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Agricultural Income and Finance Outlook

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In 2003 the Agricultural Resource Management Survey (ARMS) doubled its survey sample size from 18,000 in the previous survey to 36,000. The number of farms included in the 2003 ARMS sample allows for farm and household income estimates to be generated for 15 agricultural States. Previous surveys did not provide sufficient information in order to generate comparable estimates.

Net household income for the average farm is expected to rise to $70,675 in 2004, about 3 percent higher than its 2003 level. Net farm income is expected to grow by over 10 percent while net nonfarm income is expected to rise over 2 percent. Households associated with larger farms are expected to realize the largest increases in net household income.

The U.S. Department of Agriculture (USDA) categorizes farms into three broad categories based on the Economic Research Service (ERS) farm typology: rural residence, intermediate, and commercial. Farms in all three groups are expected to earn higher incomes in 2004. The biggest increase in household income will be for operators of commercial farms, which are defined as farms with a minimum of $250,000 in annual sales of agricultural commodities. For these households, the largest increase in earnings will come from farm sources. For the two smaller size categories, nonfarm earnings will be the more important contributing factor to higher household incomes.

Improvement in the agricultural sector of the economy in 2004 comes as a result of exceptionally large domestic harvests for major crops, increased demand for crop and most livestock exports, strong prices for livestock and milk, and modest increases in costs of production relative to increases in value of production. All of these factors are expected to result in record levels of net farm income and net value added for the agricultural sector.

Net farm income in 2004 is expected to be a record $73.7 billion, up 24.5 percent from 2003. Net value added is anticipated to be a record $118.9 billion in 2004, up 17 percent from 2003, with farm operations specializing in livestock production increasing their share of net value added from 34 to 36 percent.

While total direct government payments to farm operators and farmland owners are expected to change little from 2003 to 2004, farm business net cash income is forecast to rise by almost 9 percent by the end of 2004. Farm operations specializing in livestock other than beef cattle (where "specializing" implies livestock makes up at least 50 percent of the farm's total value of agricultural production) are expected to experience the largest income gains because of high animal product prices. Six of the nine U.S. farm resource regions are expected to see an increase in their average net cash income in 2004. The biggest expected gains are for the Heartland, Mississippi Portal, and Northern Crescent regions. Commercial farms are expected to experience a 10-percent increase in net cash income in 2004 while intermediate-sized farms are expected to rise nearly 5 percent.

The classic image of the American farm operation as a sole proprietorship where the farm business is the primary source of household income can no longer be considered the norm: only one of four American farmers regard farming as their sole occupation, and these farmers are mostly commercial farm operators. While commercial farms produce 70 percent of agriculture's output, only one in seven commercial farms are operated as sole proprietorships with no sharing of income with others. The nearly 50 percent of all farms organized as sole proprietorships (with no one sharing income or output) accounted for only 25 percent of farm value of production in 2003. These farm operations are mostly operated by those who do not consider farming as their primary source of household income.

The average farm household strengthened its financial position and debt repayment condition in 2003, reporting total farm business assets of $589,000. The average farm operator household's ownership share of these assets was $538,000. After accounting for farm business debt of $53,000, operator household net worth arising from the farm operation averaged $485,000. Farm operator households also reported nonfarm assets of $220,000 and nonfarm debt of $42,000, adding another $178,000 to the average operator household's equity. Expectations for continued strong income gains in the farm sector should yield even stronger farm household balance sheets in 2004.

Farm operators make complex production decisions, including those about acreage allocation and purchasing inputs, ultimately affecting farm profitability. In 2003, crop farmers rated agronomic and economic factors as the most important influences on their acreage allocation decisions, while government programs had much less influence. Many cash grain farmers pre-purchased farm inputs, particularly seed and fertilizer, prior to the 2003 planting season. Farmers reported avoiding higher prices as their primary reason for pre-purchasing nitrogen fertilizer.

Farm Household and Business Income Forecasts

Farm Operator Households' Incomes Continue To Rise

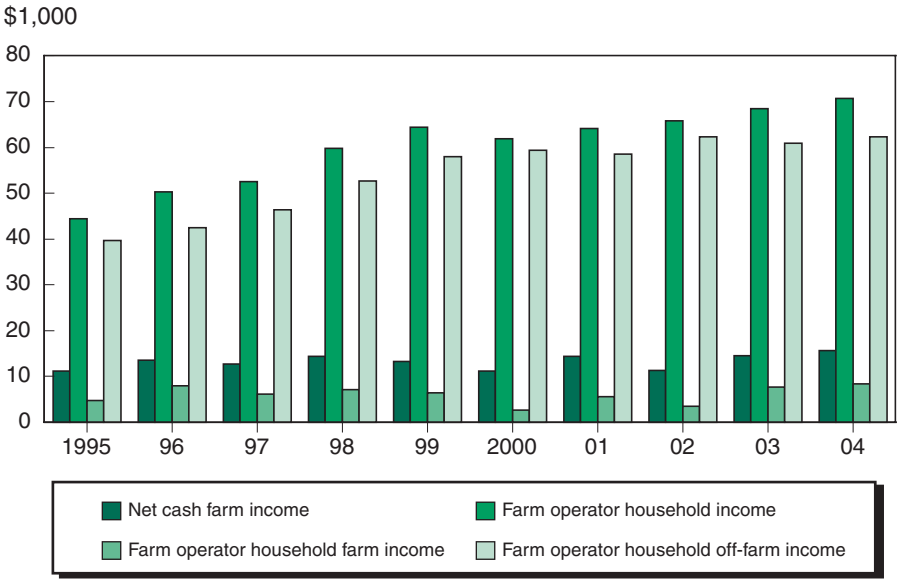
The income earned by farm operator households in 2004 continues the upward trend observed in nominal or current dollar values for the last decade (fig. 1). Average farm household income for 2004 is forecast at $70,675 per household, up about 3 percent from 2003. While there has been little year-over-year change in government payments, crop and livestock receipts have increased and are the main reason for an increase in the farm income component of total household income. In 2004, the 10.3 percent expected growth in farm income will outpace the 2.3 percent growth expected in income from off-farm sources. Operators of commercial farms are expected to realize the largest year-over-year increases in household income, with more than a 6-percent rise. About a 3-percent increase from 2003 is expected for household income on intermediate and rural residential farms (fig. 2).

Income prospects differ among farms

Following a 48-percent increase from 2002 to 2003, farm businesses' net cash income is forecast to rise by another 9 percent from 2003 to 2004. Not all farm types or regions of the country will experience the same increase (table 1). Differences in the value of crop and livestock production, levels of government payments, and the levels and types of inputs purchased by

Figure 1

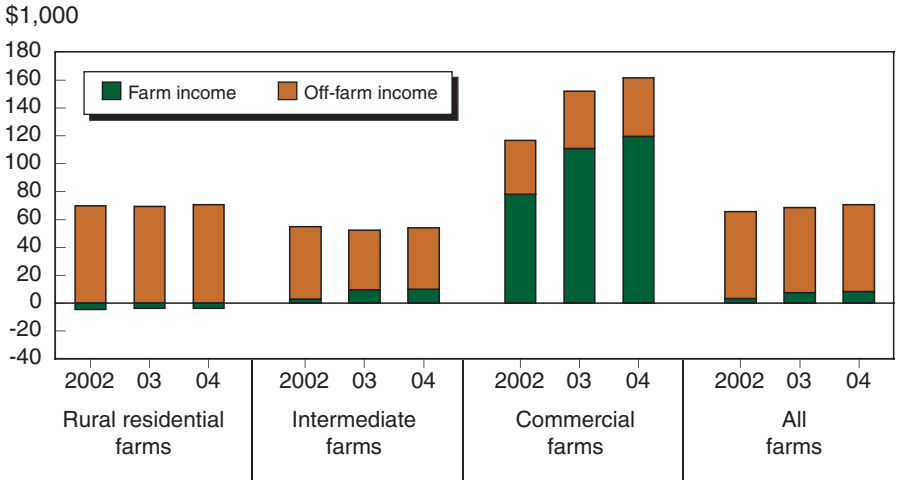
Income of farm operator households from farm and off-farm sources



2004 forecast.
Current dollars, dollars not adjusted to reflect inflation over time, are used in this figure and all subsequent figures throughout the report.
Source: ARMS, USDA.

Figure 2

Sources of operator household income by farm typology 2002-2004



2004 forecast.
Source: 2002 and 2003 ARMS, USDA.

Table 1—Farm business average net cash income forecasts

	Average 1998-2002	2002	2003	2004f	2004f/ 1998-2002 average	2003/ 2002	2004f/ 2003	Share of U.S. farm businesses
	$1,000 per farm				Percent			
Farm size:								
Commercial farms	143.5	129.6	162.4	178.3	24.3	25.3	9.8	8.8
Intermediate farms	11.6	9.0	15.6	16.3	40.3	73.3	4.5	23.7
Rural residence farms	-1.4	-2.9	-2.8	-3.2	-129.2	3.4	-14.3	67.5
All farm businesses 1/	41.6	37.4	55.2	60.0	44.2	47.6	8.7	100.0
Resource region:								
Heartland	40.7	31.2	59.4	69.3	70.4	90.4	16.7	22.7
Northern Crescent	41.8	33.7	40.3	50.8	21.7	19.6	26.1	16.1
Northern Great Plains	47.0	48.8	69.8	66.7	41.8	43.0	-4.4	6.8
Prairie Gateway	31.0	25.9	53.0	50.9	64.0	104.6	-4.0	14.3
Eastern Uplands	14.8	12.1	17.1	18.3	24.0	41.3	7.0	11.0
Southern Seaboard	30.3	33.0	46.4	50.8	67.8	40.6	9.5	9.1
Fruitful Rim	84.7	77.2	92.1	96.0	13.3	19.3	4.2	12.1
Basin and Range	43.2	46.0	64.2	60.4	39.9	39.6	-5.9	3.6
Mississippi Portal	42.7	56.7	78.1	90.2	111.3	37.7	15.5	4.3
Commodity specialization:								
Program crops--								
Mixed grain	41.7	36.3	73.7	75.8	81.8	103.0	2.8	8.3
Wheat	31.9	32.0	52.8	51.7	62.3	65.0	-2.1	3.8
Corn	46.3	42.6	62.1	64.2	38.8	45.8	3.4	9.9
Soybeans and peanuts	26.8	31.7	47.3	48.8	82.0	49.2	3.2	4.1
Cotton and rice	93.3	118.2	125.3	143.8	54.1	6.0	14.8	2.5
Non-program crops--								
Other field crops	26.0	23.1	41.9	40.9	57.1	81.4	-2.4	11.2
Specialty crops	104.7	106.8	112.7	97.6	-6.8	5.5	-13.4	9.5
Livestock--								
Beef cattle	14.7	12.1	28.2	21.1	43.3	133.1	-25.2	27.2
Hogs	79.3	69.6	154.1	283.7	257.7	121.4	84.1	1.5
Poultry	70.1	36.1	88.4	113.7	62.2	144.9	28.6	3.9
Dairy	84.9	74.7	69.3	112.9	33.0	-7.2	62.9	9.4
Other livestock	6.8	-1.2	5.5	9.6	40.7	558.3	74.5	8.6

f = forecast. 1/ Commercial and intermediate farms only.

Source: Economic Research Service, USDA.

Defining the Farm Typology

Rural Residence Farms

Limited-resource. Any small farm with gross sales less than $100,000, total farm assets less than $150,000, and total farm household income less than $20,000. Limited-resource farmers may report farming, a nonfarm occupation, or retirement as their major occupation.

Retirement. Small farms whose operators report they are retired (excludes limited-resource farms operated by retired farmers).

Residential/lifestyle. Small farms whose operators report a major occupation other than farming (excludes limited-resource farms with operators reporting a nonfarm major occupation).

Intermediate Farms

Farming occupation/lower sales. Small farms with sales less than $100,000 whose operators report farming as their major occupation (excludes limited resource farms whose operators report farming as their major occupation).

Farming occupation/higher sales. Small farms with sales between $100,000 and $249,999 whose operators report farming as their major occupation.

Commercial Farms

Large family. Farms with sales between $250,000 and $499,999.

Very large family. Farms with sales of $500,000 or more.

Nonfamily. Farms organized as nonfamily corporations or cooperatives, as well as farms operated by hired managers. In analyzing the farm household, this group is excluded.

farmers will affect the diversity of income prospects in 2004. With the exception of beef cattle, the largest income gains are expected for livestock producers. Producers of cotton and rice are also forecast to have higher cash earnings from farming in 2004 than 2003. Relatively modest gains are forecast for mixed cash grain, corn, and oilseed producers. Lower average income in 2004 vis-à-vis 2003 is expected for producers of specialty crops, and relatively small declines for producers of wheat and other field crops. Increasing fertilizer and labor costs more than offset higher receipts for specialty crop producers. Receipts are relatively flat for beef cattle producers so that higher expenses translate directly into lower net cash income. Feed and livestock purchases are responsible for more than half of the 8 percent increase in expenses of beef cattle producers.

In 2004, average net cash income is expected to increase in six of the nine farm resource regions. Concentration of commodity production explains much of the regional variation in the income outlook for farm businesses. The largest expected gains are in the Northern Crescent and Heartland

regions, where hogs, dairy, and corn production are dominant, and in the Mississippi Portal, where poultry, rice, and cotton are the major commodities. Regions with a high concentration of beef and wheat production, such as the Northern Great Plains, Basin and Range, and the Prairie Gateway, are forecast to have a decline in average net cash income in 2004. In 2003, average net cash income increased in all regions.

Projected changes in net cash income also vary widely by size of farming operation in 2004. Commercial operations, which represent about 9 percent of farms and more than 70 percent of production, are expected to experience a 10-percent increase in average net cash income for 2004. Average net cash income of intermediate farms (primary occupation of farming and annual gross sales below $250,000) is forecast to increase by nearly 5 percent in 2004. Two-thirds of U.S. farms are classified as rural residences—operators who typically earn most of their household income from off-farm sources. In contrast with intermediate and commercial farms, the vast majority of operators of rural residence farms (76 percent) were employed off-farm prior to becoming a farmer. In addition, a much larger share of both rural residence operators and their spouse had off-farm jobs (85 percent of rural residence operators compared with 2 percent of commercial farm operators and 67 percent of rural residence spouses compared with 7 percent of spouses on commercial farms).

Agricultural economy improves in 2004

The value of both crop and livestock production is forecast to increase in 2004 following increases in 2003 (table 2). In just 2 years the value of farm sector production, which includes income from forestry and services earned on farm assets, is projected to have risen by $50 billion. This revenue growth occurred over two consecutive years of exceptionally large harvests for major crops and unusually high prices for livestock and milk, which have created a favorable earnings environment for the farm sector's equity holders (farmers, partners, and contractors), who assume the risks of production and reap the benefits.

Table 2—Value added to the U.S. economy by the agricultural sector via the production of goods and services, 2002-2004

	Item	2002	2003	2004f
			$ billion	
	Value of crop production	99.7	108.0	118.8
+	Value of livestock production	93.3	104.7	121.5
+	Revenues from services and forestry	27.7	28.2	29.5
=	**Value of agricultural sector production**	**219.7**	**240.9**	**269.8**
-	Purchased inputs	123.8	127.4	137.7
+	Net government transactions	3.7	8.7	8.3
=	**Gross value added**	**99.7**	**122.2**	**140.5**
-	Capital consumption	20.9	20.8	21.5
=	**Net value added**	**78.8**	**101.4**	**118.9**
-	Payments to stakeholders	41.5	42.1	45.2
=	**Net farm income**	**37.3**	**59.2**	**73.7**

f = forecast.
Numbers may not add due to rounding.
Source: Economic Research Service, USDA.

Meanwhile, farmers' expenses for inputs purchased to produce crops and livestock are projected to rise by only 8 percent in 2004, which is, on average, 2 percent less than the rise in receipts. Purchased input expenses have risen only $14 billion (or a 5.5-percent annual increase) over the past 2 years, compared with 11 percent for the annual increase in returns to production. Most expenses to produce field crops occur before yields become apparent; unless there is a crop failure, farmers will still continue through with the harvest stage, so total costs don't vary much with the size of the harvest. The cost of producing an animal within a production cycle is essentially fixed; and if market prices rise, the additional value accrues to the owner of the animal as income.

The farm sector is forecast to contribute a record $118.9 billion in net value added to U.S. national economic output, up $17.5 billion (or 17 percent) from 2003 and up $40.1 billion (or 51 percent) from 2002, and 33 percent above the average of the prior 10 years. This is especially significant for farm household well being given the small increases in the inflation rate (about 2 percent per year) since 2002.

