

Characteristics of Top-Performing Farms

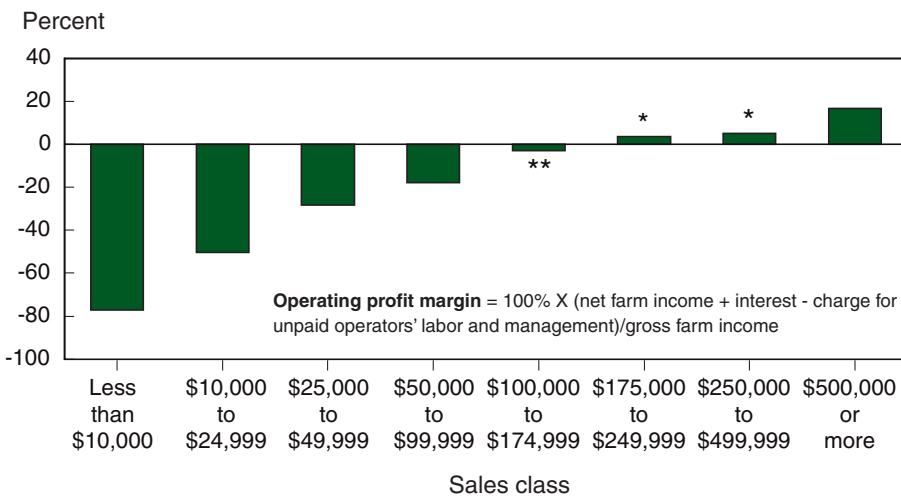
Robert A. Hoppe, Penni Korb, Robert Green, Ashok Mishra, and Carmen Sandretto

Small farms report poor financial performance on average, but some small farms appear to be viable, small-scale commercial enterprises. This chapter summarizes the financial performance of the farm typology groups, and illustrates the factors associated with top-performing farms. As one would expect, top-performing farms in most of the typology groups have higher gross income per farm and lower costs. Households operating top-performing farms appear to be more aware of the opportunity costs of their resources. They carefully limit their use of owned land and unpaid family labor.

Introduction: Measuring Financial Performance

Smaller farms usually generate lower profits than larger farms, in aggregate. For example, operating profit margins varied inversely with sales in 2001 and were negative until sales reached \$175,000 (fig. 3-1). More than two-thirds of limited-resource and residential/lifestyle farms, and nearly half of retirement and low-sales farms, had negative net cash income in 2001 (table 3-1). At the other extreme, only 13-16 percent of farms with sales of at least

Figure 3-1
Operating profit margin by sales class, 2001
Operating profit margin increases with size



* Standard error exceeds 25 percent but is no more than 50 percent of the estimate.
 ** Standard error exceeds 50 percent but is no more than 100 percent of the estimate.

Sources: Compiled by ERS from the 2001 Agricultural Resource Management Survey, Phase III.

\$100,000—high-sales small farms and large and very large family farms—had negative net cash farm income.

Furthermore, less than one-tenth of those larger farms failed to generate enough gross cash income in 2001 to cover variable expenses, a condition necessary for short-term survival as a commercial enterprise. In contrast, one-third to one-half of the smallest farms—limited-resource, retirement, residential/lifestyle, and low-sales small farms—failed to generate enough cash income to cover variable costs. The year 2001 was not particularly unusual. The same basic patterns prevailed in other recent years.

Nevertheless, some small farms perform well financially in any given year. This chapter examines the characteristics of “top-performing” farms.¹ Poorly performing farms are also examined, to see if they can continue despite their performance. Poor performance does not necessarily imply farm exit, especially for very small farms.²

Table 3-1—Measures of farm financial performance, by farm typology group, 1997 to 2001

Item	1997	1998	1999	2000	2001
	<i>Percent</i>				
Negative net cash farm income, all farms	51.9	54.3	54.1	53.8	54.3
Small family farms:					
Limited-resource	72.2	63.8	56.2	64.6	68.1
Retirement	52.0	60.4	62.7	55.1	49.3
Residential/lifestyle	67.6	67.9	68.8	70.2	72.7
Farming occupation:					
Low-sales	39.5	51.1	48.6	43.4	47.2
High-sales	18.1	18.5	13.7	20.2	15.8
Other family farms:					
Large	12.6	12.4	11.5	15.1	14.4
Very large	*13.9	8.3	10.8	12.6	12.9
Nonfamily farms	44.2	44.1	37.4	36.4	**25.4
Gross cash farm income does not cover variable costs, all farms	38.2	38.8	38.2	38.2	37.6
Small family farms:					
Limited-resource	62.6	50.8	42.1	50.3	40.6
Retirement	41.3	44.7	47.6	39.1	37.5
Residential/lifestyle	51.6	49.8	50.3	51.9	52.8
Farming occupation:					
Low-sales	23.6	36.4	31.0	30.4	31.0
High-sales	7.1	6.1	4.9	6.5	5.6
Other family farms:					
Large	5.7	4.0	4.1	*5.8	4.7
Very large	**6.8	2.8	5.0	4.3	6.1
Nonfamily farms	34.0	28.2	26.7	*22.0	**16.1

Note: The typology groups for 1997 through 2000 are defined in 2001 constant dollars. Sales were adjusted using the Producer Price Index (PPI) for farm products. Household income was adjusted by the Consumer Price Index (CPI). Farm assets were adjusted by changes in the value of farm real estate per acre.

