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Characteristics of Large-Scale Farms, 1987

Donn A. Reimund and Judith Z. Kalbacher

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Characteristics of Large-Scale Farms, 1987. By Donn A. Reimund and Judith Z. Kalbacher, Agriculture and Rural Economy Division, Economic Research Service, U.S. Department of Agriculture. Agriculture Information Bulletin No. 668.

Abstract

The total number of farms in the United States declined during 1982-87, continuing a long-term trend toward fewer farms. Large-scale farms (farms with annual product sales of \$500,000 or more) increased during the period, both in absolute numbers and as a percentage of all farms. Although only a small fraction of all farms, large-scale farms increased their share of land in farms from 10.5 percent in 1982 to 13.0 percent in 1987 and their share of farm product sales from 32.4 percent to 38.2 percent. This report uses 1987 (the most recent data available) and earlier Census of Agriculture data to summarize the major structural and financial characteristics of large-scale farms. The report looks at how these farms are organized and their resource base and financial situation in relation to farms in general.

Keywords: Large-scale farms, regional characteristics, commodities produced, production expenses, government payments, financial performance, organizational characteristics, operator characteristics.

Note: Numbers within and among tables may not add exactly to column totals due to rounding.

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Summary

The total number of farms in the United States declined during 1982-87, continuing a long-term trend toward fewer farms. Large-scale farms (farms with annual product sales of \$500,000 or more) increased during the period, both in absolute numbers and as a percentage of all farms. Although only a small fraction of all farms, large-scale farms increased their share of land in farms from 10.5 percent in 1982 to 13.0 percent in 1987 and their share of farm product sales from 32.4 percent to 38.2 percent.

This report uses 1987 (the most recent data available) and earlier Census of Agriculture data to summarize the major structural and financial characteristics of large-scale farms. The report looks at how these farms are organized and their resource base and financial situation in relation to farms in general.

The authors do not expect major changes in the structural characteristics of large-scale farms since 1987 because such changes generally occur over a relatively long period of time. However, the farm financial situation is sensitive to contemporary economic and policy shifts. Data from the 1992 Census, available in late 1993, will permit a reexamining of large-scale farms. The data indicate these general findings:

- The 32,023 large-scale farms enumerated in the 1987 Census of Agriculture accounted for only 1.5 percent of all farms, but they controlled 13 percent of all farmland and generated 38 percent of all product sales.
- Land operated by large-scale farms averaged 3,921 acres in 1987, compared with 462 acres for all farms.
- Large-scale farms produced an average of \$1.6 million worth of farm products during the year; the average for all farms was \$65,165. Large-scale farms also generated considerably higher value of output per acre than did all farms. Product sales averaged \$414 per acre for large-scale farms, compared with only \$141 per acre for all farms.
- Large-scale farms are located in all regions of the country, but are found in the largest numbers in the Pacific, West North Central, and South Atlantic States.
- The largest farms, measured by both sales per farm and acres per farm, are in the Western States.
- Eighty-eight percent of the sales from large-scale farms with sales of \$5 million or more came from cattle, poultry, nursery and greenhouse products, fruits, and vegetables. These commodity groups made up 67 percent of the sales from the \$1,000,000-\$4,999,999 sales class, 54 percent of the sales from the \$500,000-\$999,999 sales class, but just 49 percent of the sales from all farms. This more intensive enterprise mix accounts for a major part of the large-scale farms' higher land productivity.

- Large-scale farms accounted for 39 percent of all farm production expenses reported in the 1987 Census, which is in line with their 38-percent share of farm product sales.
- Large-scale farms received only 9 percent of total direct government payments to farmers in 1987, but individual large-scale farms reporting government payments usually received payments substantially greater than the average paid to all farmers reporting government payments (\$62,587 for large-scale farms, compared with \$13,800 for all farms).
- Large-scale farms accounted for 13 percent of the value of farm real estate and 10 percent of the value of machinery and equipment on farms in 1987.
- About 35 percent of the total net cash returns from the sale of farm commodities accrued to large-scale farms. Per farm net cash returns averaged nearly \$300,000 for large-scale farms, compared with only \$13,000 for all farms.
- Most large-scale farms operate under multiperson forms of business organization (partnership and corporation), whereas most U.S. farms are organized as sole proprietorships.
- Only about 20 percent of large-scale farm operators reported any off-farm work in 1987, and just 9 percent worked off-farm 200 or more days. The comparable figures for all farmers were much higher: 53 percent with off-farm work and 35 percent with off-farm work of 200 or more days.

Characteristics of Large-Scale Farms, 1987

Donn A. Reimund and Judith Z. Kalbacher

Introduction

The total number of farms in the United States declined during 1982-87, continuing a long-term trend toward fewer farms. Large-scale farms (farms with annual product sales of \$500,000 or more) increased during the period, both in absolute numbers and as a percentage of all farms. Although only a small fraction of all farms, large-scale farms increased their share of land in farms from 10.5 percent in 1982 to 13.0 percent in 1987 and their share of farm product sales from 32.4 percent to 38.2 percent.

The growth in the number of large-scale farms in the 1980's was a continuation of their 1970's growth trend. However, the underlying economic conditions of the 1970's and the 1980's were substantially different. The 1974-82 period was generally an expansionary period for U.S. agriculture, marked by a growing export market for U.S. farm products, rising farm product prices, and increasing land values. The 1982-87 period was one of contraction for U.S. agriculture, with declining land values, leading to financial stress for much of the farm sector. Although this change in the economic environment may have slowed the growth rate for large-scale farms, their numbers continued to increase while the total farm count dropped.

This report uses 1987 and earlier Census of Agriculture data to summarize the major structural and financial characteristics of large-scale farms at the end of the 1980's. The report looks at how these farms are organized and their resource base and financial situation in relation to farms in general.

Recent Trends

More than 32,000 farms nationwide sold farm products worth \$500,000 or more during the 1987 production year, according to the most recent agricultural census data. While these large-scale

farms accounted for only 1.5 percent of all farms in that year, they controlled 13 percent of all farmland and generated 38 percent of all product sales (table 1). Large-scale farms consistently increased their share of farms, farmland, and sales through the 1970's and 1980's (fig. 1). In 1974, they made up 0.5 percent of farms, operated 5.3 percent of farmland, and generated 22.5 percent of farm product sales.