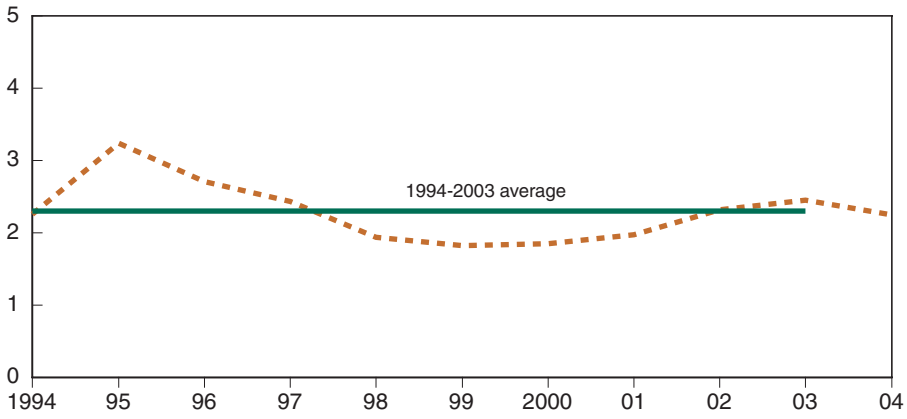
Net farm income, which is a measure of the sector's profitability, is forecast to be a record $73.7 billion in 2004, up $14.5 billion (or 24.5 percent) from the previous record of $59.2 billion in 2003, which, in turn, was up $22 billion (or 60 percent) from the $37.3 billion earned in 2002. These large annual percentage increases are especially meaningful given that the annual cost of living increased about 2 percent over the same period. The large increases in net value added and net farm income, after adjusting for inflation, mean large real increases in the average farm household's purchasing power.

Market prices available to farmers for sales of livestock and products (cattle, hogs, broilers, milk, etc.) have experienced substantial increases in 2003 and 2004 and have been the primary force behind these two record years for farm income. In addition, near-perfect growing conditions for corn, soybeans, and other major crops have produced unusually large harvests. In spite of these large harvests, market prices available to farmers for crops have remained strong relative to their 10-year averages. In addition, when the local prices for crops covered under government programs slip below the target price, as they have in some locations in the latter part of 2004, the producers of those commodities become eligible for program benefits. In essence the target price puts a floor under what the farmer can expect to receive per unit of the commodity, when the government payments are combined with the value received at sale.

The story line in 2004 is twofold: (1) prices for most crops in most months remained at or above their respective averages for the prior 10 years despite the cumulative effects of large harvests in 2003 and 2004 and; (2) prices for livestock and livestock products have increased. Figures 3 through 8 show annual average prices in current dollars per hundredweight compared with the 10-year average for six major agricultural commodities.

Figure 3

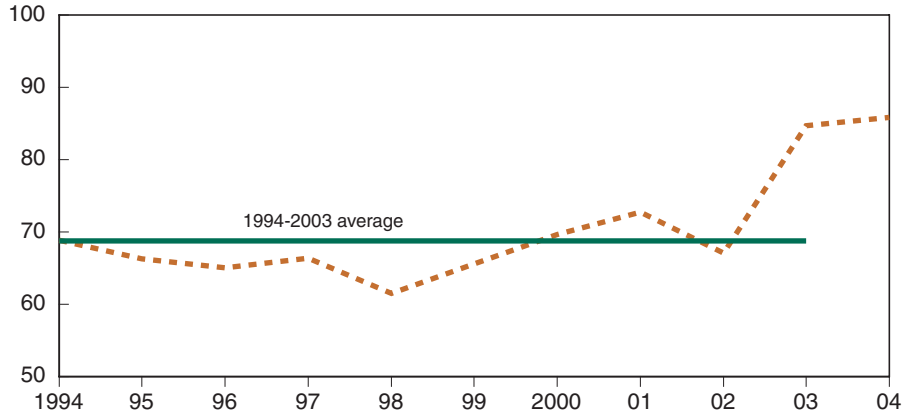
Annual corn prices, 1994-2004



2004 forecast.
Source: Economic Research Service, USDA.

Figure 4

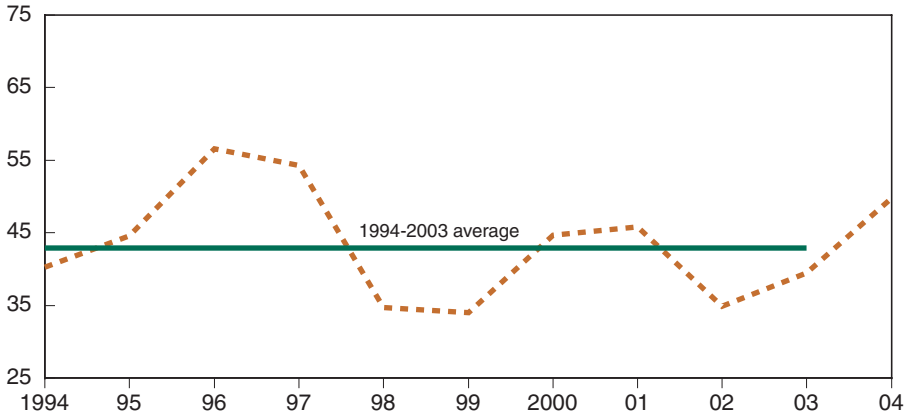
Annual cattle prices, 1994-2004



2004 forecast.
Source: Economic Research Service, USDA.

Figure 5

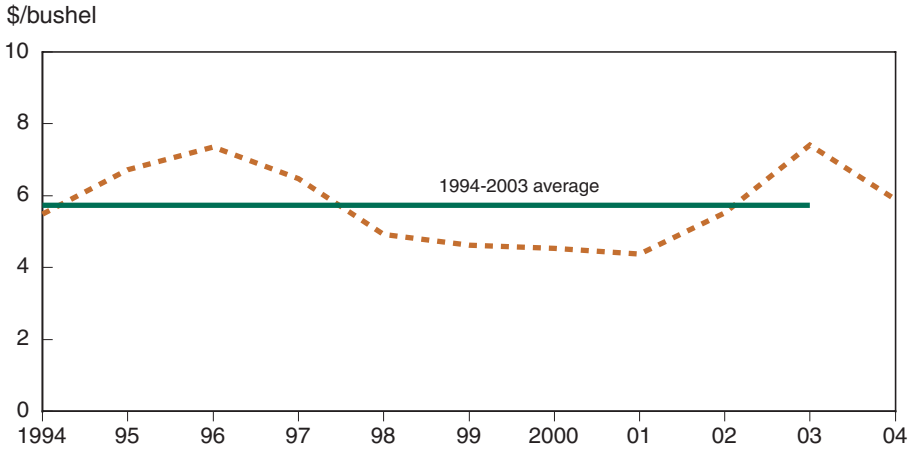
Annual hog prices, 1994-2004



2004 forecast.
Source: Economic Research Service, USDA.

Figure 6

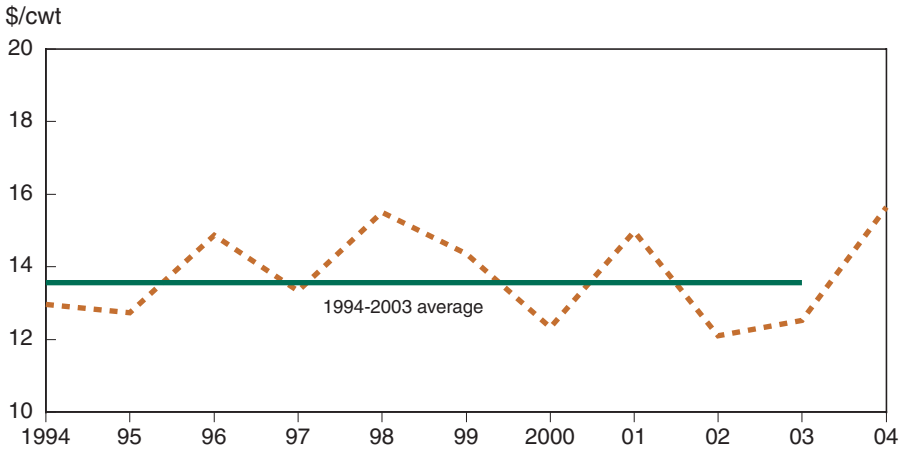
Annual soybean prices, 1994-2004



2004 forecast.
Source: Economic Research Service, USDA.

Figure 7

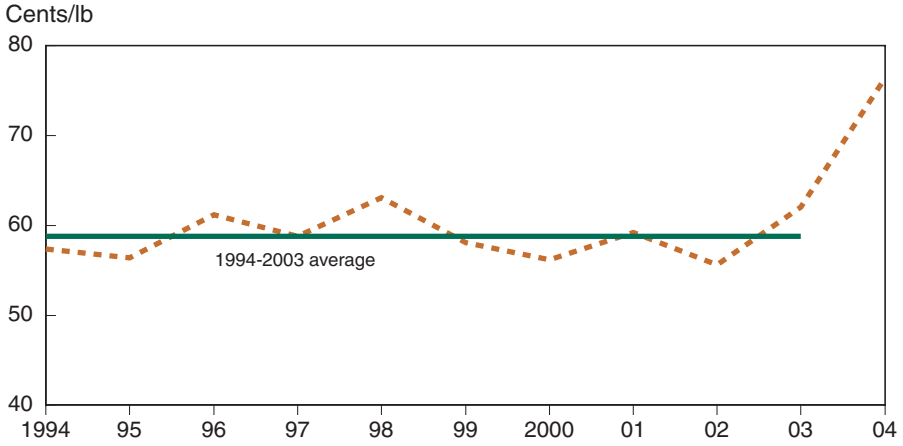
Annual milk prices, 1994-2004



2004 forecast.
Source: Economic Research Service, USDA.

Figure 8

Annual broiler prices, 1994-2004



2004 forecast.
Source: Economic Research Service, USDA.

Farm Production Expenses in 2004

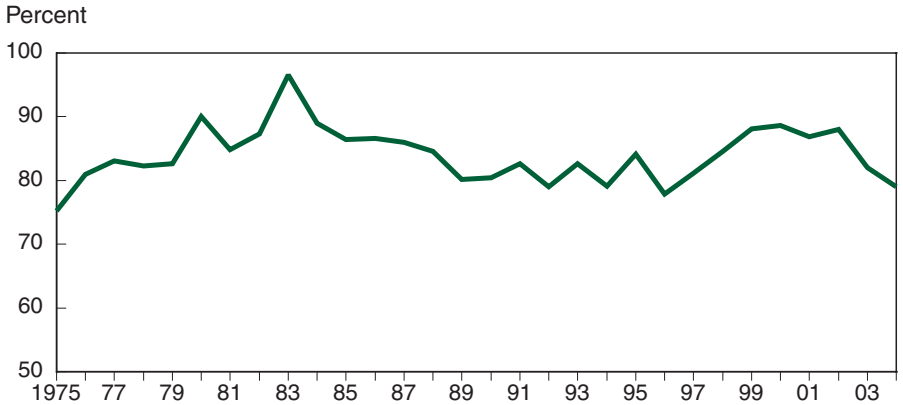
Even though total farm production expenses, including operator dwellings, are projected to be about $210 billion in 2004, a roughly 7 percent increase from 2003, many farm operators have held down increases in their costs of production relative to the increase in their value of production. Total production expenses as a percent of the value of agricultural sector output are expected to continue their recent decline, going from 82 percent in 2003 to 78.5 percent in 2004 (fig. 9). Expenses rose about 6 percent ($11 billion) during the 6-year period (1998-2003) while they increased by almost 24 percent during 1992-1997. Employing reduced tillage, utilizing soil tests, monitoring seeding rates, evaluating pest management options, and applying fertilizer in accordance to field conditions helped reduce input costs. In addition, some crop producers are making fewer passes over their fields as new technology has enabled them to combine operations like planting, fertilizing, and pesticide application. Livestock producers experienced rising feed costs during the first 9 months of 2004; however feed prices are projected to decline in the fourth quarter.

Government payments expected to remain stable in 2004

Total direct government payments to farm operators and farmland owners are expected to be $15.7 billion in 2004, relative to the $15.9 billion distributed in 2003 (table 3). Fixed direct payments in 2004 are currently estimated at $5.3 billion. In contrast to 2004, fixed direct payments in 2003 were higher because producers received 2002 and 2003 crop payments and a portion of 2004 crop payments in that year. Counter-cyclical payments in 2004 are also expected to decline from their 2003 levels. With the increase in production of cash grains, oilseeds, and cotton in 2004, producers are expected to apply for more loan deficiency payments in the fourth quarter of 2004 than in the first three quarters of 2004. The expected increase of $3.5 billion in loan deficiency payments will more than offset the $2.2 billion decline in ad hoc and emergency payments. Ad hoc and emergency payments in 2004 include $300 million of the funds from the Florida Hurricane Disaster Assistance Program, with the remainder to be paid out in 2005.

Figure 9

Total production expenses as percent of agricultural sector output value



Source: Economic Research Service, USDA.

Table 3--Direct government payments, 2000-2004

Item	2000	2001	2002	2003	2004f	Change 2003 to 2004
				$ million		
Total direct payments[1]	22,896.4	20,727.5	10,961.5	15,949.4	15,681.4	-268.0
Production flexibility contract payments[2]	5,048.8	4,040.4	3,479.4	-281.3	0.0	281.3
Fixed direct payments[3]	0.0	0.0	363.9	6,706.9	5,326.0	-1,380.9
Counter-cyclical payments[4]	0.0	0.0	199.7	2,304.6	1,913.0	-391.6
Loan deficiency payments	6,424.5	5,464.2	1,282.3	576.3	4,085.0	3,508.7
Marketing loan gains[5]	1,127.1	707.7	451.1	198.2	390.0	191.8
Peanut quota buyout payments	0.0	0.0	972.1	237.6	36.0	-201.6
Milk income loss payments	0.0	0.0	868.9	888.5	250.0	-638.5
Conservation[6]	1,721.1	1,933.7	1,992.7	2,198.8	2,786.4	587.6
Ad hoc and emergency[7]	8,564.7	8,508.1	1,302.3	3,110.9	880.0	-2,230.9
Miscellaneous[8]	10.2	73.3	48.9	8.9	15.0	6.1

f = forecast. Numbers may not add due to rounding.

[1] Includes only those funds paid directly to farmers within the calendar year.

[2] Enactment of the Farm Security and Rural Investment Act of 2002 terminated the authority for production flexibility contract payments.

[3] For 2004, this is the estimated fixed direct payments to be received for 2004 crops less what CCC reported as advance payments for 2004 crops received in 2003. Also, the 2004 estimate assumes that 20 percent of program participants will receive 50 percent of the estimated 2005 crop direct payment as advance payments.

[4] For 2004, this is the estimated counter-cyclical payments to be received for 2003 crops, less what CCC reported as first partial payments for 2003 crops received in 2003. Also, the 2004 estimate assumes that 95 percent of program participants will receive 35 percent of the estimated 2004 crop counter-cyclical as first partial payments. The rest of the estimated 2004 counter-cyclical payments are assumed to be received by program participants in 2005.

[5] In publications prior to May of 2001, marketing loan gains were included in cash receipts rather than in government payments.

[6] This category includes all conservation programs. In publications prior to July 2003, this category only included payments to the Conservation Reserve Program, Agricultural Conservation Program, Emergency Conservation Program, and Great Plains Program.

[7] This category includes all programs providing disaster and emergency assistance payments to growers. In publications prior to July 2003, the category Emergency Assistance included only emergency assistance payments attributed to supplemental legislation.

[8] Miscellaneous programs and provisions vary from year to year. In publications prior to July 2003, this category included some program payments which are now considered as either Conservation or Ad Hoc and Emergency.

Source: ARMS, USDA.

[Information contacts: Bob Green, (202) 694-5568, E-mail: rgreen@ers.usda.gov and Roger Strickland, E-mail: rogers@ers.usda.gov] Note: The current farm income forecast can always be found at *http://www.ers.usda.gov/data/FarmIncome/finfidmu.htm*

Farm Household Income and Wealth

Changes in aggregate farm sector income, while important to farm households, may not reflect very accurately the changing economic circumstances of those who operate farms. Not all net farm income accrues to farm operators and their households, and most farm households receive income from multiple sources. This section takes a closer look at the arrangements that lead to sharing of farm income among more than one household using data from the Agricultural Resource Management Survey (ARMS). The section then examines the importance of off-farm sources of income for farm households, the distribution of farm and nonfarm wealth among farm households, and the importance of income and wealth to the economic well-being of farm households. This section makes use of information obtained from questions in the 2003 ARMS that were not asked in the previous surveys. These new questions give a clearer and more detailed look at the socioeconomic composition of farm households operating U.S. farms.