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

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

Source: USDA, Economic Research Service, 1996, 1997, 1998 (version 1), 1999, 2000, and 2001 Agricultural Resource Management Survey, Phase III.

¹ Chapter 4 examines the performance of farm businesses based on their efficiency in using inputs to produce output. It also examines the effects of treating the farm household as a business that combines both farm output and off-farm work.

² This chapter examines successful farms in all typology groups. It expands on earlier ERS analyses that assessed limited groupings of farms, such as low- and high-sales farms (Perry and Johnson, 1999); limited-resource, low-sales, and high-sales farms (Mishra et al., 1999b); cash grain farms (Mishra et al., 1999a); or dairy farms (Mishra and Morehart, 2001).

To identify top performers, farms in the 2001 Agricultural Resource Management Survey (ARMS) were first sorted into the more homogeneous groups of the ERS farm typology.³ Farms within each group were then sorted by operator labor and management income (OLMI), and those in each group's highest quartile were designated top-performing farms. Those in the lowest quartile, the "bottom-performing" farms, formed a comparison group.

The proper measure of economic performance is subject to debate among accountants and economists (Mishra et al., 1999a; Mishra and Morehart, 2001). OLMi adjusts net farm income for implicit costs of capital and unpaid labor contributed by family members other than the operator. No charge is made for the operator's unpaid labor; it is included in OLMi as a residual return to the operator. Farm operator households bear implicit, or opportunity, costs for the use of their capital and labor because they forego paid labor returns (income) elsewhere when they contribute work to the farm and the farm foregoes a return (income) on capital used on the farm that could have been earned income in a nonfarm investment. OLMi also reflects decisions concerning choice of farm enterprises, combination of inputs, and other financial and management decisions. The success of farm businesses ultimately depends on how farm operators manage their resources.

We define OLMi as follows:

Net farm income,

Minus: Charge to unpaid labor of nonoperators

Minus: Charge to capital

Equals: OLMi.

Where:

Charge to unpaid labor = [hours of unpaid labor by partners and family members] X [wage rate]

Charge to capital = [net worth] X [return on equity].

Labor hours and net worth are reported in ARMS, but we must estimate the implicit wage rate and return on equity. We use the mean wage earned by farm labor in a State, as reported by NASS each year. The return on equity used here was 1.9 percent, the average return in agriculture estimated by ERS for the 10-year period ending in 2001.

OLMi is a fairly narrow, short-term measure. It does not include longer term benefits, such as potential capital gains from holding farmland. Nor does it include the rural lifestyle that is important to many households operating both large and small farms (see box, "Total Returns From Farming"). Although bottom-performing farms rank low when performance is measured in terms of OLMi, they still may be successful operations when performance is defined more broadly.

³ We use data from version 1 of the 2001 ARMS Phase III, because it collects the most detailed data on the farm operator, farm household, and farm business. Use of version 1 limits our sample to 5,400 farms, and limits the information that can be provided for small subsets of farms, such as limited-resource farms.

Total Returns From Farming

Returns from farming are typically defined narrowly, generally in terms of net income. Operator labor and management income (OLMI)—used in this chapter to measure financial performance—is a net income measure with adjustments for unpaid labor and for capital. There are returns to farming, however, that are not included in net income (Ahearn et al., 2004). In fact, net income is just one component of total returns. Total returns from farming include:

- **Net income from the farm business.** This can be defined in various ways, but all definitions involve subtracting expenses from gross income.
- **Capital gains.** Farming provides operators with an opportunity for capital gains from the eventual sale of farm assets, particularly farmland.
- **Opportunity to make bequests.** Farmers may plan to pass the farm on to their descendents. Like capital gains, bequests occur in the long run.
- **Tax sheltering current off-farm income.** Farm losses can be written off against off-farm income when calculating income tax. The write-off is unlimited, if the farm has the potential to be profitable and the filer is materially involved in running the farm (Freshwater and Reimer, 1995).
- **Psychological benefit (intangible satisfaction) from farming.** Farmers may get satisfaction from farming beyond the net income it provides. For example, farmers may value the rural lifestyle farming provides.

Unfortunately, no existing measures include all the components listed above.

If total returns from farming are considered, a farmer may have negative OLMI most years, but continue farming and still be economically rational. For example, a farmer may have negative OLMI, but anticipate substantial capital gains in the long run and use farm losses in the short run as a tax write-off. Or a farmer may simply enjoy living or working on a farm. Of course, the farmer in this example must have enough off-farm income to absorb any negative cash flow from the farm operation.

OLMI is probably most useful as a performance measure for farming-occupation, large, and very large farms, where getting the highest income, given available resources, is likely to be a major objective of operators and their households. For many retirement and residential/lifestyle farms some of the other factors listed above may be more important, since households operating these farms often have substantial off-farm income.