Farms with sales of \$500,000 or more were first identified as a separate group in the 1969 Census. They numbered only 4,079 at that time. The number of large-scale farms has increased in each census since then; the 1987 number is eight times that in 1969. However, growth has recently slowed. Between 1969 and 1982, the number annually increased by about 16 percent, compared with an average annual growth rate of only about 3 percent between 1982 and 1987.

Although the growth rate for large-scale farms has slowed, the number of large-scale farms continues to increase while the overall farm count continues its long-term decline. Even after adjustment for the effects of inflation on the distribution of farms by sales class, the number of large-scale farms has doubled since 1974 (based on constant 1982 dollars).¹

Regional Characteristics

Large-scale farms are located in all regions, but are found in the largest numbers in the Pacific, West North Central, and South Atlantic States (table 2). States in these regions together accounted for over

¹The farm sales class distribution was adjusted for inflation by adjusting the value of products sold for each farm in 1974, 1978, and 1987 Censuses of Agriculture to the 1982 price level, using the index of prices received by farmers. Farms for each census year were then regrouped into sales classes according to the 1982 constant dollar value of products sold.

Table 1--All farms and large-scale farms: Number, land in farms, and farm product sales

Although few in number, large-scale farms accounted for a substantial share of agricultural resources and output

Item	Unit	1987	1982
All farms	<i>Number</i>	2,087,759	2,240,976
Land in farms	<i>1,000 acres</i>	964,471	986,797
Farm sales	<i>Million dollars</i>	136,049	131,900
Large-scale farms ¹	<i>Number</i>	32,023	27,800
Land in farms	<i>1,000 acres</i>	125,552	103,590
Farm sales	<i>Million dollars</i>	51,952	42,764
Large-scale farms as share of:			
All farms	<i>Percent</i>	1.5	1.2
Land in farms	<i>do.</i>	13.0	10.5
Farm sales	<i>do.</i>	38.2	32.4

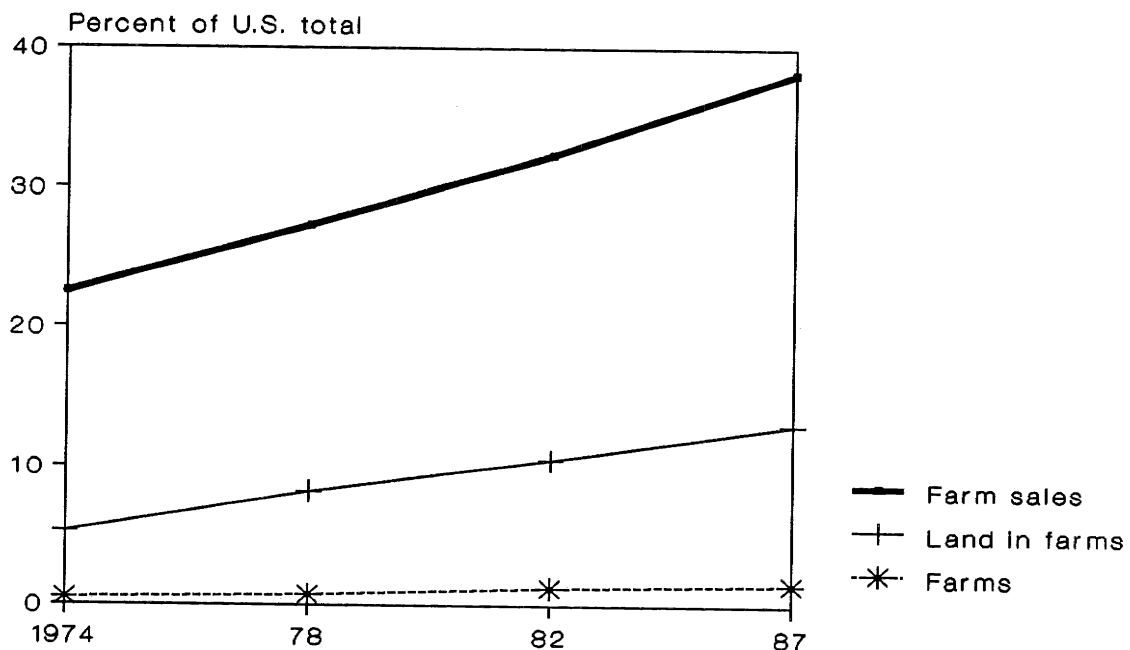
¹Large-scale farms are farms with annual sales of \$500,000 or more.

Source: 1982 and 1987 Censuses of Agriculture.

Figure 1

Large-scale farms: Share of all farms, land in farms, and farm product sales

Large-scale farms continued to increase their share of land in farms and farm sales through the 1980's



Source: 1987 and earlier Censuses of Agriculture.

Table 2--Regional distribution of large-scale farms and percentage of all farms within each region, 1987

Large-scale farms comprised a larger share of farms in the West than in other parts of the country

Region	Large-scale farms			All farms
	Sales of \$500,000- \$999,999	Sales of \$1,000,000 or more	Total	
	<i>Number</i>			
United States	20,930	11,093	32,023	2,087,759
Northeast	1,194	594	1,788	123,482
New England	243	138	381	25,158
Middle Atlantic	951	456	1,407	98,324
Midwest	6,788	2,772	9,560	861,982
East North Central	2,734	917	3,651	364,872
West North Central	4,054	1,855	5,909	497,110
South	7,250	3,187	10,437	823,851
South Atlantic	3,187	1,575	4,762	239,687
East South Central	1,328	451	1,779	249,556
West South Central	2,735	1,161	3,896	334,608
West	5,698	4,540	10,238	278,444
Mountain	1,763	1,149	2,912	124,210
Pacific	3,935	3,391	7,326	154,234
	<i>Percent of each region's total</i>			
United States	1.00	.53	1.53	100.00
Northeast	.97	.48	1.45	100.00
New England	.97	.55	1.51	100.00
Middle Atlantic	.97	.46	1.43	100.00
Midwest	.79	.32	1.11	100.00
East North Central	.75	.25	1.00	100.00
West North Central	.82	.37	1.19	100.00
South	.88	.39	1.27	100.00
South Atlantic	1.33	.66	1.99	100.00
East South Central	.53	.18	.71	100.00
West South Central	.82	.35	1.16	100.00
West	2.05	1.63	3.68	100.00
Mountain	1.42	.93	2.34	100.00
Pacific	2.55	2.20	4.75	100.00

Source: 1987 Census of Agriculture.

half of all large-scale farms in 1987 (see appendix tables for a listing of States included in each region). The Pacific region has the largest share of farms with sales of \$1 million or more, but the West North Central has slightly more with sales under \$1 million (fig. 2).