Economic activities of farms and farm households

The days when assuming farm income went primarily to the principal operator's household and was the household's primary source of income are long gone. In the process of acquiring inputs and resources for use in farm and ranch production, operators of farm businesses enter into a variety of arrangements which can create claims on the output and income generated by the farm business. As a result, farm business arrangements not only influence how profitable a farm business is, but they also affect how the farm's output and income are distributed.

Traditional business arrangements affect the level of income earned by a farm business by focusing on the price and quantity of inputs and outputs along with other factors that affect their farm's production and marketing. They tend to affect the level of business net income regardless of how it is distributed. On the other hand, decisions regarding business organization and/or arrangements with business stakeholders may affect the distribution of farm income, whether they affect its level or not.

With regard to input acquisition practices, commercial-sized farm operations are more likely to pursue cost-cutting practices than are smaller farm businesses (fig. 10). For example, two-thirds of commercial farms report shopping for the best price from multiple suppliers of inputs, while nationally one out of two farm operators reported doing so. Commercial farms are also more likely than other farms to lock in prices, use management services for advice on input sources or prices, and negotiate discounts. Operators of commercial-size farms represent less than 10 percent of farms but produce about 70 percent of farm output. On average, commercial operations most frequently engage in practices to control costs and improve financial performance.

Moving beyond shorter term management practices to longer term decisions about how to organize the farm reveals that operators of commercial-size

ARMS: Farm Business and Household Survey Data

ERS and NASS present an easy to use web-based data delivery tool for selected users with remote access to learn about farming practices, the economics of the farm business, the Structure of American farming, and the characteristics of the American household.

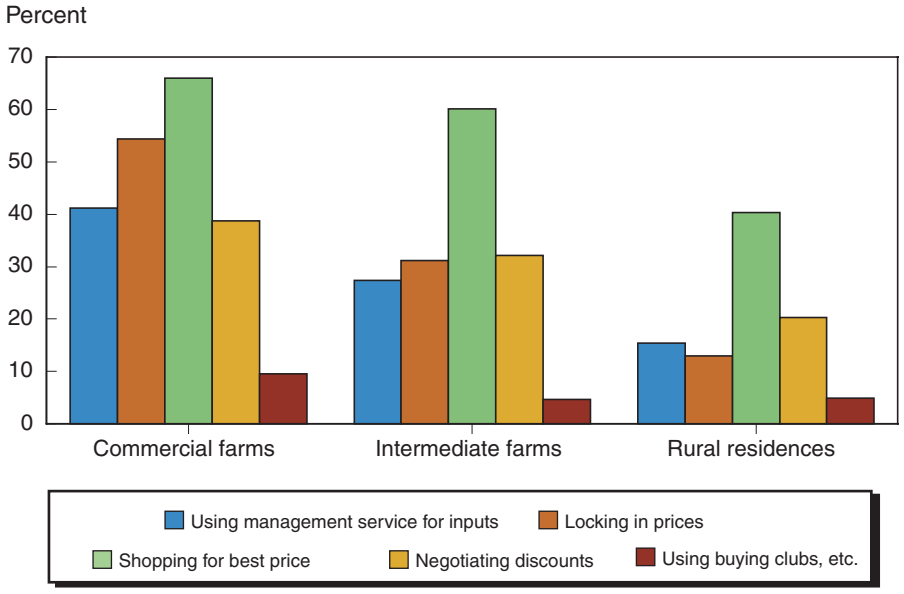
For the first time, this year's release of ARMS (USDA's annual Agricultural Resource Management Survey) includes data for 15 selected States as well as regional and national information. The State data double the survey sample size from 18,000 to 36,000.

Qualified individuals will be able to select what data they need and quickly respond to customers with custom-made information.

Go to http://arms.ers.usda.gov/ to learn what the farming community tells us about farm businesses, farming practices, and farm households. Note that access is currently limited to qualified users; just follow the procedures outlined on our website to sign up.

Figure 10

Farmers' use of input acquisition management practices, 2000

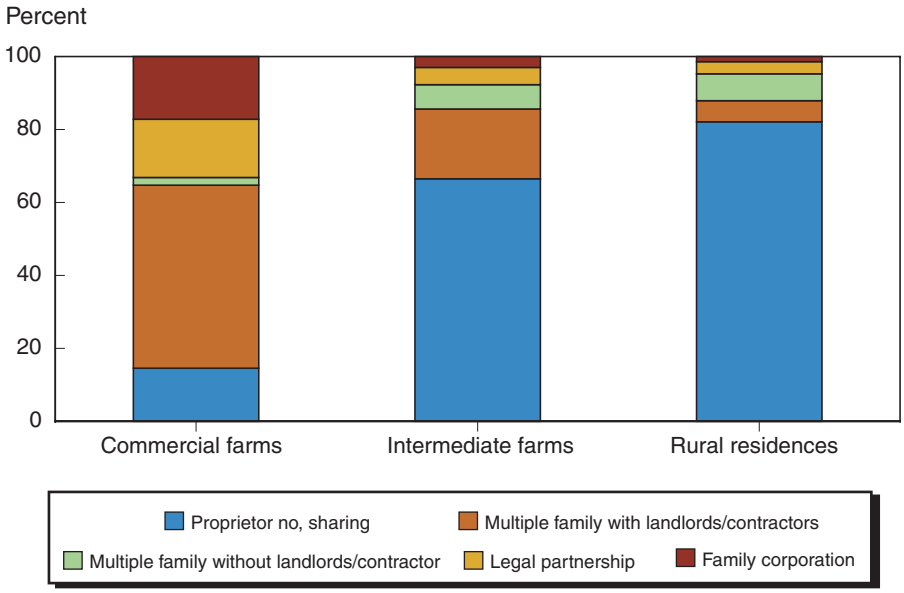


Source: ARMS, USDA.

farms generally have more complex business structures (fig. 11). For example, one-third of commercial farm operators reported having their farm organized as a family corporation or a legal partnership in 2003. Only one of seven operators of commercial farms reported their businesses being organized as a proprietorship where there was no sharing of output or income with another business, person, or household. On the other hand, over four-fifths of operators of residential farms and two-thirds of operators of intermediate farms did not share farm business income with other stakeholders. However, the 50 percent of farms that were organized as proprietor-

Figure 11

Farm business structure helps establish claims on output and income



Source: 2003 ARMS, USDA.

ships with no one sharing income or output produced only 25 percent of farm value of production last year. Three-fourths of output and income was from farms organized to include multiple households, partners, contractors, landowners, or other stakeholders.

Organizational decisions have an effect on how output and income are shared among parties that provide production inputs. Farmers that include informal arrangements in their businesses or participate in formal partnerships or family corporations add 165,000 households to the 2.1 million households of principal farm operators that earn farm self-employment income.

Households operating farms that do not share output or income with other claimants are generally smaller in terms of acres operated, acres harvested, and value of production generated. At about $39,000, the average value of production of these single-claimant proprietor farms was only half of the average value of production for all farms in 2003 ($76,788). Together, farms with a single claim on output accounted for about 51 percent of farms but only 28 percent of net income. Farms with multiple claims on income are larger, more complex operations that contribute 72 percent of net farm income, with the household of the principal operator earning a share like other stakeholders participating in the business.

Farms include a wide variety of production arrangements

Whether a landlord has a claim on output or net income depends on contractual arrangements with the farm's operator (table 4). For example, in 2003, of the total 2.1 million farm operations, 169,000 farmers share-rented land for use in their business through use of agreements that share output and expenses with land owners. Another 525,000 farmers rented land for a cash payment in

Table 4—Farm operator contractual arrangements in 2003

- 8 percent of farms rented land for a share of production; another 25 percent of farms rented land for cash
- 40 percent of farms owed debt at year end; almost all farms used debt during the calender year
- 25 percent of farms use hired labor; 9 percent used contract workers paid by a crew leader, contractor, etc.; 33 percent of farms had custom work performed, hiring both labor and machines
- 2 percent of farms grew agricultural commodities for other firms or farms under a production contract arrangement
- 5 percent of farms were organized as partnerships

Source: 2003 ARMS, USDA.

2003. Land owners who rent land for a share of production typically have claim to a share of specific crops or livestock produced by the operator as well as a share of government payments received for activities taking place on the rented land. In contrast, cash rent land owners are typically paid a stated amount of rent no matter how much is produced, although some cash renters agree to vary the cash rent with actual production.

Other input providers may earn a share of farm output or income based on agreements established with farm operators. About 46,000 operators reported a contract to produce crops or livestock commodities for another person or business in 2003. Under these arrangements, farmers typically do not own the commodity but use farm facilities to grow a commodity for a fee. These fees provide a payment for the operator's labor and capital. Partners who are members of farming partnerships, shareholders in family corporations, and households that share in a farm's income are examples of other input providers. The presence of input providers in a farm's organization usually results in income being shared, with the farm's principal operator retaining only a portion of the farm's business income as self-employment income in his or her household.

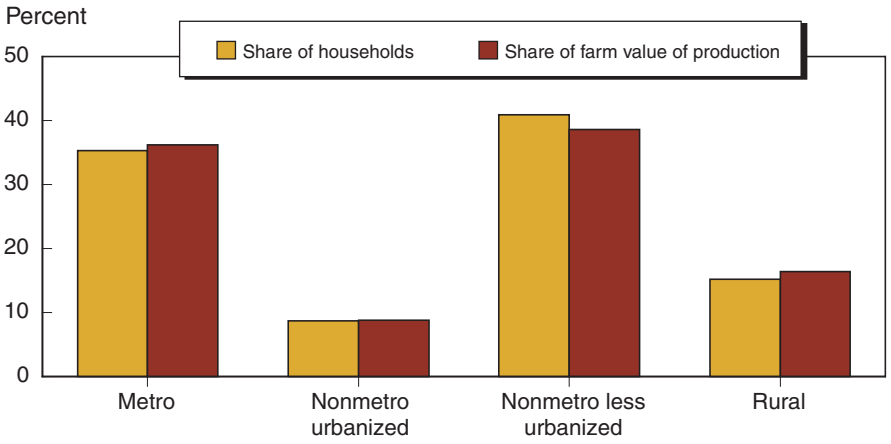
Households that operate farm businesses

Despite the mental picture many have, 35 percent of farm households are located within metropolitan areas while only 15 percent are in rural areas—consisting of open country and settlements with fewer than 2,500 residents (fig. 12). While farms located near urban centers operate fewer acres, on average their value of production is second only to households in rural areas and, in total, accounts for 36 percent of U.S. farm value of production. And while farms located in rural areas are larger, they only generate 16 percent of the value of U.S. farm production. As would be expected, metropolitan farms produce a disproportionate share of fruit, vegetable, and dairy products. Those located in rural counties concentrate on corn, wheat, cotton, and cattle.

Farm operators display a great deal of variation in such factors as age, educational attainment, amount of farming experience, off-farm work effort, and reasons for having become an operator of a farm business. Nationally,

Figure 12

Farm households are located mainly along the rural-urban continuum, 2003



Rural areas consist of open country and settlements with fewer than 2,500 residents. Urbanized areas comprise larger places and densely settled areas with them, with an urban nucleus of 50,000 or more people. Metro areas are defined as (1) central counties with one or more urbanized areas, and (2) outlying counties that are economically tied to the core counties as measured by work commuting.

Source: 2003 ARMS, USDA.

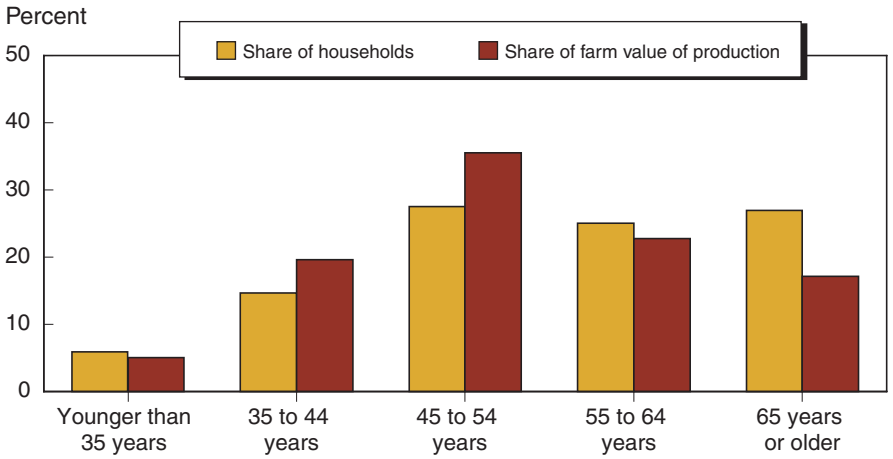
27 percent of farm households are headed by an operator who is 65 years of age or older, while 6 percent are headed by operators less than 35 years of age (fig. 13). In contrast, in 1978 the shares of these two groups were 17 and 16 percent of operators, respectively, indicating the farm population has aged over the last 25 years. Operators 65 or older have the largest farms. However, many consider themselves retired and consequentially they have the lowest average value of production. Young farm operators have the smallest farms, on average, in terms of acreage, but their production relies on a larger share of rented land than do farmers in other age groups.

Farm operators' experience and years of schooling also varied among households. Across all farms, principal operators reported having an average of 23 years of experience as a farm decision maker, with older farmers reporting more years of experience. Across all farms, 88 percent of operators reported having completed high school or beyond in 2003. But unlike years of experience, younger farmers generally reported more years of formal education. Fourteen percent of operators over 65 reported having completed college or beyond. Relative to 25 years ago, when over one-quarter of farmers had less than a high school education, today's farm operators have more experience farming and more formal educational attainment.

Households engaged in farming vary greatly in their reliance on farm income and the timing of their decision to become an operator of a farm business. Only 26 percent of farmers reported that farming was their primary occupation and that they had no off-farm work of any type (fig. 14). These farmers operated the largest farms by far, whether measured by acreage or value of production. For example, the average value of production of these "farm-only" operators was over $182,000, compared with $77,000 for all farms. Over two-fifths of this "farm-only" group of operators reported that they hired labor and had custom-hired services performed on their farms.

Figure 13

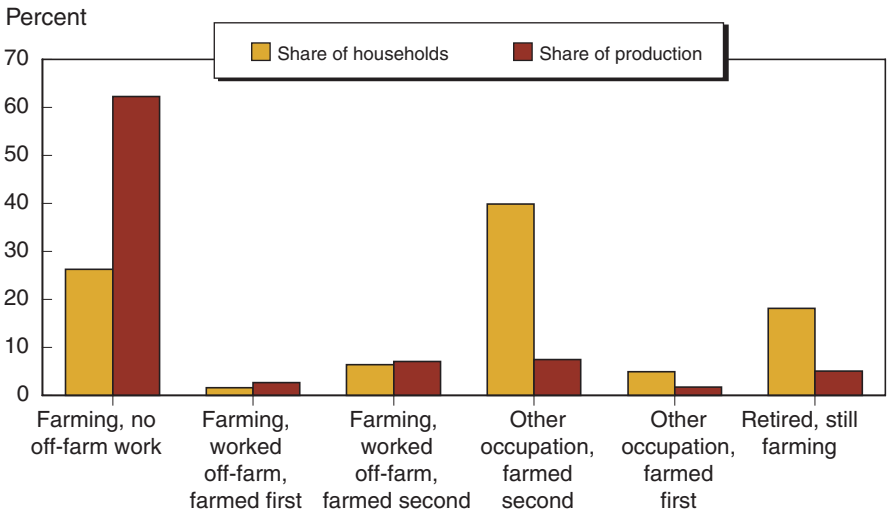
Distribution of primary operators of farms by age group, 2003



Source: 2003 ARMS, USDA.

Figure 14

Occupation and timing of farm off-farm work decisions of farm operators, 2003



Source: 2003 ARMS, USDA.

Based on farm operator responses to the 2003 ARMS' questions asked for the first time in 2003, farm operators who rely on off-farm employment are distinguished into two groups: (1) those that were farming first and then took an off-farm job and (2) those that were working at an off-farm job and then became a farm operator. The largest group of farmers is the group that was working at an off-farm job before becoming a farm operator and still considers off-farm work to be their primary occupation. This group accounts for 40 percent of all farmers. They operate the smallest farms, on average, of farmers who do not consider themselves retired. Collectively, these farmers contribute about 7 percent of the value of farm production and earn approximately 3 percent of net farm income.