Ranking farms by OLMI to identify top and bottom performers assumes that the farm business is run independently of any decisions of the farm operator to work off-farm. This assumption is relaxed in chapter 4, when farm efficiency measures are estimated taking account of any off-farm work.

Farm Finances

Top performers use debt and capital (net worth) effectively. In general, top-performing farms tend to generate more gross income per dollar of debt and per dollar of capital (net worth) than do bottom performers (table 3-2). Mean gross cash farm income for top performers generally exceeds that of bottom performers, dramatically so among very large family farms. In addition, top performers tend to maintain lower mean values of debt and net worth than bottom performers. Very large family farms are an exception. Top performers in this group have greater debt and net worth, but because they also have much greater gross cash income, their gross income per dollar of debt or net worth is also much greater.

Table 3-2—Selected financial characteristics, by performance and farm typology group, 2001

Item	Small family farms				Large family farms	Very large family farms	
	Limited-resource	Retirement	Residential/lifestyle	Farming-occupation Low-sales High-sales			
<i>Number</i>							
Farms (or households): ¹							
Bottom-performing	*25,292	61,223	235,735	125,220	41,698	21,815	15,574
Top-performing	*23,471	53,744	234,530	125,055	41,243	21,078	15,543
<i>Dollars per farm</i>							
Gross cash farm income:							
Bottom-performing	*32,719	10,746	15,694	40,382	157,913	319,884	997,190
Top-performing	7,767	17,919	17,989	52,949	194,409	363,625	2,382,546
Farm debt: ²							
Bottom-performing	*22,677	*12,114	53,895	51,949	169,993	284,713	695,169
Top-performing	**2,331	*6,592	*17,055	*30,670	123,757	183,336	790,402
Net worth:							
Bottom-performing	97,384	684,646	456,774	911,053	930,906	1,877,071	2,725,375
Top-performing	*79,968	338,428	236,015	476,601	683,153	1,035,207	3,066,296
<i>Percent</i>							
Ratio of gross cash farm income to farm debt:							
Bottom-performing	*144.3	*88.7	29.1	77.7	92.9	112.4	143.4
Top-performing	*333.2	*271.8	105.5	*172.6	157.1	198.3	301.4
Ratio of gross cash farm income to net worth:							
Bottom-performing	**33.6	*1.6	3.4	4.4	17.0	*17.0	36.6
Top-performing	*9.7	5.3	7.6	11.1	28.5	35.1	77.7
Operating expense ratio: ³							
Bottom-performing	*107.3	150.5	180.6	127.5	100.4	103.8	104.7
Top-performing	*79.3	37.5	63.5	60.6	56.2	57.9	63.8

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

¹ Bottom-performing farms consist of the bottom 25 percent of farms in a typology group, when farms are ranked from lowest to highest by operator labor and management income (OLMI). Top-performing farms rank in the highest 25 percent of farms. The number of top- and bottom-performing farms are not equal, and each group only approximates 25 percent of all farms in a given typology group. This occurs because whole, weighted observations must be assigned to a quartile.

² Includes short-term loans (original term of 1 year or less), long-term loans (original term more than 1 year), accrued interest, and accounts payable.

³ Operating expense ratio = (total cash operating expenses/gross cash farm income) X 100 percent.

Source: USDA, Economic Research Service, 2001 Agricultural Resource Management Survey, Phase III, version 1.

Top performers also are more likely to have much lower operating expense ratios—the ratio of cash operating expenses to gross cash farm income. Bottom-performing residential/lifestyle farms, for example, use \$1.80 in operating expenses to produce each \$1.00 of gross cash income. In contrast, the top performers in most typology groups use only 60 cents of operating expenses to produce each dollar of gross cash income.

The exceptionally low operating expense ratio for top-performing retirement farms, 38 percent, reflects the large portion of gross income these farms receive from participation in the Conservation Reserve and Wetlands Reserve Programs (CRP and WRP), which require little annual expenditure. Forty-five percent of top-performing retirement farms participate in CRP or WRP, and the programs account for 28 percent of their gross cash farm income. Only 7 percent of bottom-performing retirement farms participate in CRP or WRP, and they receive only 2 percent of their gross cash farm income from the programs.

So far, income and debt have been considered separately. Financial position simultaneously considers a farm’s net farm income and debt/asset ratio. Most top-performing farms in each typology group have a favorable financial position; they have positive net farm income and a debt-to-asset ratio of no more than 40 percent (table 3-3). Over 23 percent of very large top performers, however, are classified as marginally solvent (positive net farm income and a debt/asset ratio higher than 40 percent).

The situation is different for bottom-performing farms. Between 51 and 69 percent, depending on the typology group, fall in the marginal income category, with negative net farm income but low debt/asset ratios. These farms may have low income due to events such as drought, crop or livestock disease, or market conditions. However, 18 to 25 percent of the bottom-performing farms in the residential/lifestyle, high-sales, large, and very large groups are classified as vulnerable, with negative income and debt/asset levels above 40 percent. Business survival may be more problematic for them.