Sixty-five percent of all large-scale farms had annual product sales under \$1 million in 1987. The share of large-scale farms with less than \$1 million in sales varied by region, ranging from a high of 75 percent in the East North Central and East South Central States to a low of 54 percent in the Pacific States.

Large-scale farms operated 13 percent of all U.S. farmland in 1987, up slightly from 10.5 percent in 1982 (table 3 and fig. 1). The Mountain States had the largest total acreage in large-scale farms of all the regions, but the Pacific States had a slightly higher proportion of farmland in large-scale farms. The Mountain and Pacific regions combined accounted for over 50 percent of the total land operated by large-scale farms, but for slightly less than 33 percent of land operated by all farms.

Large-scale farms accounted for 38 percent of the total value of farm products sold in 1987, up slightly from 32 percent in 1982 (table 4 and fig. 1). The Pacific region had the largest regional value of sales and the largest regional proportion of sales from large-scale farms. The regional proportion of sales from large-scale farms ranged from about 68 percent in the Pacific States to 18 percent in the East North Central States. The regions with the largest proportion of sales from large-scale farms also had the highest levels of sales concentration (see explanation in appendix). The fewest number of farms accounting for 10 percent and 25 percent of sales are shown for each State in appendix tables 1 and 2.

The average size of large-scale farms was 3,921 acres in 1987 (fig. 3). The average farm size was 462 acres for all farms. The largest farms were in the western regions. Large-scale farms averaged 18,277 acres in the Mountain region and 6,330 in the West South Central region, compared with averages for all farms in these regions of only 1,965 acres and 551 acres. In contrast, large-scale farms in the Middle Atlantic States averaged 650 acres and those in New England 704 acres. The all-farm average for the Middle Atlantic States was 175 acres and for New England 169 acres.

Large-scale farms averaged about \$1.6 million worth of farm product sales in 1987. The West South Central region, at just over \$2 million, generated the largest per farm sales, followed closely by the Mountain States at just under \$2 million per farm. Average sales for large-scale farms were lowest in the East North Central (about \$1.1 million), East South Central (\$1.1 million), and Middle Atlantic (\$1.2 million) regions.

Commodities Produced

Large-scale farms generated a considerably higher value of output per acre than did smaller scale farms. In 1987, farm product sales averaged \$414 per acre for large-scale farms, compared with only \$141 per acre for all farms. A major reason for this difference can be found by comparing the enterprise mix of large-scale farms with that of all farms. Large-scale farms had proportionately more sales from intensive enterprises, such as fed cattle, poultry, nursery and greenhouse crops, and high-value field crops, and less from grains and oilseeds, low-value field crops, and dairy products (table 5). These differences, relatively small for the lowest large-scale sales class, were more pronounced in higher large-scale sales classes.

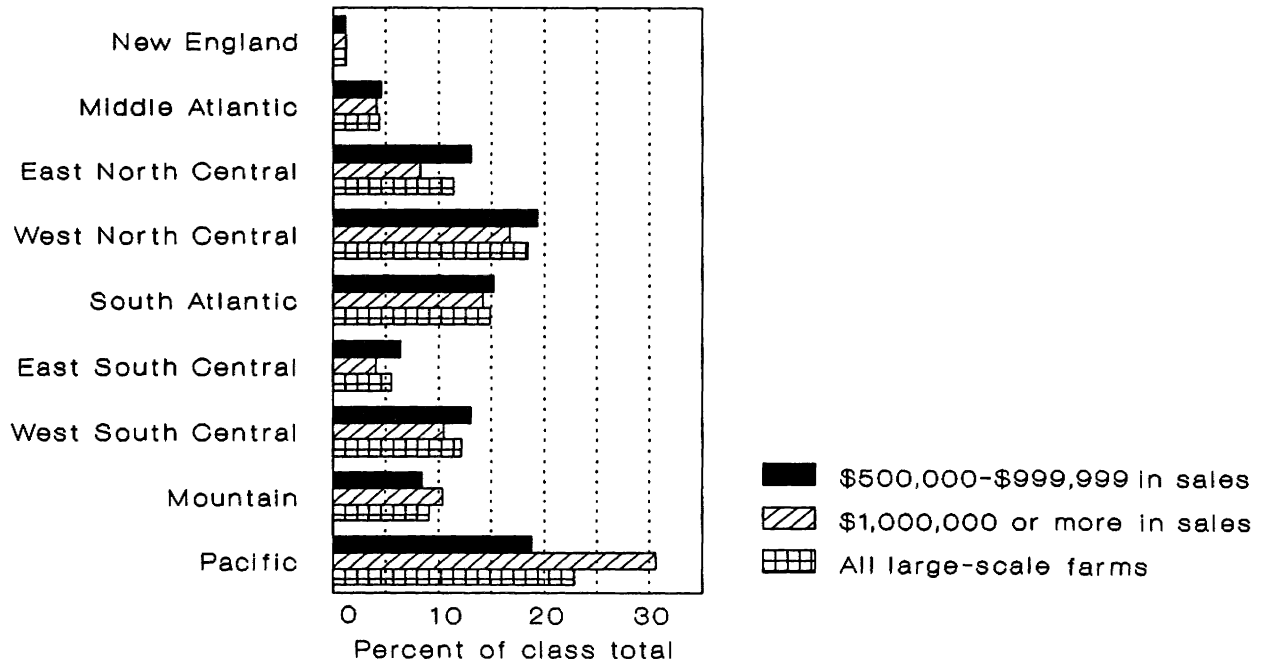
Eighty-eight percent of the sales from farms with sales of \$5 million or more in 1987 came from cattle, poultry, nursery and greenhouse products, fruits, and vegetables. These commodity groups made up 67 percent of the sales from the \$1,000,000-\$4,999,999 sales class, 54 percent of the sales from the smallest large-scale farms, but just 49 percent of the sales from all farms. This more intensive enterprise mix accounted for a major part of the large-scale farms' higher land productivity.

The relative importance of large-scale farms by commodity can be evaluated from the proportion of value of sales for each commodity that comes from large-scale farms. Large-scale farms dominated the sales of several commodity groups: vegetables, fruits, nursery and greenhouse products, other crops, poultry and poultry products, cattle and calves, and other livestock (table 6). Most of the commodities in which large-scale farms accounted for a major portion of the value of output were high-value commodities requiring intensive use of land and other resources.