Newly-asked questions in the 2003 ARMS show that farmers report a variety of primary reasons for having become a farm operator. While taking over the operation of an existing farm from a family member or another person was the most frequently reported reason for becoming a farm operator, it was particularly important among commercial farm operators who reported this reason twice as often as the operators of rural residence farms (fig. 15). Other reasons for becoming a farm operator include the desire to live in a rural area, develop a business to generate additional income, the enjoyment derived from growing crops or livestock and working outdoors, and the acquisition of a retirement residence/activity.

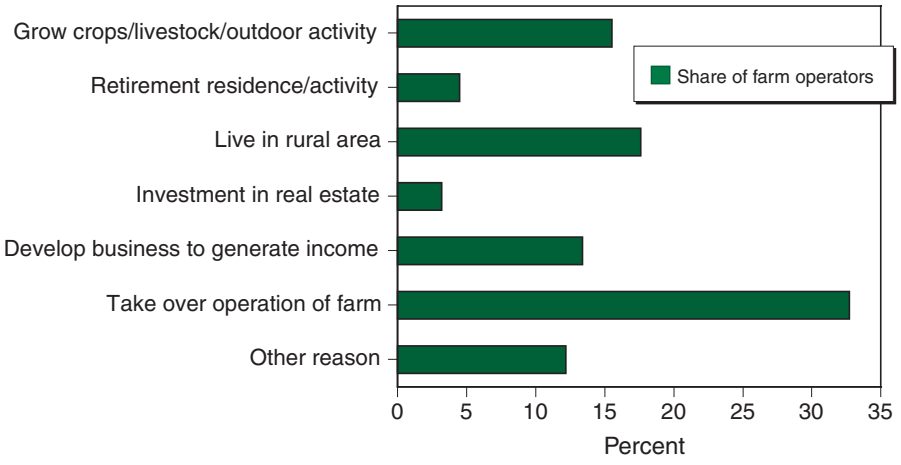
Economic activity of farm households extends beyond the farm

Not only do many farms share the proceeds of their farming operation with others, but they often pursue activities outside the farm as they make decisions about their use of time, savings, and investments. The economic portfolios of farm households are typically structured to generate income and create wealth from a variety of sources, one of which is the farm they operate. Among primary operators of farms, more consider off-farm work than farming to be their primary occupation (table 5). Even on large farms with multiple people engaged as a part of the management team, it is not uncommon for principal operators to report a non-farm occupation. For example, over a fourth of principal operators in legal partnerships and family corporations report that they did not consider farming to be their primary occupation. Even in rural locations, nearly half of operators indicated that they worked off-farm for a wage or salary. While rural farmers were less likely to report off-farm work than metropolitan farm operators, reliance on off-farm work among rural farmers illustrates the importance of access to off-farm job opportunities regardless of where farms are located.

Farm operators and spouses reported holding a wide variety of jobs in 2003, an outcome similar to employment for U.S. households in general. The two

Figure 15

Primary reason farmers reported for becoming a farm operator, 2003



Source: 2003 ARMS, USDA.

largest categories of work reported by both operators and their spouses were: (1) executive, administrator, and managerial jobs, and (2) service occupations (fig. 16). When combined, over a fourth of operators reported working either as machine operators, assembly and inspectors or in precision production, craft, or repair jobs. In many cases, these jobs may utilize skills used in operating their farm. About one in six spouses reported work in administrative support jobs.

Off-farm work by farmers typically brings to mind work for wages. Still, 13 percent or about 265,000 farm households reported income from operating a non-farm business in 2003. This suggests that a large share of operators or spouses who reported work in executive, administrative, or managerial jobs may have been running their own business. While the number of households that report self-employment income from a second business is considerably

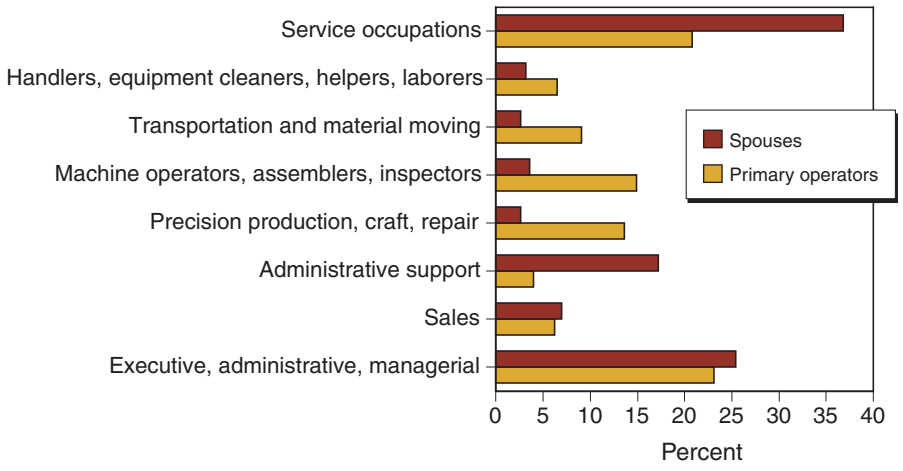
Table 5—Economic activities of farm operators households, 2003

- 771,000 operators consider farming to be their main job; 934,000 reported off-farm work to be their main occupation
- Even on multiple operator farms, off-farm work is often reported as the primary occupation of farm operators
- About 1.0 million operators reported off-farm work
- Spouses also reported working off-farm in large numbers (900,000)
- 750,000 farm households had neither operator nor spouse working off-farm; 625,000 had both working off-farm; the remaining 709,000 households had either the operator or spouse working off-farm
- 1.1 million farm households reported wage income; 265,000 reported net income from a business
- 1.1 million farm households reported interest earnings; 773,000 reported dividends and capital gains

Source: 2003 ARMS, USDA.

Figure 16

Type of work reported by primary farm operators and spouses, 2003



Source: 2003 ARMS, USDA.

less than the 1.1 million that report wage and salary income, it highlights differences in approaches that farm families take to generate income to support household needs.

In addition to income from off-farm work, over 54 percent of farm households reported interest income and 37 percent reported income from dividends and capital gains in 2003. Consistent with the age structure of operators and spouses, over one-third reported income from social security or other assistance. Even with wage and salary, self-employment earnings, returns on financial investments, and social security accounted for, nearly one-fifth of households report other sources of passive earnings and 48 percent had some undefined source of income. Thus, it is common for farm households to earn income from multiple sources. The ability to distinguish between income sources is important to understanding how changes in farm and non-farm employment and income prospects, as well as changes in the general economy, may affect farm families.

Farm Operator Household Income

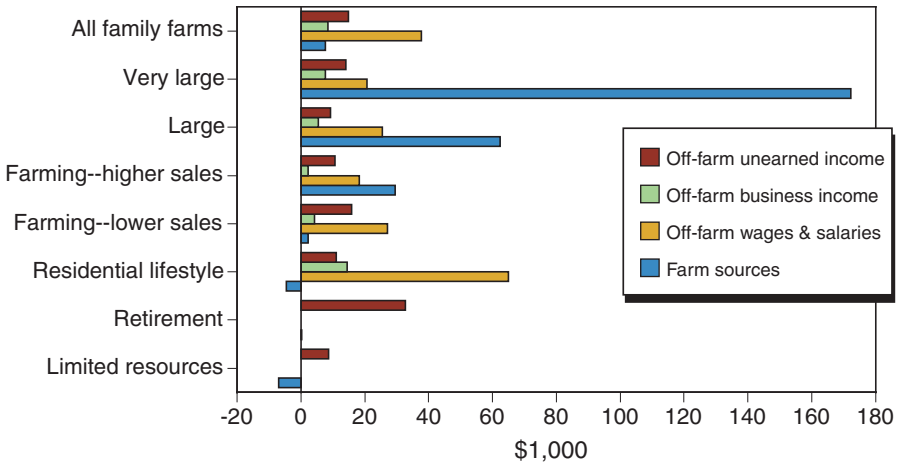
In the 2003 ARMS, two-thirds of farms were classified as rural residences. These farm operators do not consider agriculture as their primary occupation. Over 87 percent of the operators of residential/lifestyle households reported off-farm work hours. A large majority of these operators worked more than 35 hours per week. Sixty percent of spouses in this group also had off-farm work hours, with 76 percent working over 35 hours per week. Only 4 percent of operators of rural residential farms reported farming or ranching as their primary occupation. Residential-lifestyle farmers produce 6 percent of U.S. agriculture's value of production.

Households operating limited-resource and residential/lifestyle farms rely on off-farm income sources for virtually all their income (fig. 17). On average, limited resource and residential lifestyle farmers report losing money from farming activities. These farms typically generate relatively small amounts of gross income from the sales of farm products, government payments, or other sources. Limited resource and retirement farms obtain most of their off-farm income from unearned income (net income from interest, dividends, capital gains, Social Security and other public programs, and other passive sources). Residential/lifestyle and farming occupation (lower sales) farms rely more on earned income (wages, salaries, and off-farm business income). Retirement and farming occupation (lower sales) farms on average have positive earnings from farming. Still, an overwhelming share of household income comes from off-farm sources.

Households operating the remaining farms, farming occupation (higher sales) and commercial farms (large family and very large family farms), on average have positive earnings from farming. The share of income from farming increases with farm size (as measured by gross sales). While farming occupation (higher sales) farms average 49 percent of their total

Figure 17

Source of income depends upon farm typology, 2003



Off-farm wages and salaries and business income for retirement and limited resources farms not available due to insufficient information.

Source: 2003 ARMS, USDA.

household income from farming activities, very large farms average 80 percent of their total household income from farming activities. Still, off-farm income earned by households in these groups remains substantial. For example, households operating very large farms receive an average of $42,000 from off-farm sources. These households earn most of their off-farm income through wages, salaries, and off-farm business income.

About 27 percent of all family farm operators were 65 years of age or older (fig. 18). These operators realized the lowest average total household income and off-farm income across the age categories. Off-farm income contributed about 89 percent of their total household income. The majority (63 percent) of their off-farm income was unearned income primarily from interest, dividends, Social Security, and other public programs. Farm operators from 55 to 64 years of age realized the highest average total household income, farm income, and off-farm income. They relied primarily on farming (93 percent of total) for their income. Operators from 35 to 44 years of age realized the highest average income from the farm.

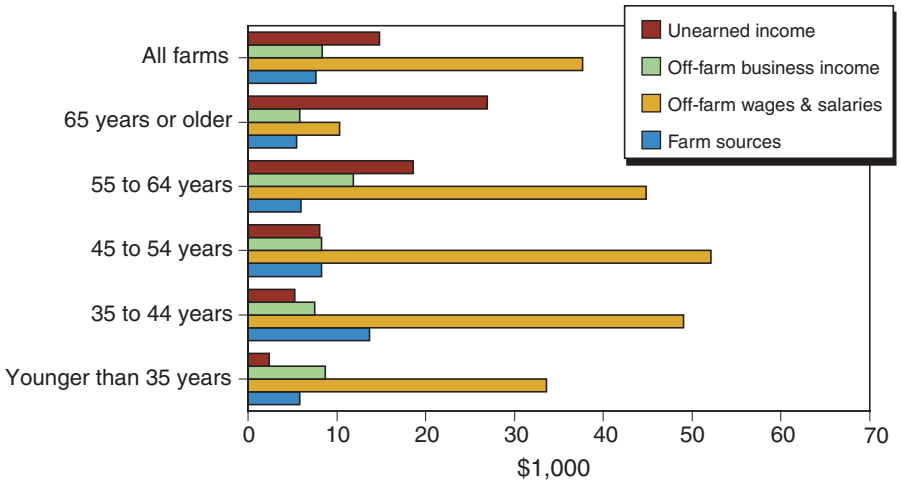
Household Income Differs Across Farm Types

A farm's type is determined by the commodity or group of commodities that make up at least 50 percent of the farm's total value of agricultural production. About half of all farms in the United States can be classified as a particular type of farm (e.g. beef-cattle farm). Because a farm's value of production varies each year with changes in prices and quantities, an individual operation may be classified as one type one year and another type the following year.

The household income of cash grain and soybean farm operators is expected to increase over 3 percent from 2003 to 2004 as a result of increases in both cash receipts and government payments. Rice farm households are expected to realize the largest gains in income. Smaller gains are expected in wheat farm household incomes. The average income of households that operated cash grain and soybean farms (14 percent of all farm operator households) was $70,292 in 2003; with 33 percent of this income attributed to farming activities (fig. 19).

Figure 18

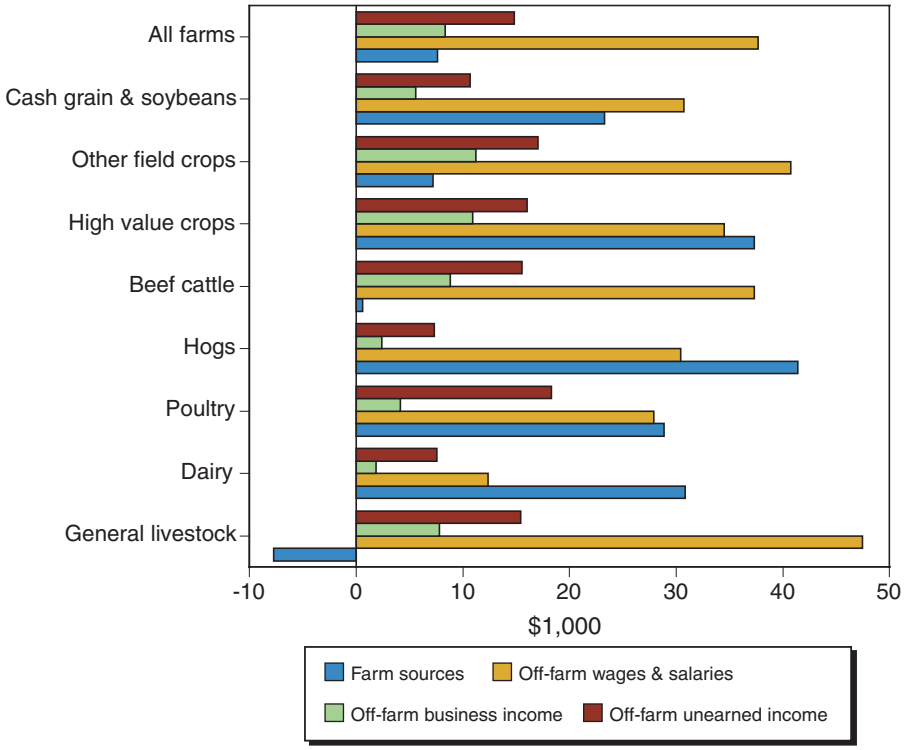
Source of income varies by operator's age, 2003



Source: 2003 ARMS, USDA.

Figure 19

Source of income varies across farm type, 2003



Source: 2003 ARMS, USDA.

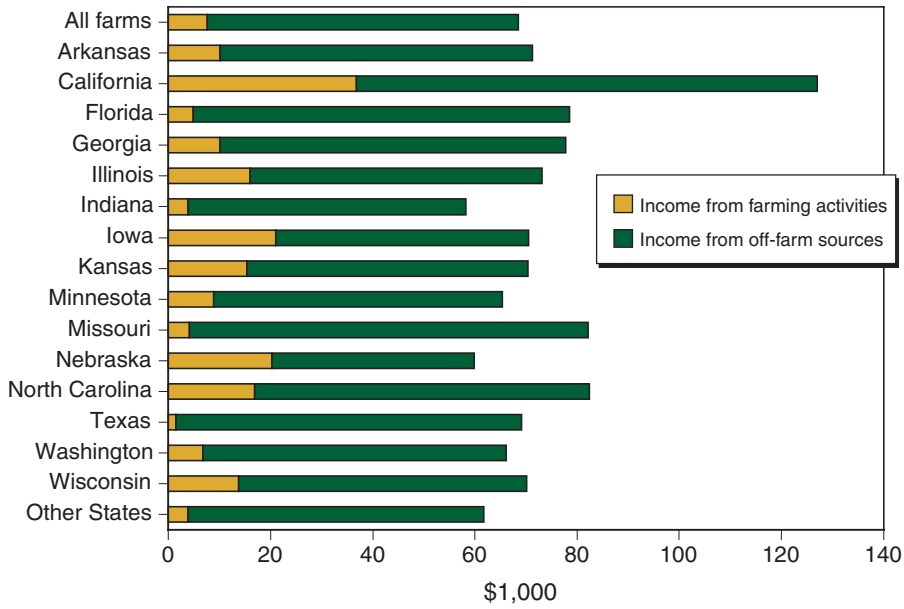
The expected 5-percent increase in the household income of cotton farm operators is the result of increases in both cash receipts and government payments. For 2003, cotton farm operators had an average household income of $121,402, with 46 percent of this income attributed to farming. This was the highest of any farm type. In 2004, households that operate cotton farms are still expected to have the second highest income ($127,657).