Table 3-3—Financial position,¹ by performance and farm typology group, 2001

Item	Small family farms					Large family farms	Very large family farms
	Limited-resource	Retirement	Residential/lifestyle	Farming-occupation			
				Low-sales	High-sales		
<i>Percent</i>							
Bottom-performing farms:							
Favorable	d	44.3	*12.8	26.4	23.0	d	*19.3
Marginal income	d	55.7	68.9	69.2	51.1	68.8	55.0
Marginal solvency	d	d	d	d	d	d	d
Vulnerable	d	d	*17.8	d	*23.5	20.9	25.2
Top-performing farms:							
Favorable	99.4	100.0	96.1	95.2	83.9	91.7	76.7
Marginal income	d	d	d	d	d	d	d
Marginal solvency	d	d	d	d	d	d	23.3
Vulnerable	d	d	d	d	d	d	d

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

¹ The financial performance classification is based on farm income and the debt/asset ratio:

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

Source: USDA, Economic Research Service, 2001 Agricultural Resource Management Survey, Phase III, version 1.

Employment of Household Land and Labor Resources

Operators of top-performing farms limit their use of household resources, such as owned land and unpaid family labor. Operators do not pay explicit prices for using such resources, and hence may be tempted to overuse them. But land can be rented out or sold, yielding returns that are not captured when the operator farms the land. Family members can work off the farm, bringing in pay foregone when working on the farm. Our OLM measure is designed to account for the implicit costs of using land and unpaid family labor—other than the operator’s—in the farm business.

Land constitutes the bulk of farm assets, so farm debt and net worth often reflect land holdings. In general, top-performing farms use less land than bottom performers. Average acreage operated is actually less—by a statistically significant amount—for top-performing than for bottom-performing farms in the residential/lifestyle, low-sales, and large family farm groups (table 3-4). Top performers in these groups also tend to own and rent fewer acres of land.

The effective use of labor is an important determinant of farm performance. In table 3-5, we report three elements of farm employment: (1) average annual hours worked by the operator; (2) whether the spouse is also an operator, making day-to-day operating decisions; and (3) average annual hours worked on farm by the spouse, regardless of whether the spouse is an operator. Operators of bottom-performing farms report working more hours in all the small family farm groups, and the differences are statistically significant for retirement, residential/lifestyle, and low-sales farms. Also, on small farms with less than \$100,000 in sales (retirement, residential/lifestyle, and low-sales family farms), bottom-performing farms are much more likely to report that spouses also make operating decisions. Finally, in every typology group, spouses in bottom-performing farms work more hours, and the differences are substantial in most cases.

Table 3-4—Farmland, by performance and farm typology group, 2001

Item	Small family farms					Large family farms	Very large family farms
	Limited-resource	Retirement	Residential/lifestyle	Farming-occupation			
				Low-sales	High-sales		
<i>Acres per farm</i>							
Acres operated:							
Bottom-performing	*128	183	235	579	1,264	3,903	3,597
Top-performing	*102	261	136	395	1,035	1,294	2,631
Acres owned:							
Bottom-performing	*18	*160	145	420	*574	*2,279	*1,525
Top-performing	*30	299	96	248	428	503	906
Acres rented in:							
Bottom-performing	*113	*32	97	194	707	1,754	2,104
Top-performing	*78	*14	51	*180	622	812	1,754

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

Source: USDA, Economic Research Service, 2001 Agricultural Resource Management Survey, Phase III, version 1.

Table 3-5—Farm work performed by farm operators and their spouses, by performance and typology group, 2001

Item	Small family farms				Large family farms	Very large family farms
	Limited-resource	Retirement	Residential/lifestyle	Farming-occupation Low-sales High-sales		
<i>Hours per year</i>						
Hours worked on farm by operator:						
Bottom-performing	*1,894	1,036	1,242	2,384	2,853	2,891
Top-performing	*638	472	607	1,893	2,709	2,751
<i>Percent of spouses</i>						
Spouse is also an operator: ¹						
Bottom-performing	d	45.6	61.6	66.6	43.7	44.6
Top-performing	d	*23.8	34.9	42.8	48.5	41.5
<i>Hours per year</i>						
Hours worked on farm by spouse:						
Bottom-performing	d	281	565	982	987	850
Top-performing	d	*61	90	238	529	579

d = Data suppressed due to insufficient observations.

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

¹ Responded yes to the question, "Does your spouse (the operator's) also make day-to-day decisions for this farm/ranch?"

Source: USDA, Economic Research Service, 2001 Agricultural Resource Management Survey, Phase III, version 1.

Bottom-performing farms may have suffered unexpected setbacks from weather, disease, or accidents that led to reduced sales as well as increased family labor commitments to the farm. But in general, top performers seem to better manage the use of land and household labor resources. They perform well, in part, because they do not commit their labor and land to activities that provide low returns. On the other hand, some households operating bottom-performing farms may devote more of their resources to farming because they lack viable alternatives.

Organizing the Farm Business

Farmers make several fundamental long-term decisions when designing a business strategy. They choose which products to produce. They also choose a business organization—sole proprietorship, partnership, or corporation—for the farm. Finally, they choose arrangements for selling the farm's products.