Figure 2

Regional distribution of large-scale farms by size class, 1987

The Pacific region had the largest share of farms with sales of \$1 million or more, but the West North Central had the most with sales under \$1 million

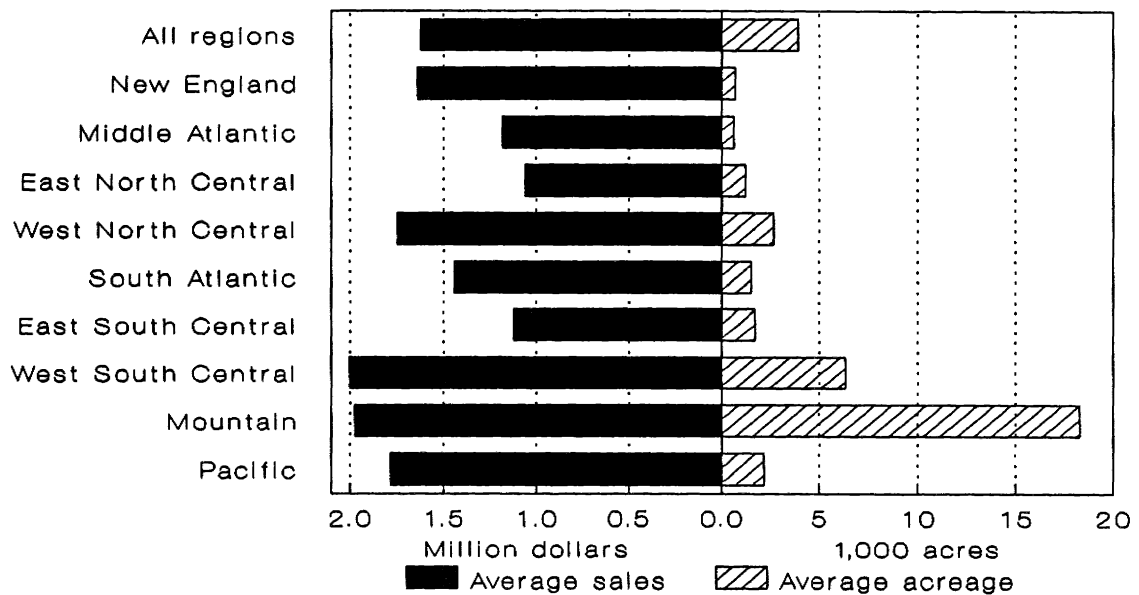


Source: 1987 Census of Agriculture.

Figure 3

Average farm product sales and land in farms for large-scale farms by region, 1987

The largest farms, measured by both sales per farm and acres per farm, were in the West



Source: 1987 Census of Agriculture.

Table 3--Regional distribution of land in large-scale farms and percentage of all farms within each region, 1987

Large-scale farms accounted for a larger share of farmland in the West than in other parts of the country

Region	Large-scale farms			All farms
	Sales of \$500,000- \$999,999	Sales of \$1,000,000 or more	Total	
	<i>Acres</i>			
United States	62,826,059	62,725,614	125,551,673	964,470,625
Northeast	740,422	442,341	1,182,763	21,425,906
New England	159,568	108,735	268,303	4,248,963
Middle Atlantic	580,854	333,606	914,460	17,176,943
Midwest	13,129,051	7,047,034	20,176,085	350,467,836
East North Central	3,243,497	1,226,424	4,469,921	86,618,368
West North Central	9,885,554	5,820,610	15,706,164	263,849,468
South	17,044,741	16,718,515	34,966,901	281,242,891
South Atlantic	1,770,185	4,286,263	7,260,093	51,199,309
East South Central	1,960,940	1,082,732	3,043,672	45,636,029
West South Central	13,313,616	11,349,520	24,663,136	184,407,553
West	31,911,845	37,314,079	69,225,924	311,333,992
Mountain	24,762,704	28,460,223	53,222,927	244,062,828
Pacific	7,149,141	8,853,856	16,002,997	67,271,164
	<i>Percent of each region's total</i>			
United States	6.51	6.50	13.02	100.00
Northeast	3.46	2.06	5.52	100.00
New England	3.76	2.56	6.31	100.00
Middle Atlantic	3.38	1.94	5.32	100.00
Midwest	3.75	2.01	5.76	100.00
East North Central	3.74	1.42	5.16	100.00
West North Central	3.75	2.21	5.95	100.00
South	6.06	5.94	12.43	100.00
South Atlantic	3.46	8.37	14.18	100.00
East South Central	4.30	2.37	6.67	100.00
West South Central	7.22	6.15	13.37	100.00
West	10.25	11.99	22.24	100.00
Mountain	10.15	11.66	21.81	100.00
Pacific	10.63	13.16	23.79	100.00

Source: 1987 Census of Agriculture.

Table 4--Regional distribution of farm product sales from large-scale farms and percentage of all farm sales within each region, 1987

Large-scale farms accounted for a much larger share of farm sales in the West than in other parts of the country

Region	Large-scale farms			All farms
	Sales of \$500,000-\$999,999	Sales of \$1,000,000 or more	Total	
<i>Million dollars</i>				
United States	14,076	37,876	51,952	136,049
Northeast	799	1,489	2,288	7,639
New England	162	462	624	1,624
Middle Atlantic	637	1,027	1,664	6,015
Midwest	4,512	9,665	14,177	57,633
East North Central	1,811	2,045	3,856	21,333
West North Central	2,701	7,620	10,321	36,300
South	4,835	11,820	16,656	40,267
South Atlantic	2,133	4,722	6,856	14,878
East South Central	884	1,105	1,989	7,464
West South Central	1,818	5,993	7,811	17,924
West	3,930	14,901	18,832	30,509
Mountain	1,202	4,553	5,755	11,194
Pacific	2,728	10,348	13,076	19,316
<i>Percent of each region's total</i>				
United States	10.35	27.84	38.19	100.00
Northeast	10.46	19.49	29.95	100.00
New England	10.00	28.45	38.44	100.00
Middle Atlantic	10.58	17.08	27.66	100.00
Midwest	7.83	16.77	24.60	100.00
East North Central	8.49	9.59	18.07	100.00
West North Central	7.44	20.99	28.43	100.00
South	12.01	29.36	41.36	100.00
South Atlantic	14.34	31.74	46.08	100.00
East South Central	11.84	14.81	26.64	100.00
West South Central	10.14	33.43	43.58	100.00
West	12.88	48.84	61.73	100.00
Mountain	10.74	40.68	51.42	100.00
Pacific	14.12	53.57	67.70	100.00

Source: 1987 Census of Agriculture.