Other farm households that had relatively high incomes in 2003 include those operating rice, specialty crop, hog, and poultry farms. At lower income levels were households that operated dairy, wheat, soybean, and beef cattle operations. In 2004, the top five are expected to be households that operate rice, cotton, hog, specialty crop, and poultry farms. Households that operate dairy farms may have the largest increase in incomes in 2004, largely reflecting a substantial increase in farm-based earnings, but this does not put them in the highest earning category.

The number of farms included in the ARMS sample in 2003 allows for farm and household income estimates to be generated for 15 agricultural States (fig. 20). Previous surveys did not provide sufficient information in order to generate comparable estimates. Family farms in California realized both the highest average farm income and the highest average household income, but represent only 3 percent of all farms in the United States. In California, high value crop farms comprised nearly half of all of these farms, and high value crop production contributed 45 percent of the total value of production. At 11.3 percent, Texas had the largest share of family farms. About 45 percent

Figure 20

Source of household income varies across States, 2003



Source: 2003 ARMS, USDA.

of their total value of production was attributed to cattle. Average household income for these farms was $69,130, with about 2 percent coming from farming activities. The State with the lowest average household income in the group of 15 was Indiana at $58,274. About 70 percent of their total value of production was from cash grain and soybeans.

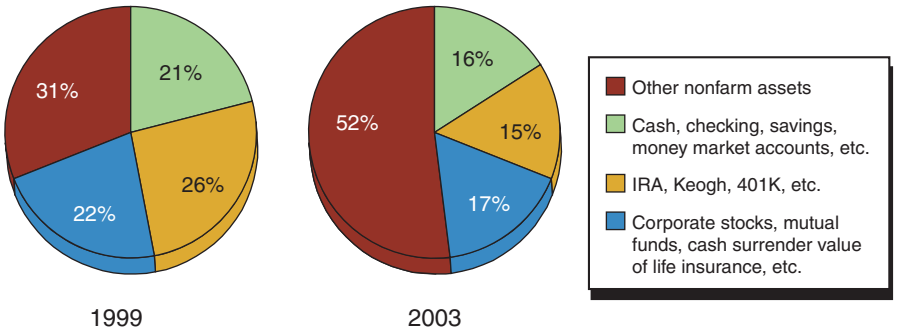
Farm household wealth

Income is not the only component of economic well-being. Farm household wealth affects how fluctuations in annual income may translate into changes in consumption, business plans, etc. The wealth position of the farm household is characterized by its equity (or net worth), which is composed of farm and nonfarm components. Farm (nonfarm) equity is derived by subtracting total farm (nonfarm) debts from total farm (nonfarm) assets. In 2003, the average wealth of farm households was $684,912, with farm equity comprising 70 percent of this total. This represents a 10-percent increase in average wealth since 1999, with farm equity accounting for much of the increase. Figure 21 shows that farm households invest in various nonfarm assets.

Wealth held by the bottom 50 percent and the top 1 percent of households provides a clearer picture of the disparity that exists in the distribution of wealth among farm and all U.S. households (fig. 22). The bottom 50 percent of farm households accounted for 14 percent of total U.S. wealth in the agricultural sector in 2001, while the top 1 percent of farm households accounted for about 8 percent. This represents a decline of 1.3 percentage points in the share of U.S. farm sector wealth held by the bottom 50 percent of farm households since 1999 and an increase of 1 percentage point in the share held by the top 1 percent of farm households. While this trend repre-

Figure 21

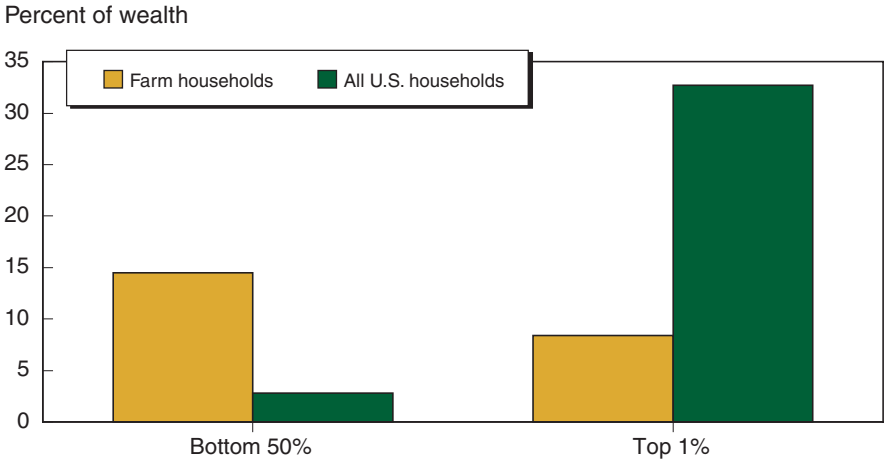
Components of nonfarm assets of farm households, 1999 and 2003



Source: 1999 and 2003 ARMS, USDA.

Figure 22

Distribution of wealth: Farm and all U.S. households, 2001



Source: Farm households USDA, ARMS. U.S. Households, Kennickell, 2003.

sents an increasing concentration of wealth among wealthy farm households, the dispersion of wealth is still modest when compared with that of all U.S. households.

For all U.S. households, the bottom 50 percent accounted for 3 percent of total wealth and the top 1 percent accounted for about 33 percent of total wealth in 2001. The distribution of wealth among farm households is much less concentrated than it is for all U.S. households because most farm households own some land, which comprises 60 percent of their wealth. In recent years, land has appreciated in value, especially in locations close to urban centers.

Economic Well-Being of Farm Households Includes Income and Wealth

Farm household economic well-being is affected both by the level of income and the amount of wealth (potential access to income) available to the household and by how income and wealth influence household consumption. The well-being of households has both an absolute component, which compares income and wealth to a standard, and a relative component, which measures the ability of households to meet needs. Changes in income and wealth levels will likely have the greatest effect on the lower income, lower wealth and higher income, higher wealth farm households. The higher income, higher wealth households account for over two-thirds of farm output in 2003 with farm output on these farms being evenly divided among crop and livestock enterprises. The lower income, lower wealth households may experience the most difficulty from the decline in household income since this group already has the largest share of households having to adjust to the shortfall between their income and consumption needs.

Movements in commodity prices, production shortfalls due to weather, and lack of off-farm jobs all affect well-being. Changes in economic conditions, such as interest rates, can have competing effects on farm and off-farm incomes. All of these factors contribute to income variations from year to year. Access to financial or other "liquid" assets (including savings and inventories) can help forestall a tightening in household consumption. Likewise, income that exceeds consumption can be added to savings or used to pay down debt. Analysis of farmers' responses to the 2003 ARMS suggests that, on average, farm households have higher incomes and greater wealth than do all U.S. households (table 6). While incomes of farm households in 2003 were about 10 percent higher than all households, net worth was over 70 percent higher. Since average comparisons can be misleading, farms were divided into four groups using levels of income and wealth (above or below the median level reported in the 2003 ARMS) relative to the average U.S. household.

Higher income, higher wealth. Half of farm households have both higher incomes and greater wealth than the average U.S. household. The vast majority of these farms (92 percent) reported household income greater than consumption expenditures in 2003—on average, an excess of $64,000 in income over household consumption expenditures. This group of farms reported average net worth of $881,000 in 2003, of which $311,000 was household assets not owned by the farming operation. This group of higher income, higher wealth households includes a disproportionate share of farm operators who reported a primary occupation other than farming and larger farm operations. On average, this group of households operated larger farms as measured by acreage at 489 acres, accounted for 67 percent of farm output, drew 63 percent of government contracts, and had the highest educational attainment.

Higher income, lower wealth. Slightly over 2.0 percent of farm households had higher incomes and lower wealth than the average U.S. household. These households were heavily focused on off-farm activities, with 64 percent

Table 6—Characteristics of farm operator households (based on U.S. median income and U.S. median wealth), 2003, by economic well-being

	Income/wealth relative to median U.S. household				
	Lower income-lower wealth	Lower income-higher wealth	Higher income-lower wealth	Higher income-higher wealth	All farms
Number of farms	88,039	879,210	44,922	1,072,354	2,084,524
			Percent		
Farms	4.2	42.2	2.2	51.4	100
Total value of production	1.7	29.7	1.8	66.8	100
Crop value of production	*2.1	27.4	*2.1	68.4	100
Livestock value of production	1.3	31.9	1.5	65.3	100
Distribution of value of production					
Crop value of production	*60.8	45.4	*56.5	50.4	49.2
Livestock value of production	*39.2	54.6	*43.5	49.6	50.8
Distribution by farm typology					
Limited-resources	29.9	6.9	na	na	4.2
Retirement	na	26.5	na	9.8	16.5
Residential/lifestyle	36.8	25.2	63.7	57.1	42.9
Farming occupation/lower sales	24.2	30.7	na	15.9	22.6
Farming occupation/higher sales	na	5.9	na	7.3	6.5
Large	na	3	na	5.3	4.1
Very large	na	1.8	na	4.6	3.2
			Acres		
Farm size (operated acres)	165	454	104	489	452
			Dollars per farm		
Average government payment	1,495	4,128	*1,935	6,167	5,019
			Percent		
Farm location					
Northeast	na	7.1	na	5.8	6.3
Midwest	32.7	35.8	44	38.6	37.3
South	53.3	43.7	46.4	41.4	43
West	na	13.4	na	14.3	13.5
			Dollars per farm		
Farm income	-6,491	-10,408	@17,253	22,676	7,373
Off-farm income	24,453	26,383	69,573	87,778	58,816
Farm operator household income	17,963	15,976	86,826	110,455	66,190
Total household expenditures	22,970	26,884	45,196	46,248	37,075
Household net worth	*39,913	606,500	#23,905	881,184	711,323
Household farm net worth	54,451	488,158	*77,739	570,077	503,138
Household nonfarm net worth	@-14,538	118,341	#-53,834	311,107	208,185

na = not available due to insufficient information.

For all U.S. households in 2003, median income = $43,527, mean income = $59,067, and median wealth is estimated to be $89,544. Wealth is defined for the farm as the sum of a household's farm and nonfarm net worth.

* indicates that the standard error of the estimate is greater than 25 percent and less than or equal to 50 percent.

# indicates that the standard error of the estimate is greater than 50 percent and less than or equal to 75 percent.

@ indicates that the standard error of the estimate is greater than 75 percent.

Sources: 2003 ARMS, USDA; U.S. Census Bureau; Board of Governors of the Federal Reserve System.

reporting a primary occupation other than farming. These operators are 12 years younger on average than the typical U.S. farmer. Their household incomes are almost entirely from off-farm sources and exceed their household consumption expenditures by a wide margin. They operate smaller farms (104 acres on average) and account for only 1.8 percent of farm output.

Lower income, higher wealth. Of the nearly 42 percent of farm households reporting lower income but greater wealth than the average U.S. household, 48 percent reported annual household incomes below their expenditures in 2003. This group contains a disproportionate share of mid-size farms and of farmers who report that they are retired. For many of these, farm-derived income is often negative (an average loss of nearly $10,000) in 2003. The lower income, higher wealth farms hold a vast majority of their net worth ($606,000 on average) in business assets (such as land, machinery, and crop and livestock inventories).

Generating a sustained flow of income from the household's asset base to support household expenditures requires either disposing of the farm or renting/leasing to other farmers or to the government through land retirement programs (such as the Conservation Reserve Program). Many lower income, higher wealth households report receiving government payments, averaging $4,128 in 2003. This group also contains farm businesses whose income is temporarily lower because of either low commodity prices or lower levels of production. For many of these operations, adequate consumption levels can be maintained by drawing on savings or other assets.

Lower income, lower wealth. About 4 percent of farm households have both lower incomes and lower wealth than the average U.S. household. This group (principally residential/lifestyle, limited resource, and farming occupation low sales farmers in 2003) has thin margins between their household incomes and consumption expenditures. Their small asset base may be insufficient to meet any unexpected shortfall in household earnings. Nearly 47 percent of these households reported income less than expenditures in 2003. For these households, income may not be able to support even relatively low levels of current consumption. They have few assets available to meet unexpected expenditure needs.

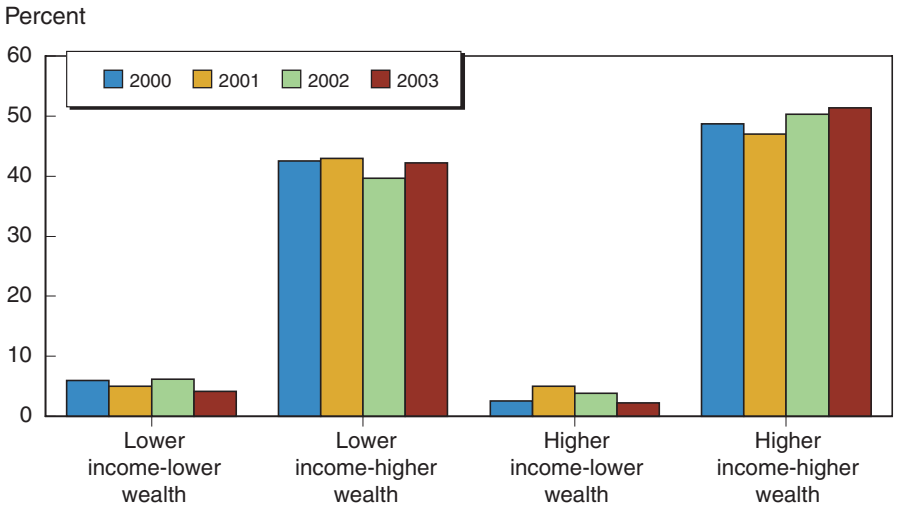
Because incomes are relatively similar for farm and nonfarm households, large differences in wealth between farm and nonfarm households contribute greatly to the differences between farm households and nonfarm households in the income/wealth continuum. The distribution of farm households in each income/wealth group has been relatively consistent over time and is not expected to change greatly in 2004 given the expectation for increases in household income and farm asset values, particularly land values (fig. 23).

The effect of taxes on farm household well-being

Traditionally, the amount of money income received during a calendar year has been the primary income measure for assessing the economic well-being of farm households. This measure does not include the effects of income and payroll taxes. The impact of tax law changes on the economic well-being of farm households is potentially great. While the level of payroll

Figure 23

Distribution of farm households, by measures of economic well-being



Note: Income and wealth levels for farm households are compared with the median levels of income and wealth of all U.S. households.

Source: 2003 ARMS, USDA.

taxes has remained steady or even increased, the number of households that owe no Federal income tax has grown to an estimated 30 percent for 2003. In addition, the current tax code contains refundable tax credits, such as the child tax credit and the earned income tax credit, that provide cash to households whose income tax liability is less than the amount of any eligible credit. For some households, the resulting tax refund is more than enough to offset any payroll taxes as well. Thus, these credits can improve the economic well-being of low-income farm households and reduce income inequality among all farm households.

Including income and payroll taxes in measures of economic well-being would likely increase the well-being of farm households relative to nonfarm households. While farm households, like all households, are governed by the individual income tax structure applicable to wage and salary and other nonbusiness income, they are also affected by tax policies on business income. These policies, especially those designed to encourage capital investment and to reduce administrative burden by allowing the cash method of accounting, may reduce tax rates compared with other nonfarm households not engaged in a nonfarm business. As a result, the well-being of farm households relative to nonfarm households would be improved for income comparisons that include the effects of income and payroll taxes.

To better reflect the distribution of after-tax income among farm households, ERS has initiated a project to incorporate income and payroll taxes into the traditional measure of farm household income. Implementing this enhanced measure of income will provide a more complete picture of the economic well-being of farm households. This will allow it to be compared with new Census measures for nonfarm households. At the same time this will make it more compatible with efforts at the international level to develop a consistent conceptual framework for defining and measuring household income that considers the effects of income and payroll taxes.

Value Added by Agricultural Production

Fifty years ago the family farm household, operating America's farms largely as sole proprietors, received most of the profits and bore most of the business and financial risk inherent in farming. Today, the profits received and risks incurred in America's agricultural sector are distributed among several equity-holding groups: family and nonfamily farm households who operate the farm business on a daily basis, limited partners who share in profits but not in the day-to-day management decisions, owners of animals placed in feedlots, and contractors who participate through the production or marketing aspects of the farm operation.

Net farm income is a useful accounting measure of the individual farm operation's contribution to the net worth of farm equity holders. Net value added is the economic measure which best indicates the agricultural sector's contribution to the national economy. Net value added is estimated each year as the value of agricultural production activities plus net government payments less what the farm sector paid for its short- and long-run costs of production.