Commodity choices appear to be connected to performance in some typology groups (table 3-6). Bottom performers in the retirement, residential/lifestyle, and low-sales farms groups are substantially more likely than top performers to specialize in livestock, largely beef and other livestock (including horses), perhaps in part because their land is less suited for crop production. In addition, beef cattle (particularly cow-calf operations) often require little labor (Cash, 2002) and are compatible with off-farm work and retirement. Among very large family farms, bottom performers are also more likely to specialize in livestock, while top-performing farms frequently specialize in high-value crops (vegetables, fruits and nuts, and nursery and greenhouse crops) and dairy.

Table 3-6—Commodity specialization, by performance and farm typology group, 2001

Item	Small family farms					Large family farms	Very large family farms
	Limited-resource	Retirement	Residential/lifestyle	Farming-occupation			
				Low-sales	High-sales		
<i>Percent</i>							
Specialization, bottom-performing farms: ¹							
Crops	d	41.6	25.9	39.1	58.7	56.6	44.2
Cash grains ²	d	d	10.2	19.0	*21.8	44.4	18.2
Other field crops ³	d	d	13.3	11.3	d	d	10.2
High-value crops ⁴	d	d	d	*8.8	d	d	15.8
Livestock	d	58.4	74.1	60.9	41.3	43.4	55.8
Beef	d	39.3	36.0	43.3	*13.7	18.4	20.7
Dairy	d	d	d	d	20.3	d	*9.2
Poultry	d	d	d	d	d	d	11.7
Other livestock ⁵	d	d	36.1	na	d	d	d
Specialization, top-performing farms: ¹							
Crops	d	59.4	48.9	57.2	51.4	67.4	58.5
Cash grains ²	d	d	*10.8	23.6	*25.1	*30.0	*18.5
Other field crops ³	d	52.7	*31.1	20.4	*17.6	22.9	10.3
High-value crops ⁴	d	d	*7.0	13.2	d	d	29.6
Livestock	d	40.6	51.1	42.8	48.6	*32.6	41.5
Beef	d	32.2	24.4	33.7	*22.3	d	d
Dairy	d	d	d	d	d	d	19.0
Poultry	d	d	d	d	d	d	d
Other livestock ⁵	d	d	d	d	d	d	d

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

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

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

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

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

⁴ Vegetables, fruits and tree nuts, and nursery & greenhouse.

⁵ Includes sheep, goats, horses, mules, ponies, fur-bearing animals, bees, fish, and any other livestock. Also includes farms where no single livestock species accounts for the majority of production.

Source: USDA, Economic Research Service, 2001 Agricultural Resource Management Survey, Phase III, version 1.

Choice of business organization does not seem to be highly associated with performance within a typology group. The share of farms in each group organized as a partnership or corporation grows significantly with farm size across the typology (table 3-7). But within each group, similar shares of top and bottom performers are organized as partnerships or corporations, with the exception of very large farms, where top performers are more likely to be partnerships or corporations. Top performers among very large farms are much larger, measured in gross cash income, than bottom performers (table 3-2), and the difference in organization likely reflects this.

Contract use is strongly associated with farm size, and farms in the limited-resource, retirement, and residential/lifestyle groups rarely use contracts, regardless of performance. Among very large farms, bottom performers are more likely to use contracts, particularly production contracts. In the remaining groups (farming-occupation small farms and large family farms), top performers are more likely to use contracts (table 3-7). The difference

Table 3-7—Business organization and type of sales, by performance and farm typology group, 2001

Item	Small family farms					Large family farms	Very large family farms
	Limited-resource	Retirement	Residential/lifestyle	Farming-occupation			
				Low-sales	High-sales		
<i>Percent</i>							
Farms organized as partnerships or family corporations:							
Bottom performers	d	*5.7	6.0	*7.4	*17.8	26.5	36.2
Top performers	d	**0.5	*3.6	*8.9	*17.7	24.4	54.8
Farms by type of sales, bottom performers:							
Cash sales only	97.7	96.6	97.5	91.9	74.6	68.9	44.8
Contracts (with or without cash sales) ¹	d	d	*2.5	8.1	25.4	31.1	55.2
Production contracts	d	d	d	*0.8	**6.0	13.8	25.1
Marketing contracts	d	d	d	7.4	21.3	19.3	34.5
Farms by type of sales, top performers:							
Cash sales only	96.3	92.8	94.3	84.4	66.8	43.9	53.9
Contracts (with or without cash sales) ¹	d	*7.2	*5.7	15.6	33.2	56.1	46.1
Production contracts	d	d	d	**0.8	d	*10.7	*5.8
Marketing contracts	d	d	d	15.3	d	47.9	41.9

d = Data suppressed due to insufficient observations.

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

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

¹ The categories "production contracts" and "marketing contracts" are not mutually exclusive. Farms may have both types of contracts.

Source: USDA, Economic Research Service, 2001 Agricultural Resource Management Survey, Phase III, version 1.

between top and bottom performers in these remaining groups is strongly statistically significant only for large farms, particularly in the case of marketing contracts. Differences between top- and bottom-performing farms may reflect differing commodity orientations of the performance groups, particularly for very large farms.