Table 5--Distribution of farm product sales from large-scale farms and all farms, by commodity, 1987

The more intensive enterprise mix of large-scale farms provided the basis for their high value of farm sales

Item	Large-scale farms			Total	All farms
	Sales of \$500,000-\$999,999	Sales of \$1,000,000-\$4,999,999	Sales of \$5,000,000 or more		
			<i>Number</i>		
Farms	20,930	9,738	1,355	32,023	2,087,759
			<i>Million dollars</i>		
Total sales	14,076	17,686	20,190	51,952	136,049
			<i>Dollars</i>		
Average sales per farm	672,543	1,816,144	14,900,624	1,622,343	65,165
			<i>Percent</i>		
All commodities	100.00	100.00	100.00	100.00	100.00
Grains	12.86	4.66	.65	5.32	20.83
Cotton and cottonseed	4.83	3.38	1.60	3.08	3.09
Tobacco	.58	.19	.04	.24	1.28
Hay, silage, and field seeds	1.77	1.49	.45	1.16	1.91
Vegetables, sweet corn, and melons	4.05	8.43	6.12	6.34	3.45
Fruits, nuts, and berries	6.54	9.62	6.24	7.47	5.21
Nursery and greenhouse	5.93	10.41	6.77	7.78	4.24
Other crops	5.43	4.43	4.09	4.57	3.29
Poultry and products	16.61	15.66	12.29	14.61	9.38
Dairy products	10.52	11.22	1.49	7.25	11.78
Cattle and calves	20.65	22.85	56.93	35.50	26.37
Hogs and pigs	8.34	5.02	1.19	4.43	7.27
Sheep, lambs, and wool	.55	.49	.56	.53	.58
Other livestock	1.33	2.15	1.59	1.71	1.30

Source: 1987 Census of Agriculture.

Table 6--Share of all farm product sales accounted for by large-scale farms, by commodity, 1987

Large-scale farms dominated the production of commodities that require intensive use of land and other resources

Commodity	Large-scale farms			Total	All farms
	Sales of \$500,000-\$999,999	Sales of \$1,000,000-\$4,999,999	Sales of \$5,000,000 or more		
	-----Percent-----				Million dollars
All commodities	10.35	13.00	14.84	38.19	136,049
Grains	6.39	2.91	.46	9.76	28,341
Cotton and cottonseed	16.15	14.20	7.70	38.05	4,208
Tobacco	4.71	1.92	.49	7.11	1,745
Hay, silage, and field seeds	9.59	10.15	3.52	23.27	2,599
Vegetables, sweet corn, and melons	12.13	31.72	26.32	70.16	4,698
Fruits, nuts, and berries	13.00	24.03	17.78	54.81	7,084
Nursery and greenhouse	14.46	31.89	23.68	70.02	5,774
Other crops	17.05	17.48	18.41	52.95	4,482
Poultry and products	18.32	21.71	19.44	59.48	12,758
Dairy products	9.24	12.38	1.88	23.50	16,029
Cattle and calves	8.10	11.26	32.04	51.40	35,877
Hogs and pigs	11.87	8.97	2.42	23.26	9,891
Sheep, lambs, and wool	9.81	10.96	14.19	34.97	791
Other livestock	10.59	21.48	18.09	50.16	1,771

Source: 1987 Census of Agriculture.

The value of farm product sales per reporting farm also shows the importance of high-value commodities (table 7). Cattle, poultry, and high-value nursery, greenhouse, and field crops generated significantly higher sales values per reporting farm than did grains and other extensive field crops. For

all large-scale farms, nursery and greenhouse crops had the highest sales value per reporting farm, followed by poultry. However, for farms with sales of \$5 million or more, cattle and calves had the highest value per reporting farm, followed by poultry and then nursery and greenhouse products.

Table 7--Number of farms and average farm product sales per reporting farm for large-scale farms and all farms, by commodity, 1987

Overall, nursery and greenhouse products had the highest value of sales per reporting farm, but cattle and calves generated much higher value of output per reporting farm with sales of \$5 million or more

Commodity	Large-scale farms			Total	All farms
	Sales of \$500,000-999,999	Sales of \$1,000,000-4,999,999	Sales of \$5,000,000 or more		
	<i>Number reporting</i>				
All commodities	20,930	9,738	1,355	32,023	2,087,759
Grains	10,662	3,612	325	14,599	802,553
Cotton and cottonseed	1,884	849	91	2,824	42,971
Tobacco	508	123	4	635	136,207
Hay, silage, and field seeds	3,493	1,536	185	5,214	332,505
Vegetables, sweet corn, and melons	1,910	1,300	189	3,399	60,753
Fruits, nuts, and berries	1,946	1,372	194	3,512	96,908
Nursery and greenhouse	1,436	1,094	165	2,695	37,298
Other crops	2,287	1,025	111	3,423	45,597
Poultry and products	3,903	1,653	239	5,795	86,005
Dairy products	2,940	1,428	47	4,415	162,555
Cattle and calves	10,817	4,577	672	16,066	1,150,523
Hogs and pigs	3,886	1,167	40	5,093	238,819
Sheep, lambs, and wool	678	256	26	960	91,260
Other livestock	916	557	81	1,554	131,771
	<i>Dollars per reporting farm</i>				
All commodities	672,543	1,816,144	14,900,624	1,622,343	65,165
Grains	169,721	228,376	400,717	189,375	35,313
Cotton and cottonseed	360,718	703,840	3,559,242	566,942	97,924
Tobacco	161,701	272,659	2,122,250	195,542	12,814
Hay, silage, and field seeds	71,342	171,761	494,870	115,952	7,815
Vegetables, sweet corn, and melons	298,312	1,146,246	6,541,794	969,783	77,331
Fruits, nuts, and berries	473,331	1,240,572	6,493,273	1,105,599	73,100
Nursery and greenhouse	581,310	1,683,014	8,285,976	1,500,246	154,818
Other crops	334,238	764,410	7,435,919	693,342	98,299
Poultry and products	599,008	1,675,503	10,379,264	1,309,436	148,343
Dairy products	503,879	1,389,596	6,398,723	853,112	98,608
Cattle and calves	268,769	882,745	17,103,701	1,147,845	31,183
Hogs and pigs	302,093	760,367	5,994,100	451,805	41,415
Sheep, lambs, and wool	114,527	338,813	4,318,115	288,183	8,670
Other livestock	204,800	683,144	3,955,667	571,762	13,443

Source: 1987 Census of Agriculture.