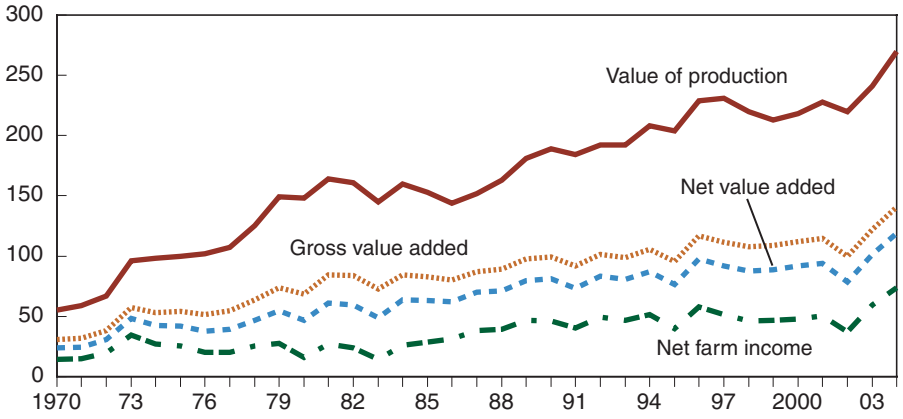
The value of agricultural sector production represents crops and livestock produced during the year as well as revenues earned from agricultural services and forestry products. Revenue from services includes machine hire and customwork, contracting fees, the gross imputed rental value of farm dwellings, and other farm income. Net government transactions include direct government payments, vehicle registration and licensing fees, and property taxes. Net government transactions can either increase or decrease value added. Short-run costs are purchased inputs which are categorized as either farm origin (purchases of feed, seed and plant, and nonbreeding livestock and poultry), manufactured inputs (fertilizer, chemicals, fuel and oil, utilities), or other intermediate expenses (repairs and maintenance, contract labor, etc.). Long-run costs are the stock of fixed assets or capital consumed each year as a result of agricultural production.

Net value added is distributed first to agriculture's stakeholders and then to its equity holders. The three major groups comprising agriculture's stakeholders are hired labor, lenders, and nonoperator landlords. Most stakeholders' shares are predetermined and do not depend on future prices and production outputs (yields, weights, quality). One exception is landlords, some of whose rent (cash or share) receive a "bump" in rent if yields exceed some predetermined quantity. After the three stakeholder groups receive their share (wages, interest, rent) of net value added, the residual in the form of net farm income goes to equity holders: farm operators and other households, non-family corporations and estates, and contractors.

Figure 24 shows the trends in nominal or current dollars for some of the major income components of the farm sector since 1970. The difference between the value of agricultural sector production and gross value added represents the dollar amount paid for purchased inputs that year. This difference has grown considerably since 1970, indicating that much of the 35-year increase in the value of the agricultural sector's production has gone to those who provide agriculture's purchased inputs. The difference between

Figure 24

Growth of farm sector income components, 1970-2004



2004 forecast.

Source: Economic Research Service, USDA.

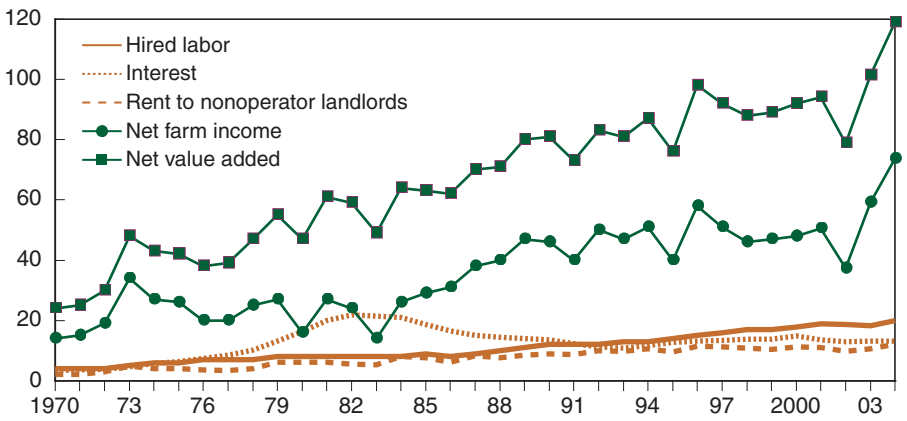
gross and net value added indicates that the proportion of agricultural production going to the suppliers of agriculture's fixed capital assets has remained relatively constant since the mid-1970s. The difference between net value added and net farm income represents the portion of agriculture's net value earned by stakeholders: hired labor, lenders, and nonoperator landlords. Equity holders' portion of net value added is indicated by the net farm income line. Since the mid-1980s, equity holders' share of value added has trended upward but at a lower rate than the upward trend in agriculture's value of production.

Figure 25 shows that movement over time in net farm income measured in nominal or current dollars closely mirrors net value added. The volatility or risk in year-to-year changes in net value added is reflected in the volatility in net farm income, consistent with equity holders' position as risk-taking, residual recipients. The relatively stable trend in the nominal dollar shares going to labor and nonoperator landlords is consistent with their roles as predetermined recipients of value added. Labor and nonoperator landlords' proportionate share of value added has declined over time, reflecting stable and mild increases in hired labor compensation and nonoperator cash rents. The "hump" in interest expense was due to large increases in debt assumed by farm operator households in the 1970s combined with record-high interest rates on new farm loans made during 1979-1982. Declining interest rates during the 1980s reduced the farm sector's interest expenses. While use of debt by farm operators has increased in the last several years, low and stable interest rates have kept the lender's share of value added from increasing.

Table 7 highlights changes in the distribution of net value added during 2002 and 2003. The drop in net value added to levels not seen since the late 1980s reversed itself in 2003, rising from $78.8 billion in 2002 to $101.4 billion in 2003, a 1-year increase of almost 30 percent. This large annual increase is reflected in equity holders' significant increase in their share of net value added in 2003 while stakeholders' share declined.

Figure 25

Net value added and factor shares, 1970-2004



2004 forecast.

Source: Economic Research Service, USDA.

Table 7—Distribution of net value added by farms

Income claimant	2002	2003
	Percent	
Proprietors, partnerships, & family corporations	30.6	46.7
Nonfamily farms	3.6	4.5
Hired labor	26.9	16.7
Interest	15.0	9.4
Rent	12.5	9.7
Contractors	11.4	13.0
Total	100.0	100.00

Source: 2002 and 2003 ARMS, USDA.

In 2003 proprietors, partnerships, and family corporations accounted for 72.5 percent of the value of agricultural sector production and 69.1 percent of purchased inputs (table 8). Direct government payments to family farmer operator households more than offset their payments to government (property taxes and vehicle registration and licensing fees). Thirty-nine percent of all farms received government payments averaging $13,025 in 2003, down from almost 44 percent of farms in 2002. Commercial farms received almost 51 percent of total government payments whereas rural residence farms received only 18 percent. Family and nonfamily farm operators accounted for more than 75 percent of net value added in 2003, with the remainder distributed evenly among landlords and contractors.

Among USDA's 10 production regions, the Pacific, Corn Belt, and Northern Plains accounted for one-third of U.S. farms while accounting for over half of U.S. net value added in 2003 (fig. 26). Farms producing cash grain and soybeans, and high-valued crops accounted for almost half of agriculture's net value added in 2003 while accounting for only 20 percent of all farms (fig. 27). Commercial farms, which made up less than 10 percent of farms in 2003, accounted for almost 70 percent of agriculture's net value added while rural residence farms, which comprise about two-thirds of all farms in the country, accounted for only 8 percent of agriculture's net value added (fig. 28).

Cost efficient management practices combined with recent increases in value of production have led to increases in value added in 2003 and 2004. The agricultural sector as a whole has taken steps to reduce production expenses in recent years. While some individual expense items changed significantly over this period, the ARMS 2003 farm operation expense accounts do not vary significantly from the 2000-2002 ARMS averages due to offsetting changes. Changes in variable cash expenses were not significant for any of the Census geographic regions.

In response to low commodity prices starting in 1998 and increased input costs, in particular fuel and fertilizer prices in 2000 and 2001, many operators adopted cost-saving practices to maintain profitability. Through the increased use of contracting, reliance on used or leased machinery and equipment, no-till farming, and other cost-cutting methods, the farm sector, and particularly

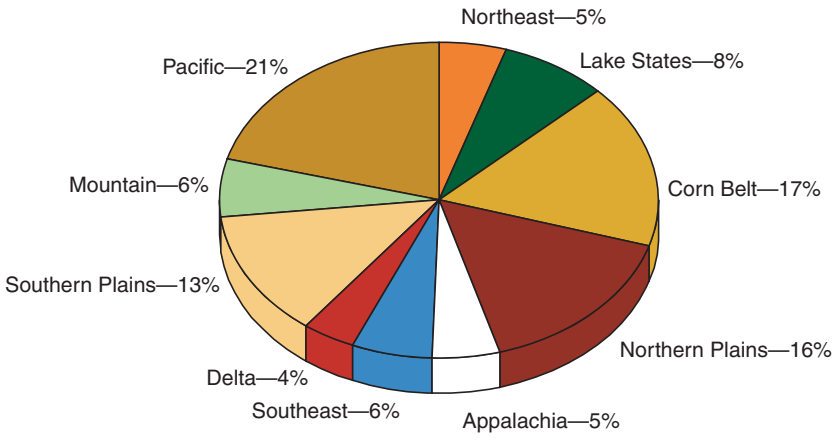
Table 8—Components of value added, 2003

Component	Proprietors, partnerships, & family corporations	Non-family farms	Landlords	Contractors	ARMS total
			Percent of total		
Value of agricultural production	72.5	9.3	2.3	15.9	100.0
Purchased inputs	69.1	9.9	1.3	19.7	100.0
Net government transactions	111.0	0.4	-11.1	-0.3	100.0
Gross value added	70.3	7.9	11.0	10.8	100.0
Capital consumption	79.2	5.8	14.9	0.0	100.0
Net value added	68.5	8.3	10.2	12.9	100.0
Payments to stakeholders	88.1	11.9	0.0	0.0	100.0
-- employee compensation	80.9	19.1	0.0	0.0	100.0
-- interest	92.5	7.4	0.1	0.0	100.0
-- rent to non-operator landlords	96.4	3.6	0.0	0.0	100.0
Net income	72.1	7.0	0.9	20.0	100.0

Source: 2003 ARMS, USDA.

Figure 26

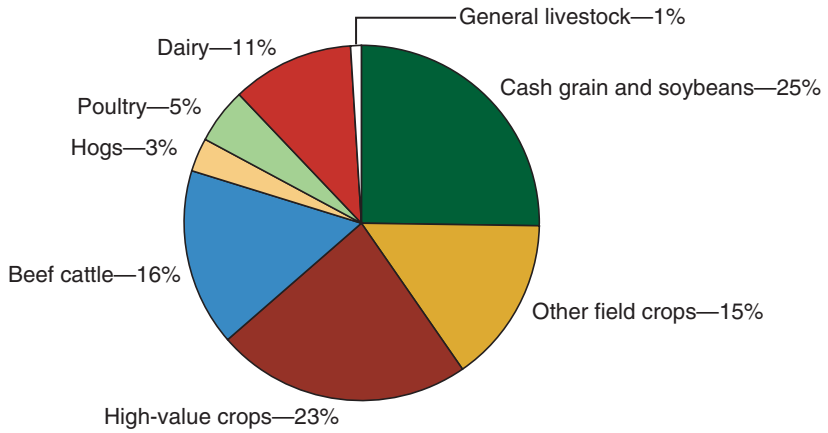
Net value added by USDA production region, 2003



Source: 2003 ARMS, USDA.

Figure 27

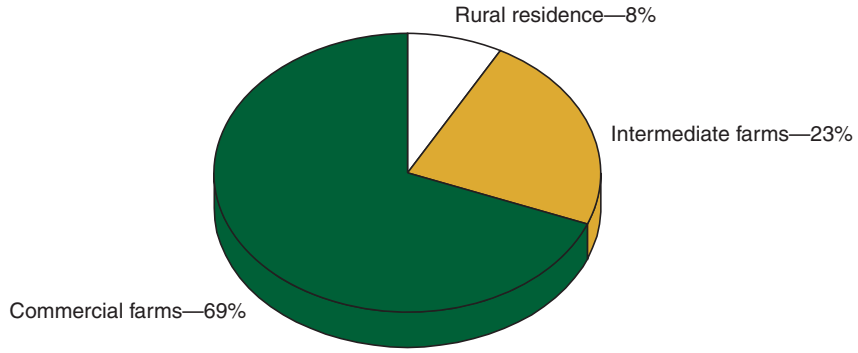
Net value added by farm type, 2003



Source: 2003 ARMS, USDA.

Figure 28

Net value added by farm typology, 2003



Source: 2003 ARMS, USDA.

commercial farms, have been able to hold down expenses. ARMS 2003 data show that about one-third of cash grain farm operators purchased nitrogen fertilizer prior to January 1, and half of these farms reported they did so to avoid input price risk. In 2000, total expenses equaled 89 percent of total agricultural output, but since then the ratio of expenses to the value of output has been falling. In 2003, the ratio was 82 percent and it is projected to be 79 percent in 2004, the lowest ratio since 1996.

Financial Position and Debt Repayment Condition of Farm Households

Data reported in the 2003 ARMS indicate the financial complexity of family farms: households other than the operator's have an ownership interest in assets of the family farm, and the farm operator household also invests in assets, and incurs debt, unrelated to the family farm. Family farms reported total farm business assets of $589,000, on average. Farm operator households' ownership share of these assets was $538,000, indicating $51,000 of the farm asset base of family farming operations was owned by someone outside the farm operator's household.

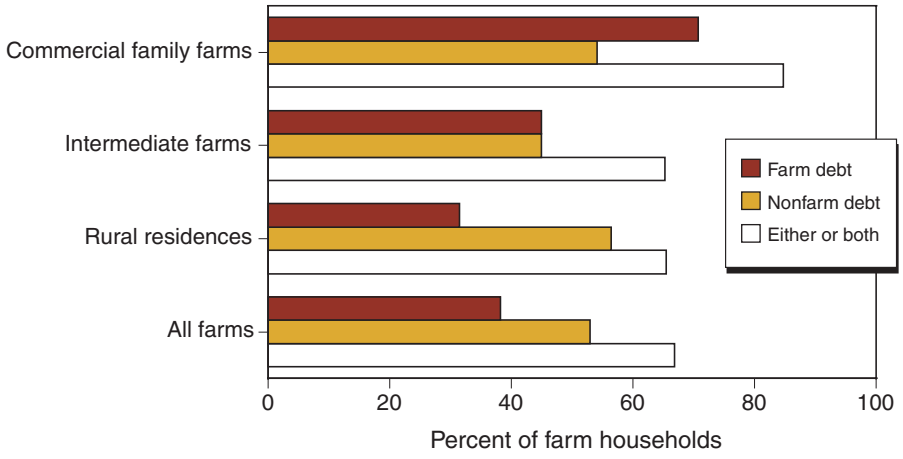
The importance of nonfarm assets and debt within the household balance sheet provides evidence of farm households' participation in the nonfarm economy. On average, nonfarm assets accounted for about 29 percent of farm household assets in 2003, while borrowing for nonfarm purposes was 44 percent of farm operator household debt. About 27 percent of the average farm household's net worth could be attributed to nonfarm sources.

Two additional statistics further illustrate the interrelationships between farm and nonfarm components of farm household balance sheets. First, nearly 38 percent of farm operator households reported debt balances for their farm operations at the end of 2003, while more than 53 percent had incurred debt for nonfarm purposes. Secondly, two-thirds reported loan balances on either farm and/or nonfarm debt (fig. 29).

Despite the significance of the nonfarm economy to the financial condition of farm households, ownership of a farming operation has been an important wealth-building tool for many farm households. The average value of farm assets on family farms was about $538,000 in 2003, and, with farm debt of about $53,000, the average net worth of family farm businesses was about $485,000. In addition to farm operations, farm households also reported total nonfarm assets of about $220,000, on average, and nonfarm debt of

Figure 29

Share of farm households reporting farm and/or nonfarm debt, by farm typology, 2003



Source: 2003 ARMS, USDA.

about $42,000. The nonfarm portion of the household's balance sheet, therefore, provided an additional $178,000 to the net worth of the household.

Average farm operator household net worth among ERS' farm typology classes illustrates the diversity among farms, and the relative significance of the nonfarm portion of the balance sheet for different groups of farmers (fig. 30).