Operator Household Income

The level and sources of household income (see Appendix II, "Measuring Farm Operator Household Income") vary widely across typology groups and between top and bottom performers within a given typology group (table 3-8). Regardless of farm size, however, farm earnings make a positive contribution to average household income for top performers. Depending on the typology group, between 59 and 99 percent of top-performing households have positive household income, with a positive contribution from farming. In contrast, average farm earnings are negative for bottom performers, as one would expect.

The contribution of farm earnings is particularly large for households operating high-sales farms, large family farms, and very large family farms. Mean household income for top performers in each of these groups far exceeds that of bottom performers, and farm earnings account for most of household income. Bottom performers in each category have large losses from farming, and those losses far exceed off-farm income for the two largest farm groupings.

Table 3-8—Operator household income, by performance and farm typology group, 2001

Item	Small family farms					Large family farms	Very large family farms
	Limited-resource	Retirement	Residential/lifestyle	Farming-occupation			
				Low-sales	High-sales		
<i>Dollars per household</i>							
Mean household income:							
Bottom-performing	*5,686	*53,503	99,936	28,498	**9,918	d	*-90,256
Top-performing	8,196	52,476	73,549	48,452	101,287	148,584	683,458
Farm earnings:							
Bottom-performing	*-7,607	-9,201	-17,780	-21,474	*-18,304	-58,931	*-130,222
Top-performing	d	9,308	*4,536	15,631	69,762	121,098	651,325
Off-farm income:							
Bottom-performing	*13,294	*62,704	117,716	49,972	28,222	49,085	39,966
Top-performing	*7,620	43,168	69,013	32,821	31,525	27,485	32,133
<i>Percent</i>							
Share of off-farm income from earned sources: ¹							
Bottom-performing	71.2	*17.7	89.3	45.9	71.4	53.1	58.3
Top-performing	**58.6	*11.2	89.3	44.0	65.7	54.7	59.5
Dependence category:							
Positive household income, loss from farming:							
Bottom-performing	d	84.7	89.2	56.9	*19.7	23.9	12.5
Top-performing	d	d	*40.3	16.8	d	d	d
Positive household income, gain from farming:							
Bottom-performing	d	d	*9.0	18.0	*38.9	28.2	30.7
Top-performing	d	83.5	59.3	78.3	94.5	99.1	97.5
Negative household income:							
Bottom-performing	d	d	d	25.1	41.4	48.0	56.7
Top-performing	d	d	d	d	d	d	d

d = Data suppressed (insufficient observations); * = Standard error is 25 to 50 percent of the estimate; ** = Standard error is 51 to 75 percent of the estimate.

¹ Earned income comes from off-farm self-employment or wage and salary jobs. Unearned income includes interest and dividends, benefits from Social Security and other public programs, alimony annuities, net income of estates or trusts, and private pensions.

Source: USDA, Economic Research Service, 2001 Agricultural Resource Management Survey, Phase III, version 1.

Nevertheless, bottom performers' losses from farming do not necessarily result in low household income. Bottom-performing residential/lifestyle farms lose an average of \$17,800, about as much as bottom performers in the low- or high-sales groups (table 3-8). Yet, bottom performers' off-farm income in the residential/lifestyle group exceeds that of top performers by \$48,700. High off-farm income—largely from earned sources—more than compensates for their farm losses.

Households operating bottom-performing retirement farms are another case where farm losses do not translate into low household income. Because of their off-farm income—largely from unearned sources—bottom performers in the retirement group receive a mean household income about the same as that of top performers. The ability to write off farm losses against other income when paying taxes (Freshwater and Reimer, 1995) may be particu-

larly useful to households operating bottom-performing retirement and residential/lifestyle farms.

Operator Characteristics: Age and Education

Few differences in age or education exist between operators of top- and bottom-performing farms (table 3-9). Top-performing operators of very large farms, however, tend to be younger than their bottom-performing counterparts. Average age for top performers in the group is 48 years, versus 51 years for bottom performers, and a larger share of top performers is younger than 55. Top performers also average 7 years less in experience as a farm operator.

Table 3-9—Age and educational characteristics of operators, by performance and farm typology group, 2001

Item	Small family farms					Large family farms	Very large family farms
	Limited-resource	Retirement	Residential/lifestyle	Farming-occupation			
				Low-sales	High-sales		
<i>Years</i>							
Average age of operator:							
Bottom-performing	41	69	50	60	52	52	51
Top-performing	50	71	51	59	49	50	48
Average experience as operator:							
Bottom-performing	*12	32	17	30	23	26	29
Top-performing	*30	35	18	30	23	27	22
<i>Percent</i>							
Age of operator, bottom-performing farms:							
Younger than 45 years	d	d	32.6	13.6	18.7	*25.6	31.4
45 to 54 years	d	d	40.7	22.5	36.9	36.2	36.3
55 to 64 years	d	d	18.9	25.3	*32.7	20.8	22.0
65 years or more	d	74.3	d	38.6	11.7	17.4	10.3
Age of operator, top-performing farms:							
Younger than 45 years	d	d	*22.5	20.3	40.9	36.1	37.9
45 to 54 years	d	d	*43.0	19.2	21.3	29.1	41.6
55 to 64 years	d	d	26.6	19.2	27.8	*23.9	13.8
65 years or more	d	77.1	d	41.4	d	d	6.7
Education of operator, bottom-performing farms:							
Some high school or less	d	d	d	21.8	d	d	d
Completed high school	d	41.0	27.8	39.5	42.6	41.2	36.1
Some college	d	d	35.5	20.9	24.2	32.2	31.2
Completed college	d	d	29.9	17.8	*17.1	26.3	26.6
Education of operator, top-performing farms:							
Some high school or less	d	d	d	22.3	d	d	d
Completed high school	d	36.0	54.2	38.1	40.7	55.1	23.0
Some college	d	d	*17.9	23.4	22.0	*25.7	41.2
Completed college	d	d	*20.3	16.2	21.0	16.1	30.0