Farm Production Expenses

Large-scale farms accounted for 39 percent of all farm production expenses reported in the 1987 Census of Agriculture (table 8). This figure was in line with their 38-percent share of farm product sales. Livestock expenses were the largest category of expenses for large-scale farms, as they were for all farms. Large-scale farms incurred 65 percent of all expenses for purchasing livestock and poultry and 49 percent of livestock and poultry feed expense. Farm labor costs were the other major expenditure category for which large-scale farms accounted for over half of the total for all farms.

Average production expenses for large-scale farms ranged from \$527,000 for farms with sales of

\$500,000-\$999,999 to \$12.7 million for farms with sales over \$5 million (table 9). Livestock and labor expenses were the major production expense items for farms reporting these categories of expenses. Although only about 65 percent of large-scale farms reported purchasing livestock or feed, those farms had average expenses of \$656,000 for livestock and poultry purchases and \$440,000 for feed purchases. Reporting farms with sales of \$5 million or more averaged \$8.8 million and \$4.2 million on livestock and feed purchase expenses. Nearly all large-scale farms reported hired labor expenses, with an average of \$191,000 per reporting farm. For the largest class of large-scale farms, hired labor costs averaged over \$1.5 million per reporting farm.

Table 8--Share of all farm production expenses accounted for by large-scale farms, by expense category, 1987

Large-scale farms accounted for a very large share of production expenses in the major expense categories

Expense category	Large-scale farms			Total	All farms
	Sales of \$500,000-\$999,999	Sales of \$1,000,000-\$4,999,999	Sales of \$5,000,000 or more		
	-----Percent-----				Million dollars
Total farm product expenses	10.20	13.13	15.89	39.21	108,138
Livestock and poultry purchased	9.62	14.93	40.33	64.88	19,345
Feed for livestock and poultry	13.58	16.52	18.58	48.67	19,163
Seeds, bulbs, plants, and trees	8.36	9.05	4.80	22.21	3,391
Commercial fertilizer	7.91	6.89	3.10	17.90	6,685
Agricultural chemicals	9.30	9.96	5.26	24.52	4,690
Petroleum products	7.22	6.67	3.56	17.45	5,277
Electricity	9.50	12.37	8.12	29.99	2,225
Hired farm labor	14.21	21.48	19.00	54.69	10,866
Contract labor	12.77	23.42	15.58	51.76	1,843
Repair and maintenance	7.59	8.14	5.65	21.37	6,362
Customwork, machine hire, and rental of machinery and equipment	8.80	10.92	5.95	25.67	2,176
Interest expenses	8.66	8.80	4.76	22.22	8,158
Cash rent	9.12	8.06	3.44	20.63	4,689
Property taxes	5.00	4.84	2.51	12.35	3,120
All other expenses	9.64	14.94	13.46	38.04	10,146

Source: 1987 Census of Agriculture.

Table 9--Number of farms and average farm production expenses per reporting farm for large-scale farms and all farms, by expense category, 1987

The highest average production expenses were for livestock, poultry, and feed purchases and hired labor expenses, regardless of farm size

Expense category	Large-scale farms			Total	All farms
	Sales of \$500,000-\$999,999	Sales of \$1,000,000-\$4,999,999	Sales of \$5,000,000 or more		
	<i>Number reporting</i>				
Total farm product expenses	20,929	9,738	1,355	32,022	2,087,734
Livestock and poultry purchased	12,765	5,486	884	19,135	675,677
Feed for livestock and poultry	14,293	6,033	857	21,183	1,180,744
Seeds, bulbs, plants, and trees	14,981	6,336	697	22,014	1,176,932
Commercial fertilizer	16,276	7,134	774	24,184	1,379,441
Agricultural chemicals	16,570	7,332	812	24,714	1,262,680
Petroleum products	20,626	9,561	1,315	31,502	1,964,062
Electricity	20,244	9,430	1,321	30,995	1,436,732
Hired farm labor	20,276	9,494	1,337	31,107	818,347
Contract labor	7,796	4,067	560	12,423	272,094
Repair and maintenance	20,445	9,536	1,320	31,301	1,699,949
Customwork, machine hire, and rental of machinery and equipment	12,097	5,631	740	18,468	767,414
Interest expenses	18,574	8,452	1,116	28,142	1,014,945
Cash rent	12,115	5,132	557	17,804	564,136
Property taxes	19,296	8,764	1,235	29,295	1,906,813
All other expenses	20,915	9,725	1,353	31,993	1,902,916
	<i>Dollars per reporting farm</i>				
Total farm product expenses	526,800	1,458,339	12,678,601	1,324,284	51,797
Livestock and poultry purchased	145,719	526,544	8,825,155	655,875	28,630
Feed for livestock and poultry	182,039	524,790	4,153,623	440,334	16,230
Seeds, bulbs, plants, and trees	18,911	48,457	233,438	34,207	2,881
Commercial fertilizer	32,493	64,569	267,729	49,484	4,846
Agricultural chemicals	26,324	63,732	303,639	46,533	3,715
Petroleum products	18,470	36,834	142,733	29,231	2,687
Electricity	10,441	29,189	136,815	21,531	1,549
Hired farm labor	76,174	245,893	1,543,954	191,059	13,278
Contract labor	30,186	106,111	512,638	76,790	6,773
Repair and maintenance	23,608	54,307	272,138	43,441	3,742
Customwork, machine hire, and rental of machinery and equipment	15,833	42,220	174,904	30,252	2,836
Interest expenses	38,044	84,965	347,844	64,422	8,038
Cash rent	35,310	73,657	289,865	54,328	8,313
Property taxes	8,091	17,227	63,394	13,156	1,636
All other expenses	46,769	155,834	1,009,287	120,627	5,332

Source: 1987 Census of Agriculture.

