	6.8	16.4	13.7	9.2
Average transition payment per farm ($)	7,028	15,666	16,808	27,254	9,433
Farms receiving CRP payments	16,657	*4,278	3,933	*9,532	205,807
Percent of all farms (%)	7.8	*1.8	*4.0	*11.0	10.0
Average gross cash farm income ($)	52,239	*134,763	89,120	48,113	90,620
Average government payment ($)	4,178	29,464	*28,405	8,340	12,646
Percent of gross cash income (%)	8.0	*21.9	31.9	17.3	14.0
Average CRP payment per farm ($)	1,903	16,325	12,567	*3,511	5,869
Farms receiving disaster payments	4,783	8,893	3,775	4,781	157,682
Percent of all farms (%)	2.2	3.8	3.8	5.5	7.6
Average gross cash farm income ($)	*262,468	418,192	191,580	250,187	185,382
Average government payment ($)	*13,300	29,321	45,642	37,942	19,969
Percent of gross cash income (%)	*5.1	7.0	23.8	15.2	10.8
Average disaster payment per farm ($)	*5,661	11,021	10,511	12,899	5,836
Farms with no government payments	170,727	197,717	84,613	59,108	1,313,932
Percent of all farms (%)	79.6	84.7	85.8	68.2	63.6
Average gross cash farm income ($)	33,000	143,937	41,845	22,161	52,329

* = Standard error is between 25 and 50 percent of the estimate. ** = Standard error is between 51 and 75 percent of the estimate.
[1]See the section "Attributes of Small and Large Farms" for definitions of the resource regions.
Source: USDA, Economic Research Service, 1998 Agricultural Resource Management Study, version 1.