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

Source: USDA, Economic Research Service, 2001 Agricultural Resource Management Survey, Phase III, version 1.

Top performers operating very large farms tend to have higher educational achievement. Seventy-one percent of top performers have at least some college—with or without a degree—compared with only 58 percent of bottom performers. Formal education does not seem to be as closely associated with performance for the other commercial-sized farms: large family farms and high-sales small farms. In addition, only 38 percent of the operators of top-performing residential/lifestyle farms have college exposure, compared with 65 percent of bottom-performing operators. The higher educational levels of bottom performers in this group may contribute to their higher off-farm income.

Performance and Business Survival

Do poorly performing farms stay in business? We use data from the Census of Agriculture 1978-97 Longitudinal File (see Appendix I, “Sources of Data”) to answer this question. The longitudinal file merges data from separate censuses, and allows us to follow individual farms over a 20-year period.

Each census of agriculture collects detailed information, including production expenses, from a sample of farms, in addition to the government payments and sales data collected from all farms. Thus, it is possible to calculate a crude net farm income estimate (gross sales + government payments – production expenses) for a sample of farms each census year. Some farms—by chance—are in the detailed sample in consecutive censuses, so the longitudinal file can be used to trace some farms with 1997 losses back to the 1987 census, when detailed expense data and information about government payments were first collected.

About 35,200 farms with a loss in 1997 are also in the sample in both 1992 and 1987. We trace their experience in figure 3-2, which shows information for all these farms, those with 1997 sales below \$10,000, and those with sales above \$10,000. For each category, the figure shows the share of farms with losses in 1992, 1987, and both years.

Over 47 percent of sample farms with losses in 1997 also reported losses in a previous census year. Persistence of losses, however, varies significantly with farm size. Among very small farms (less than \$10,000 in sales), 68 percent recorded losses in at least one previous census, and 33 percent recorded losses in both 1992 and 1987. In contrast, only 8 percent of farms with sales of \$10,000 or more lost money in both previous years, and almost 62 percent did not record a loss in 1992 or 1987.

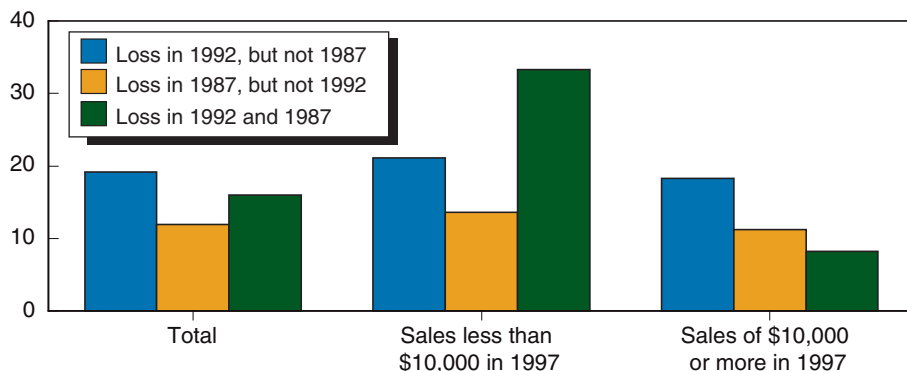
Many very small farms lose money, and they lose money persistently, with farm activities financed from off-farm income. Farmers may decide to continue farming, despite losses, because they value returns from farming other than net income (see box, “Total Returns From Farming,” p. 34). For example, operators of limited-resource, retirement, and residential/lifestyle farms report that a rural lifestyle is more important than the farm providing an adequate household income without off-farm work (fig. 3-3). In contrast, operators in the remaining typology groups tend to rank these goals more equally.

Figure 3-2

Farms with a loss in 1997 that existed in 1987, by sales class and loss in 1992 and 1987

Farms can persist, despite a history of losses

Percent of farms reporting loss in 1997



Note: Based on farms that were drawn for sample data collection in 1997, 1992, and 1987.