In 2003, commercial family farms generated, on average, about $176,000 in net cash income on an owned asset base valued at about $1.6 million. Commercial farms had an average farm net worth of more than $1.3 million. Households that operate large family operations also reported nonfarm assets of about $257,000, which, coupled with average nonfarm debt of about $57,000, produced $200,000 in nonfarm net worth. About 85 percent of farm household assets, debt, and net worth of commercial family farm households were traceable to the farming operation.

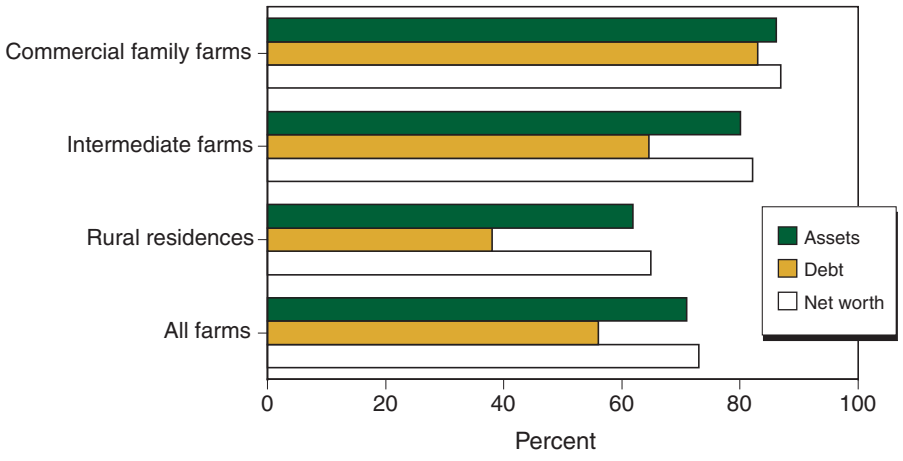
Intermediate and rural residence farm households relied on off-farm sources for the bulk of their income, but their farm asset and net worth bases accounted for much of their accumulated wealth.

Intermediate farms owned farm assets valued at about $654,000, on average, and reported farm net worth of about $592,000. While households that operate intermediate farms reported the lowest nonfarm assets of any typology group, these households still owned, on average, about $162,000 in nonfarm assets. Nonfarm debt levels, at about $34,000, were lower than other groups. As a result, intermediate farm households reported about $128,000 in nonfarm net worth. Total household net worth for intermediate farms was about $720,000 per household at the end of 2003. About 20 percent of intermediate farms' assets and net worth could be attributed to nonfarm sources, but about 35 percent of household debt was for nonfarm purposes.

The residential nature of rural residence farm operations was evidenced by the relative importance of the operator dwelling, which amounted to about 22 percent of the total value of farm assets. Traditional farm financial

Figure 30

Farm share of household assets, debt, and net worth, by farm typology, 2003



Source: 2003 ARMS, USDA.

performance measures are of questionable value in assessing the financial condition of rural residence farms, since their financial well-being is more closely tied to off-farm employment conditions in the local economy than to profitability of their farming operations.

The importance of nonfarm economic activities to the financial well-being of rural residence households was also reflected in the composition of rural residence households' assets, debt, and net worth. Nonfarm sources accounted for about 37 percent of total operator household assets and net worth for rural residences, and about 62 percent of rural residence farm household borrowing was for nonfarm purposes.

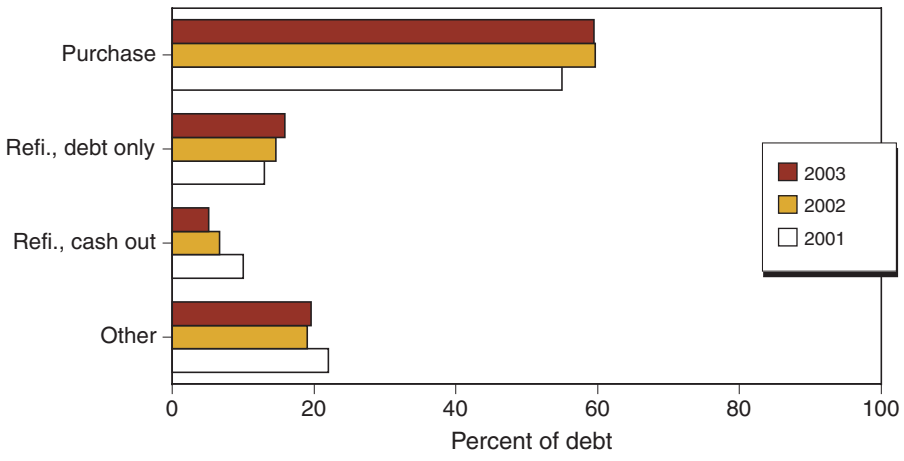
Rural residence farm households owned farm assets valued at about $385,000 in 2003. With farm debt of about $26,000, rural residences have average farm net worth of almost $359,000. As expected, the nonfarm assets and net worth of rural residence farm households are relatively more important than for other typology groups. With nonfarm assets of about $237,000 and nonfarm debt of $43,000, rural residences reported an average nonfarm net worth of about $194,000 in 2003. Combining farm and nonfarm sources, these farm operator households have total net worth of almost $553,000.

While the share of farm household debt for nonfarm purposes is considerable, farmers have not been using a significant share of their farm equity as a source of funds for nonfarm investments or family living expenses. Favorable interest rates, continuing from late 2001 at least through the late summer of 2004, spurred a refinancing boom in U.S. housing markets, as homeowners locked in historically low rates with new 30-year mortgages. Farm operators would appear to have a similar incentive to refinance existing debt with fixed-rate long-term loans. However, community bankers and other lenders have reported that such a refinancing boom was not occurring in agriculture.

ARMS data for 2001-2003 indicate that 55-60 percent of all farm debt owed by farming operations at the end of each year was incurred for the purchase of land, machinery, or equipment (fig. 31). The share of debt incurred to refi-

Figure 31

Share of farm debt for various purposes, 2001-2003



Source: 2001, 2002, 2003 ARMS, USDA.

nance an existing loan balance, with no additional cash borrowed, has been rising very gradually during 2001-2003, and accounted for about 16 percent of debt at the end of 2003. The share of debt incurred on refinanced loans on which some cash was taken out has decreased from 10 percent in 2001 to 5 percent in 2003. In each of the 3 years, ARMS indicates that about 20 percent of total debt is for purposes unrelated to the farming operation.

In 2003, about 10 percent of debt was taken out as a farm-related equity loan, with the proceeds reinvested in the farm business (fig. 32). Less than 3 percent of farm debt was incurred to meet household expenses, or to free up cash for nonfarm investment or consumption purposes.

The purpose of farm borrowing was similar for various farm typology groups, with the share of all reported 2003 debt initially borrowed to finance the purchase of land and/or machinery ranging between 56 percent and 63 percent (fig. 33). Rural-residence farms reported about 20 percent of debt being borrowed to refinance existing debt, but only about 6 percent for nonfarm investment or consumption. Intermediate farms and commercial farms reported, on average, that less than 2 percent of debt had been incurred for nonfarm investment or consumption.

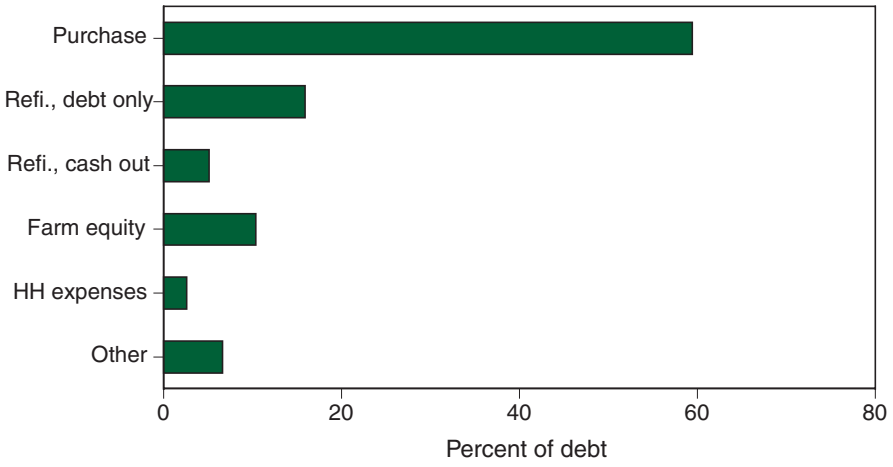
Farm sector debt

While farm operator households must manage farm and nonfarm debt, farm business debt at the sector level is reported for farm purposes only. Farm business real estate debt is estimated from debt levels reported by various lenders, reduced to account for loans secured by farmland that are used for purposes unrelated to the farm business, and further reduced by the portion of mortgage debt attributed to operator dwellings.

Farm business debt is expected to rise 2.9 percent in 2004, marking 11 consecutive years of growing farm debt balances. This anticipated gain follows an increase of 2.4 percent in 2003. While debt has been rising in recent years, the 2003 growth rate slowed considerably from the 4.4-percent

Figure 32

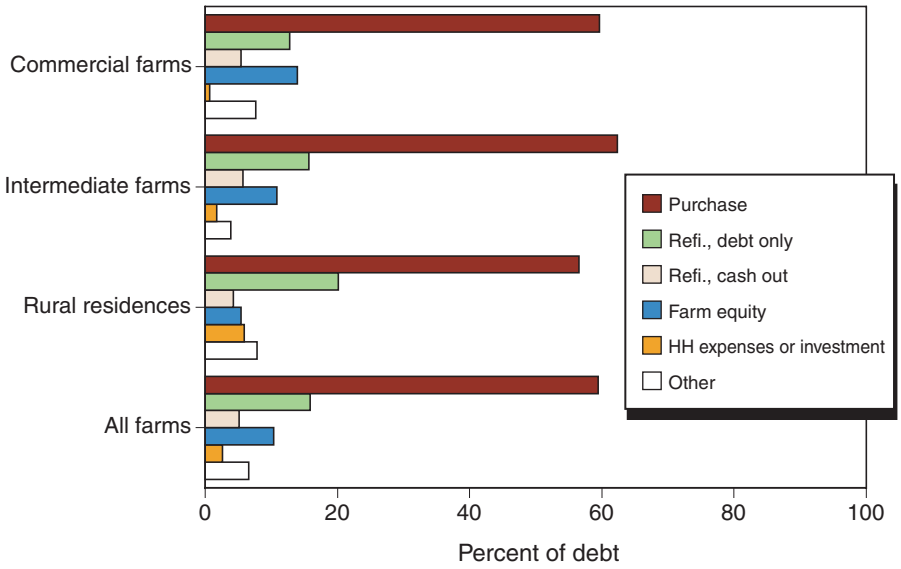
Share of farm debt for various purposes, 2003



Source: 2003 ARMS, USDA.

Figure 33

Share of farm debt for various purposes, by farm typology, 2003



Source: 2003 ARMS, USDA.

annualized rate sustained during 1998-2002. Total farm business debt is expected to approach $204 billion at the end of 2004. It was almost $198 billion at the end of 2003, a level surpassing the previous record-high of $188.8 billion reached in 1984. (Go to *http://www.ers.usda.gov/Data/FarmBalanceSheet/Fbsdmu.htm* to view debt series, published by State). Banks provide about 40 percent of all farm credit, while the Farm Credit System supplies another 30 percent.

Real estate debt is anticipated to rise 5.2 percent in 2004, following a 4.5-percent rise in 2003. Nonreal estate loan balances (in current dollars) are expected to remain virtually unchanged in both years, continuing a trend that has been maintained since 1997 (fig. 34). During 1998-2002, real estate debt rose at an annualized rate of 5.7 percent, while nonreal estate loans grew at a more modest 2.8 percent rate. From an equivalent starting point at the end of 1997, farm real estate debt now stands at $108 billion, while nonreal estate loans account for $90 billion in farm business debt.

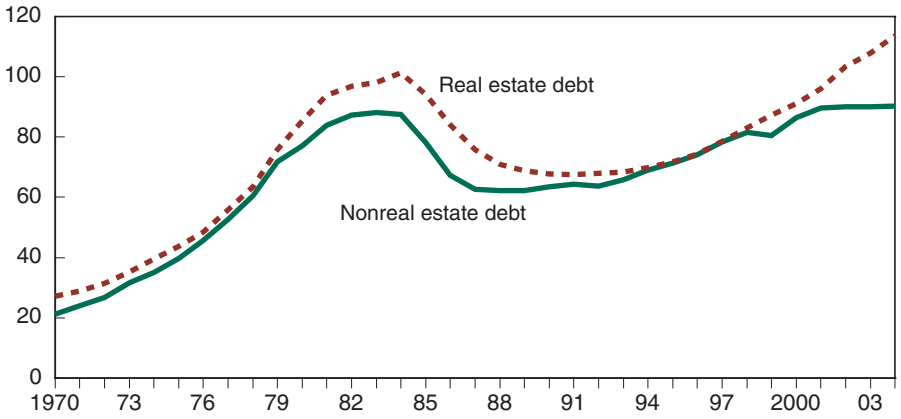
The rise in debt in recent years may result in additional financial difficulty for some farm operators, but it does not indicate widespread financial distress in the farm sector. Farmers, like others, might be taking advantage of low interest rates to purchase assets. Debt repayment capacity utilization (DRCU) combines the impacts of net cash income, debt levels, and interest rates into a single statistic that measures actual debt relative to the maximum debt load that farmers could service with current income. By this measure, farm business debt, in aggregate, remains relatively low in comparison with the income available for debt service (fig. 35).

Debt burden of farms and households

Despite the apparent financial strength of the farm sector as a whole, some individual farm operator households may experience financial stress when

Figure 34

Farm business debt, 1970-2004

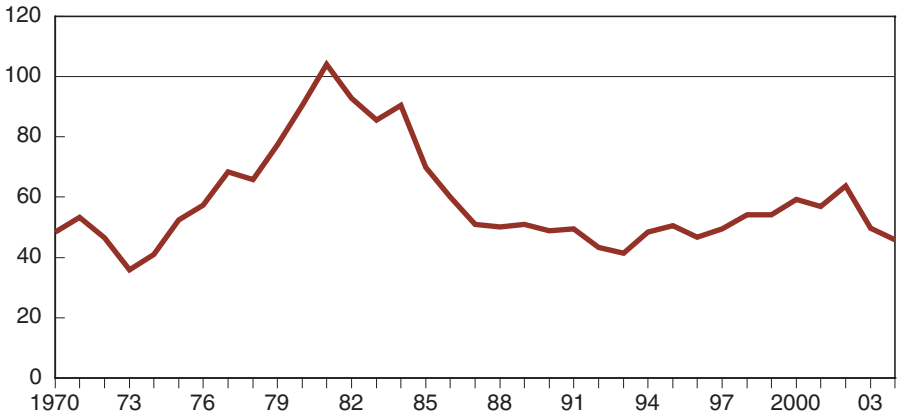


2004 forecast.

Source: Economic Research Service, USDA.

Figure 35

Debt repayment capacity utilization, 1970-2004



2004 forecast.

DRCU = Actual debt / Debt that could be repaid from current income.

Source: Economic Research Service, USDA.

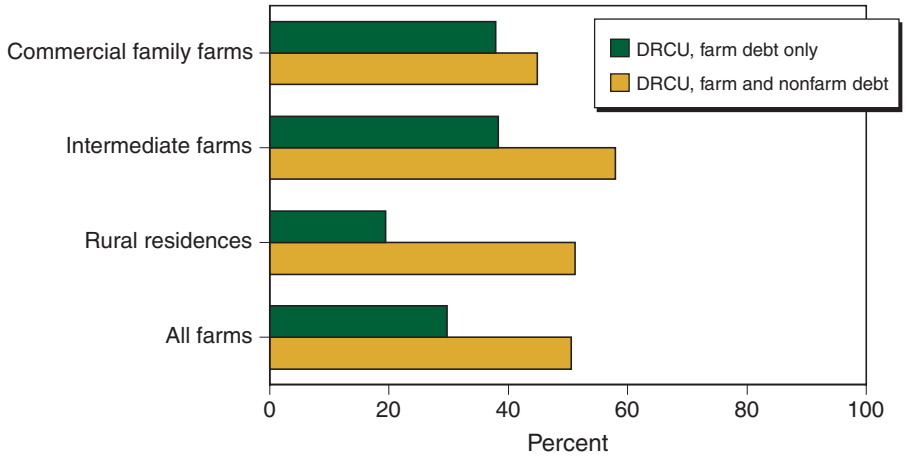
individual debt levels become high. Farm debt repayment would not appear to pose a problem for the 62 percent of operator households that reported no farm debt outstanding at the end of 2003. However, about 29 percent of farms owing no farm debt reported an existing loan balance for nonfarm purposes. The level of farm operator household debt for nonfarm purposes may expose some farm operations to potential debt service difficulty.