Government Payments

Large-scale farms received \$884 million in direct government payments in 1987, 9 percent of the total direct payments for that year, or about 2 percent of the total value of products sold by large-scale farms (fig. 4).² For farms with sales under \$500,000 in 1987, direct government payments were 10 percent of the value of products sold. The major reason for the lower ratio of government payments to value of products sold for large-scale farms was their low dependence on program commodities. Large-scale farms with sales under \$1 million received about 65 percent of the government payments going to large-scale farms. These farms, which have an enterprise mix similar to that of smaller commercial farms, received government payments equal to 4 percent of their value of products sold.

Large-scale farms were more likely than all other farms to receive government payments in 1987

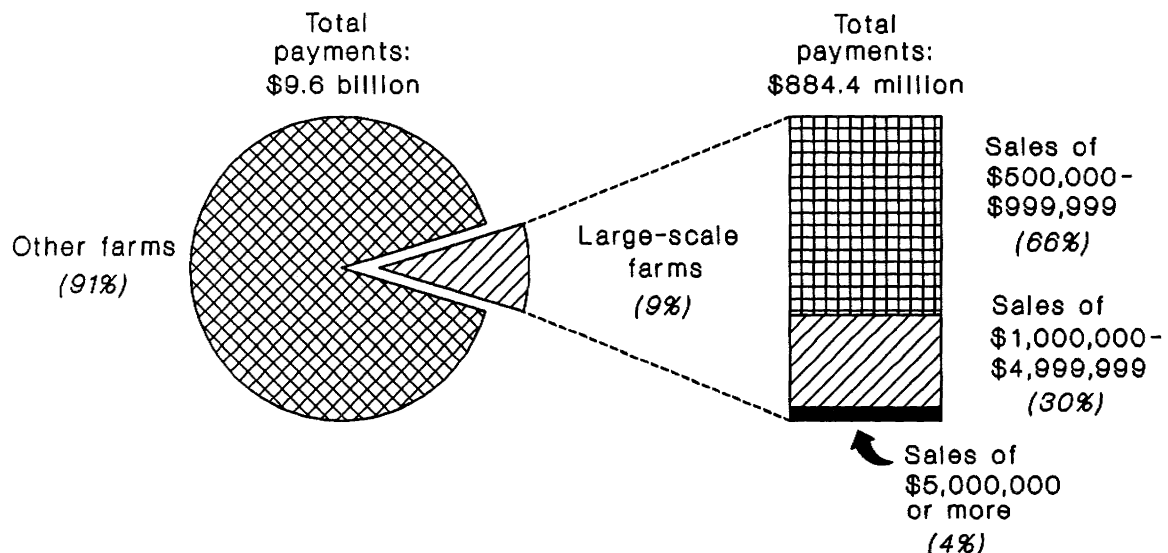
(fig.5). Nearly 50 percent of large-scale farms with sales below \$1 million received direct payments. A much lower proportion, about 20 percent, of farms with sales of \$5 million or more reported receiving direct government payments. The difference in the proportions of the smallest and largest large-scale farms receiving government payments is due to their different commodity specialization patterns. Fifty percent of the farms with sales in the \$500,000-\$999,999 range reported cash grain production in 1987, and 9 percent reported cotton production (table 7); cash grains and cotton are the major commodities for which farmers receive direct government payments. Only 24 percent of farms with sales of \$5 million or more reported cash grains production; 7 percent reported cotton production.

²Market value of products sold does not include government payments.

Figure 4

Distribution of government payments by farm size, 1987

The largest share of government payments to large-scale farms went to farms with sales under \$1 million



Source: 1987 Census of Agriculture.

Although large-scale farms accounted for a small percentage of total direct government payments to farmers, individual large-scale farms usually received payments substantially greater than the average payment to all farms (fig. 5). The average payment to all farms receiving government payments in 1987 was \$13,800, compared with an average of \$62,587 for large-scale farms that received government payments. Farms with \$5 million or more in sales that received government payments received an average payment of \$130,746. Direct government payments to farmers are based on the volume of eligible commodities produced. The high direct payments received by large-scale farms eligible for government programs reflected their high volume of output.

Financial Performance

Several financial measures are useful in evaluating the performance of farms. These measures provide information on the efficiency of resource use, as well as profitability of farming operations. Farm returns, expenses, and assets are the base variables used

to evaluate operating performance. These measures are expressed in the form of operating ratios, which allow comparison across different classes of farms.

This report compares the operating performance of large-scale farms to that of all farms. Large-scale farms, although only 1.5 percent of all farms in 1987, accounted for 13 percent of the value of farm real estate and 10 percent of the value of machinery and equipment on farms. They generated higher sales per acre and per dollar of assets than all farms. Over 30 percent of total net cash returns from the sale of farm commodities in 1987 accrued to large-scale farms.