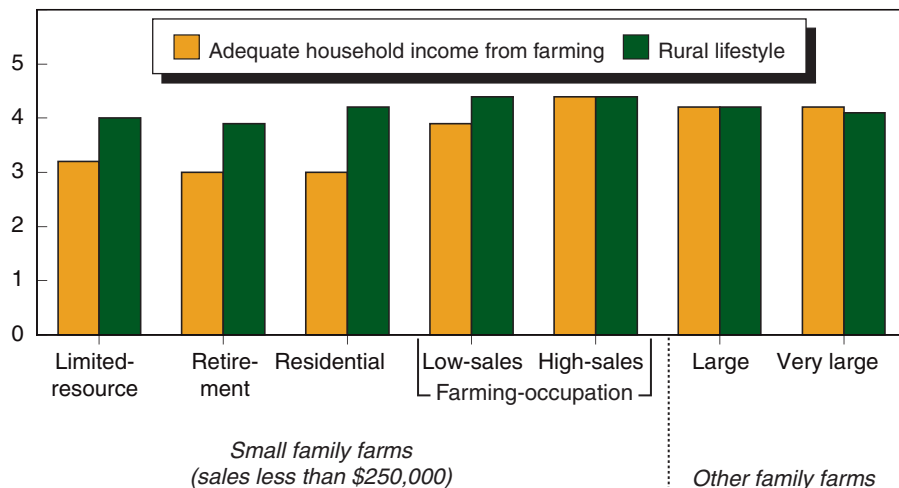
Sources: USDA, National Agricultural Statistics Service, Census of Agriculture Longitudinal File.

Figure 3-3

Mean scores for selected goals by typology group, 2000

All farmers value a rural lifestyle, but an adequate income from farming is most important to those operating farms with sales greater than \$100,000

Mean score



Note: 1 = Very unimportant
 2 = Unimportant
 3 = Neutral
 4 = Important
 5 = Very important

Source: USDA, Economic Research Service, 2000 Agricultural Resource Management Survey, Phase III, version 1.

Summary and Conclusions

Operator characteristics, business organization, and contracting do not seem to be strongly related to performance in most typology groups. Still, operators of top-performing very large farms are younger and have more formal education than bottom performers in that group, and their farms are more likely to be partnerships or family corporations. These differences, however, are most likely related to the exceptionally large size—measured in gross cash income—of top-performing farms in the very large group. Similarly, the relationship between performance and contracting is not clear. Top performers in the very large group are less likely to have contracts (especially production contracts), while top performers in the large group are more likely to have contracts (especially marketing contracts).

For other characteristics, there are significant differences between top and bottom performers. For example, top performers in four typology groups (retirement, low-sales, large, and very large) are more likely to specialize in crops, although top performers in the very large group often specialize in dairy. Top-performing farms in most of the typology groups have higher gross income per farm and control their costs better, as reflected in the lower average operating expense ratio for these farms. This is not a particularly new finding. For example, Warren and Burritt, in a 1909 study based on a survey of 178 New York farms (cited in Bergen et al., 1990), found that the more profitable farms had higher revenue and better controlled their cash expenses. There are few other consistent, systematic differences between the two performance groups that explain the success of top performers.

In most of the typology groups, however, top performers report lower debt and/or net worth, on average, and use less unpaid labor. Lower debt contributes to the higher share of top performers with a favorable financial position in each group. Lower net worth also contributes to the higher operator labor and management income (OLMI) of top performers, since a deduction is made for the opportunity cost of capital in the calculation of OLMIs and it helps explain why top-performing farms frequently own (and operate) less land than bottom performers. The charge for unpaid household labor may explain why the spouse works less on the farm on top-performing farms. Households operating top-performing farms apparently are more aware of the opportunity costs of their capital and labor.

Top-performing farm households are more likely than bottom-performing households to have a positive household income, with a positive contribution from farming. This does not mean, however, that off-farm income is inconsequential to households operating top-performing farms. Even households operating top-performing large and very large family farms receive around \$30,000, on average, from off-farm sources. For top-performing households in the retirement, residential/lifestyle, and low-sales groups, average off-farm income exceeds farm earnings by a substantial margin. Farms in these typology groups, even if run effectively, are generally too small to generate enough income to support a household comfortably.

In most typology groups, top performers' total household income exceeds that of the corresponding bottom-performing groups. This is not the case,

however, for the retirement and residential/lifestyle groups. In these groups, bottom performers use off-farm income to finance losses from farm operations. The U.S. tax code allows farmers to write off farm losses against other income. There is no limit to the writeoff, as long as the farm has the potential to be profitable and the filer is materially involved in running the farm (Freshwater and Reimer, 1995).

Top-performing farms are likely to continue in business, for they covered operating expenses and contributed to the operator household's income. A direct connection between poor farm performance in 2001 and farms going out of business is more difficult to establish. At least some of the bottom-performing farms may have simply had a poor year in 2001. If their farm income improves in later years, they are likely to continue in business.

In addition, some small farms—particularly in the retirement and residential/lifestyle groups—could be bottom performers for years and still continue in business. Households operating these farms may be willing to absorb losses to meet goals other than a profitable farm, such as eventual capital gains, the ability to pass the farm on to descendants, sheltering off-farm income from taxes, and a rural lifestyle. Although small farms are more likely to leave farming (Hoppe and Korb, 2001), many continue in business as long as the operator households have other sources of income, farm losses are not unduly large, and favorable tax treatment of farm losses continues.