Including nonfarm debt in the analysis of farm operators' use of debt repayment capacity reflects the relative significance of nonfarm debt in the household balance sheet (fig. 36). DRCU for commercial farm households does not increase substantially when nonfarm debt is included. For intermediate farms, the addition of nonfarm debt service requirements appears to be especially burdensome. Rural residence farm households experienced the greatest relative increase in DRCU due to nonfarm debt, and nonfarm debt

is likely to be more burdensome for these operations than their farm business debt. However, their total debt levels appear to be manageable given their current income levels. Debt repayment may become especially burdensome when DRCU exceeds 1.20, that is, when farm households owe 20 percent more debt than they can service with current income. The addition of nonfarm debt to debt service calculations does not appear to cause widespread additional repayment problems (fig. 37).

Figure 36

Impact of nonfarm debt on debt repayment capacity utilization, by farm typology, 2003

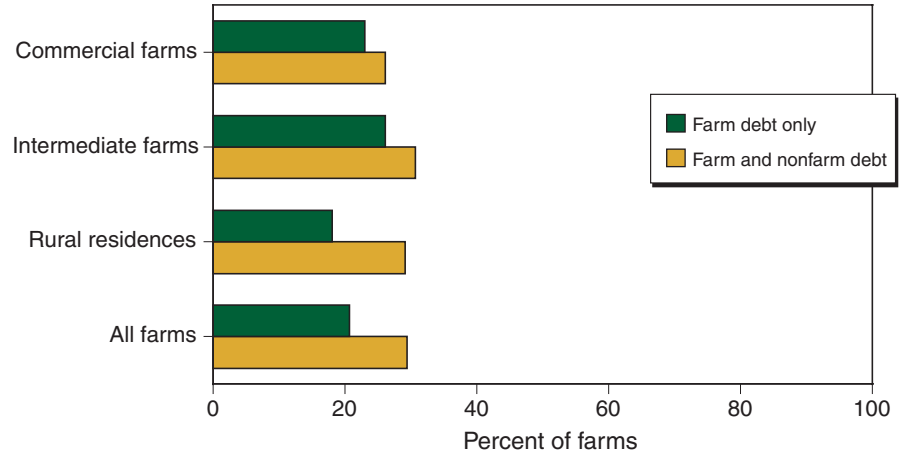


Source: 2003 ARMS, USDA.

Figure 37

Share of farms with potential debt repayment problems, 2003

(based on DRCU > 1.2 estimated using net cash income)



Source: 2003 ARMS, USDA.

Farm Operator Decisions

Farming presents a considerable management challenge to the operator. Farm operators make complex production, marketing, and finance decisions that ultimately affect the profitability of the farm business. Among the most complex and influential of production decisions are acreage allocation and input purchasing decisions. This section uses data from the 2003 Agricultural Resource Management Survey (ARMS) to examine income-influencing farm operator decisions about acreage allocation and input purchasing and the nature of their effect on income measures.

Acreage Allocation

Producers make decisions about which crops to plant and how much of their total acreage to plant in any year based on the expected profitability of various alternatives. Profitable opportunities can be exploited by comparing returns among various crop enterprises. However, the acreage allocation decision cannot be solely based on economic factors. Agronomic conditions, landlord restrictions on rented acres, crop insurance considerations, and even off-farm commitments when crop labor requirements compete with off-farm employment play a critical role. In addition, considerable attention has been recently given to the impact of government programs on farm acreage allocation.

Farm legislation has increasingly turned to "decoupled" payments as a means of supporting farm income. Decoupled payments are fixed income transfers that do not change with current production activities, inputs, or practices. They are "decoupled" in the sense that current production decisions do not alter the size of the payment to eligible producers, and thus the payments are not expected to alter production decisions. Decoupled payments include direct payments and counter-cyclical payments made to U.S. farmers as prescribed in the Farm Security and Rural Investment Act of 2002.[1] Because they are not considered to be production distorting, decoupled payments have been exempt from global trade rules. However, some countries have taken the position that the implementation of non-distorting, or even minimally distorting payments may be impossible.[2]

Respondents to the 2003 ARMS were asked to rate the importance of various factors, including government payments, to their acreage allocation decisions. The mean ratings are presented in table 9 by farm type for the major government program commodities. With the scale used, an average rating of less than 3 indicates that the factor was generally important to acreage allocation decisions whereas an average rating greater than 3 indicates the factor generally did not impact these decisions.

Crop rotations, input costs, and expected crop prices had the greatest impact on the acreage allocation decision, each with an average rating near or below 2 for each type of farm. Wheat farmers also rated crop insurance and off-farm commitments as more important to acreage allocation decisions than did farmers on other types of farms. Corn, soybean, and cotton farmers reported that the various components of government programs generally had

[1] Counter-cyclical payments are based on historical acreage and yields, and thus are not affected by current production decisions. However, the link of counter-cyclical payments to market prices may affect revenue risk and make these payments indirectly coupled to production decisions.

[2] For more information on decoupled payments see U.S. Department of Agriculture, Economic Research Service. *Decoupled Payments: Household Income Transfers in Contemporary U.S. Agriculture.* AER-822, Feb. 2003, and U.S. Department of Agriculture, Economic Research Service. *Decoupled Payments in a Changing Policy Setting.* AER-838, Nov. 2004.

Table 9—Importance of various factors to the acreage allocation decision of U.S. farmers, by farm type, 2003 crop year

Factor	Farm type			
	Wheat	Corn	Soybeans	Cotton
	Average rating			
Crop rotations	2.35	1.53	1.79	2.46
Input costs	2.15	2.28	2.01	1.83
Expected crop prices	1.82	2.29	2.20	1.79
Landlord preferences	3.39	3.37	3.60	3.88
Crop insurance	2.83	3.18	3.05	3.43
Off-farm commitments	2.85	3.28	3.36	3.96
Government programs:				
Direct payments	2.64	3.09	2.97	3.14
Counter-cyclical payments	2.87	3.38	3.32	3.19
Loan rates	3.37	3.65	3.60	3.47
Base acreage updates	2.85	3.21	3.41	3.51

Notes: Ratings indicate importance of factor to the acreage allocation decision based on the following scale: 1=very important, 2=important, 3=neither important nor unimportant, 4=unimportant, and 5=not at all important. Farm type indicates the commodity that accounted for 50 percent or more of total farm value of production.

Source: 2003 ARMS, USDA.

little impact on acreage allocation decisions. Responses from wheat farmers showed government programs to be somewhat more important, but they still lagged well behind economic and agronomic factors. In addition, the importance of decoupled direct payments was rated somewhat higher than price-sensitive counter-cyclical payments and marketing loan benefits (loan rates), probably because higher 2003 crop prices reduced payments from the price-sensitive sources.

Input Purchasing

Pre-purchasing inputs, or locking price before delivery (e.g., under contract), is a management strategy that can potentially reduce farm input costs, thus improving farm income. Farmers using this strategy expect to reduce input costs by locking in their price prior to a potential price rise due to increased input demand during the production period, or because of unexpected factors. An example of significant input price variation has been that exhibited by nitrogen fertilizer prices in recent years.

Prices for nitrogen fertilizer began to rise in the fall of 2000 and peaked early in the spring planting season of 2001 (fig. 38), mainly due to rising prices for natural gas, the major cost of producing nitrogen fertilizer. Farmers who locked in the price of nitrogen fertilizer before the sharp price increase experienced considerable savings relative to farmers who purchased nitrogen fertilizer during the planting period. After nitrogen prices fell back to more typical levels in 2002, rising natural gas prices again pushed nitrogen fertilizer prices up in the spring of 2003. Pre-purchasing inputs is a strategy that could help farmers deal with the variability of nitrogen fertilizer prices.

Respondents to the 2003 ARMS were asked about their timing of input purchases for crop production in 2003. Data were collected for purchases of

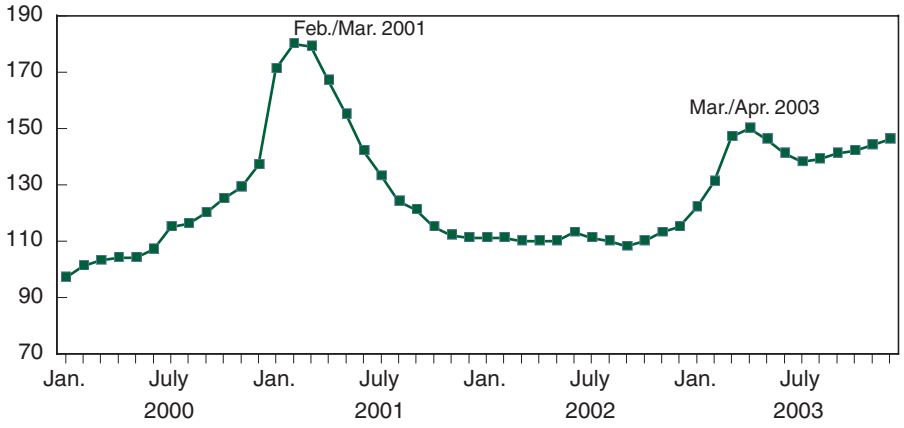
five major crop inputs: seed, nitrogen fertilizers, mixed fertilizers, chemicals, and fuels. Farms were classified into those purchasing any of these inputs prior to January 1, 2003, and other farms. Table 10 includes the extent to which crop inputs were pre-purchased on U.S. cash grain farms for the 2003 crop year. Seed was most often pre-purchased, done on 46 percent of farms. Nitrogen and mixed fertilizers were pre-purchased on about a third of cash grain farms. Pre-purchasing was least used for chemical inputs, done on only 17 percent of farms. Across the typology groups, pre-purchasing inputs were done the least on rural-residence farms (the smallest farms) and the most on commercial farms (the largest farms).

A comparison of the 2003 net cash farm income of cash grain farms that pre-purchased inputs with all cash grain farms is shown in figure 39. Farms that pre-purchased each of the five inputs had a higher net cash farm income than the average for all farms. The difference was most noticeable for farms that

Figure 38

Monthly prices paid index for nitrogen fertilizer, 2000-03

1990-92 = 100



Source: National Agricultural Statistics Service, *Agricultural Prices 2003 Annual Summary*, July 2004.

Table 10–Crop input purchases of U.S. cash grain farmers prior to January 1, 2003, by farm typology, 2003 crop year

Input purchased prior to 1/1/03	Farm typology			
	Rural residence farms	Intermediate farms	Commercial farms	All cash grain farms
	Percent of farms			
Seed	35	49	56	46
Nitrogen fertilizers	25	36	45	35
Mixed fertilizers	27	38	48	37
Chemicals	12	18	23	17
Fuels	30	29	26	29

Notes: Cash grain farms are those identified as such by each survey respondent. Commercial farms had $250,000 or more in farm sales. Rural residence farms included farms with less than $250,000 in farm sales and farmers whose primary occupation was something other than farming, such as off-farm work or retirement. Intermediate farms included farms with less than $250,000 in farm sales and farmers whose primary occupation was farming.

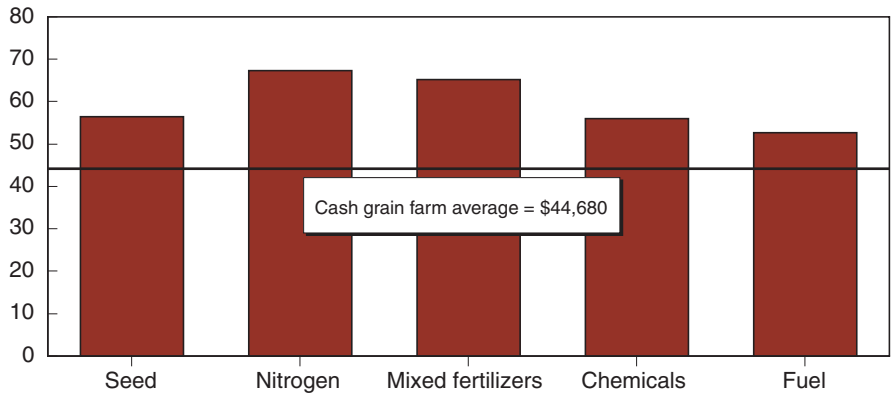
Source: 2003 ARMS, USDA.

pre-purchased nitrogen and mixed fertilizers, with an average difference of roughly $10,000-$12,000 per farm compared with the average of all farms. However, the amount of the difference that can be attributed to pre-purchasing inputs cannot be known without further analysis because other factors, such as farm size, location, and management, also contribute to the difference.

To better understand farmer motives for pre-purchasing inputs, survey respondents were asked why they had pre-purchased nitrogen fertilizer and why they had not. Nearly half of the farmers who purchased nitrogen before January 1, 2003, did so to reduce the risk of a price increase (fig. 40). About a fourth pre-purchased to apply nitrogen in the fall, while 11 percent used pre-purchasing as a tax management strategy. Among farmers not pre-purchasing nitrogen, a third expected no price increase and 28 percent reported other,

Figure 39

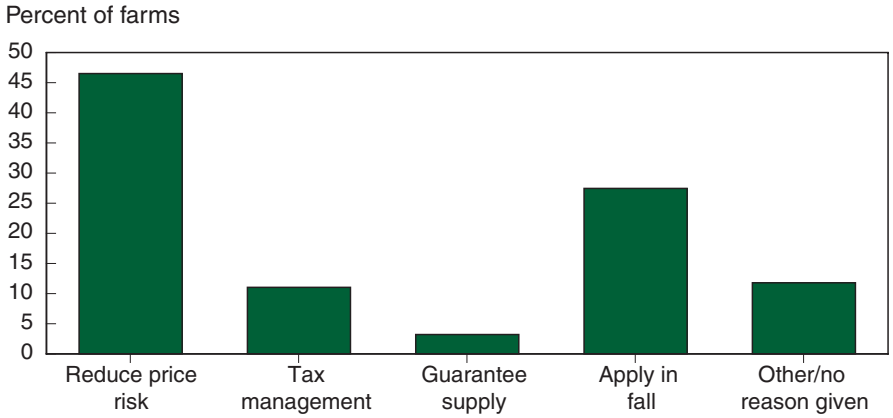
Net cash farm income earned by cash grain farmers who pre-purchased inputs for the 2003 crop year



Source: 2003 ARMS, USDA. Pre-purchasing for the 2003 crop year is defined as the purchase (i.e., locking price) of any of the input prior to 1/1/03.

Figure 40

Reported reasons cash grain farmers pre-purchased nitrogen fertilizer for the 2003 crop year

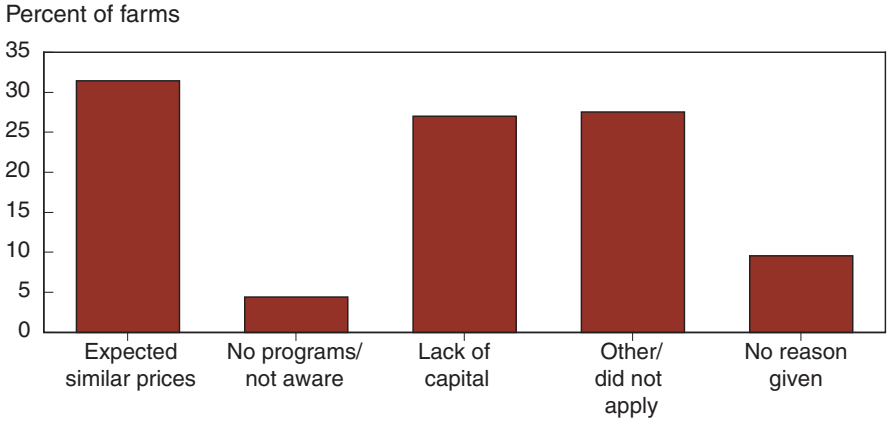


Source: 2003 ARMS, USDA. Pre-purchasing for the 2003 crop year is defined as the purchase (i.e., locking price) of any nitrogen fertilizer prior to 1/1/03.

mainly that they did not apply nitrogen fertilizers (fig. 41). Only a small percentage indicated that pre-purchasing programs were unavailable or that they were unaware of the programs. However, about 27 percent indicated a lack of capital as a constraint to pre-purchasing nitrogen fertilizer.

Figure 41

Reported reasons cash grain farmers did not pre-purchase nitrogen fertilizer for the 2003 crop year



Source: 2003 ARMS, USDA. Pre-purchasing for the 2003 crop year is defined as the purchase (i.e., locking price) of any nitrogen fertilizer prior to 1/1/03.

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