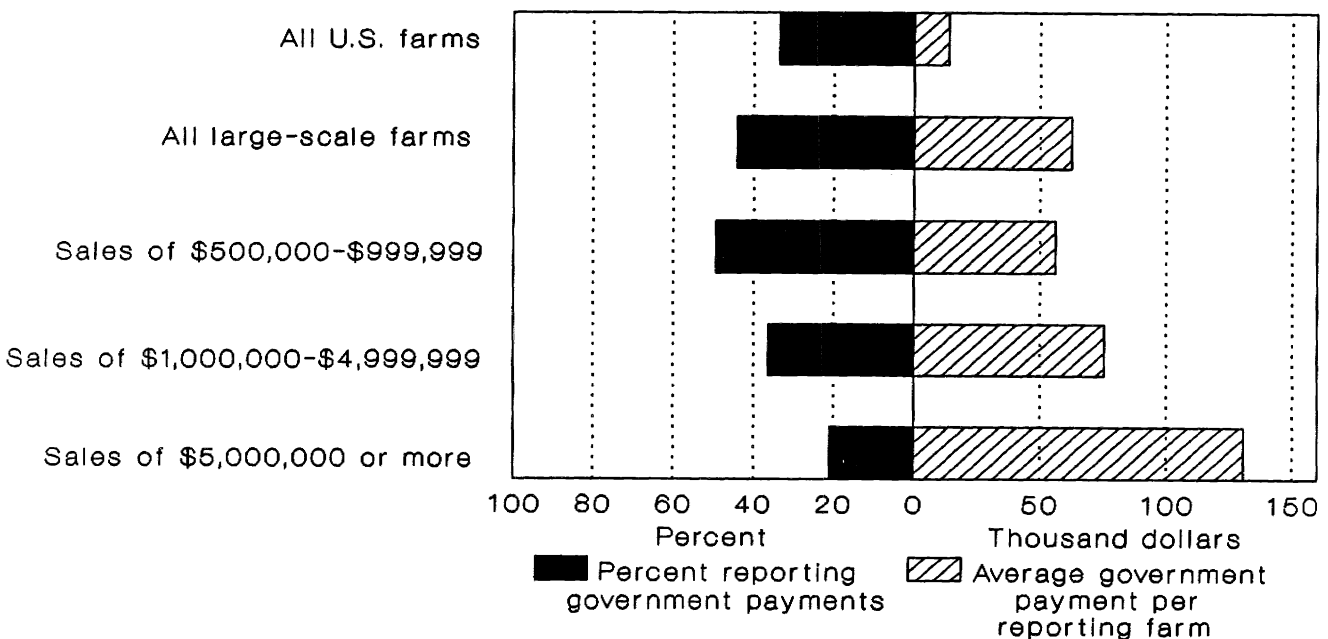
Cash Returns per Acre

This measure indicates the intensity and efficiency of land use. Sales per acre averaged \$414 in 1987 for all large-scale farms, ranging from \$224 for farms with sales of \$500,000-\$999,999 to \$2,023 for farms selling products worth \$5 million or more (table 10). By comparison, all U.S. farms averaged sales of \$141 per acre. The higher sales per acre of large-scale farms resulted from both an enterprise mix

Figure 5

Government payments received by large-scale farms and all farms, 1987

Large-scale farms received higher payments per reporting farm than the average for all farms reporting direct government payments



Source: 1987 Census of Agriculture.

that generated very high revenue per acre and from more efficient resource use. The enterprise mix of farms with \$5 million or more in sales was dominated by cattle feeding, poultry production, and the production of high-value nursery and greenhouse crops. These intensive enterprises accounted in large part for the very high per acre sales of these farms. Those with sales of less than \$1 million, however, produced a commodity mix very similar to that of all U.S. farms, with more emphasis on range livestock, dairy, and cash grain production. Yet, they generated per acre sales nearly 60 percent higher than the per acre sales of all U.S. farms. This difference can be attributed primarily to more efficient resource use.

Cash expenses per acre were also higher for large-scale farms than for all farms, ranging from an

average of \$175 for the smallest large-scale farms to \$1,721 for farms with sales of \$5 million or more. The comparable figure for all U.S. farms was \$112. The resulting cash returns per acre for large-scale farms in 1987 were \$49 for farms with sales of \$500,000-\$999,999, \$66 for farms with sales of \$1,000,000-\$4,999,999, and \$302 for farms with sales of \$5 million or more. The cash return per acre for all farms averaged \$29.

Expense/Sales Ratios

This ratio measures total operating expenditures required to generate \$1 of sales and is an indication of a farm's operating margin. Total cash expenses per dollar of sales for large-scale farms were similar to total cash expenses per dollar of sales for all farms in 1987 (table 10). Livestock expenses per

Table 10--Operating measures for large-scale farms and all farms, 1987

Large-scale farms generated higher sales per acre and used fewer assets to generate each dollar of sales than all farms

Item	Unit	Large-scale farms			Total	All farms
		Sales of \$500,000-\$999,999	Sales of \$1,000,000-\$4,999,999	Sales of \$5,000,000 or more		
Farms	<i>Number</i>	20,930	9,738	1,355	32,023	2,087,759
Acres per farm	<i>Acres</i>	3,002	5,416	7,366	3,921	462
Total farm sales per acre	<i>Dollars</i>	224	335	2,023	414	141
Cropland per reporting farm	<i>Acres</i>	1,109	1,458	3,464	1,293	240
Crop sales per harvested acre	<i>Dollars</i>	381	796	1,960	676	209
Crop sales as a percentage of of total sales	<i>Percent</i>	41.99	42.62	25.97	35.98	43.32
Value of land and buildings	<i>Million dollars</i>	34,264	31,584	12,124	77,972	604,168
Per farm	<i>Dollars</i>	1,637,088	3,243,380	8,947,576	2,434,883	289,387
Per acre	<i>do.</i>	545	599	1,215	621	627
Per dollar of sales	<i>do.</i>	2.43	1.79	.60	1.50	4.44
Value of machinery and equipment	<i>Million dollars</i>	3,936	3,206	1,616	8,759	85,801
Per farm	<i>Dollars</i>	188,053	329,245	1,192,962	273,510	41,097
Per acre	<i>do.</i>	63	61	162	70	89
Per dollar of sales	<i>do.</i>	.28	.18	.08	.17	.63
Total expenses per acre	<i>do.</i>	175	269	1,721	338	112
Total expenses per dollar of sales	<i>do.</i>	.78	.80	.85	.82	.79
Livestock expenses per dollar of livestock sales ¹	<i>do.</i>	.55	.60	.76	.66	.50

¹Livestock expenses include livestock and poultry purchased and feed for livestock and poultry.

Source: 1987 Census of Agriculture.

dollar of livestock sales, however, were higher on large-scale farms than on all farms. On farms with sales under \$1 million, livestock expenses per dollar of livestock sales were only slightly higher than for all farms, but the ratio increased with farm sales class: the livestock expense per sales ratio for the \$5 million or more sales class was 52 percent higher than for all farms and 38 percent above large-scale farms with sales under \$1 million. This difference was mainly attributable to the preponderance of confined livestock feeding operations on the largest farms, as opposed to a preponderance of more extensive range and pasture grazing operations on the smaller farms.

Assets/Sales Ratios

This ratio measures the total value of assets required to generate \$1 of sales and is an indication of the intensity and efficiency of asset use. Large-scale farms generated much higher sales values per dollar of assets than all U.S. farms (table 10). This finding was true for both real estate assets and machinery and equipment assets. All large-scale farms used \$1.50 in land and buildings to generate \$1 of sales in 1987, compared with \$4.44 for all U.S. farms. The ratio of value of land and buildings to

sales for large-scale farms decreased with farm size, from \$2.43 for farms with sales under \$1 million to \$0.60 for farms with sales of \$5 million or more.

A similar pattern existed for the value of machinery and equipment to sales ratio. While all U.S. farms required \$0.63 worth of machinery and equipment for each dollar of sales, all large-scale farms required only \$0.17. The value of machinery and equipment to sales ratio for large-scale farms ranged from \$0.28 for farms with sales under \$1 million to \$0.08 for farms with sales of \$5 million or more.

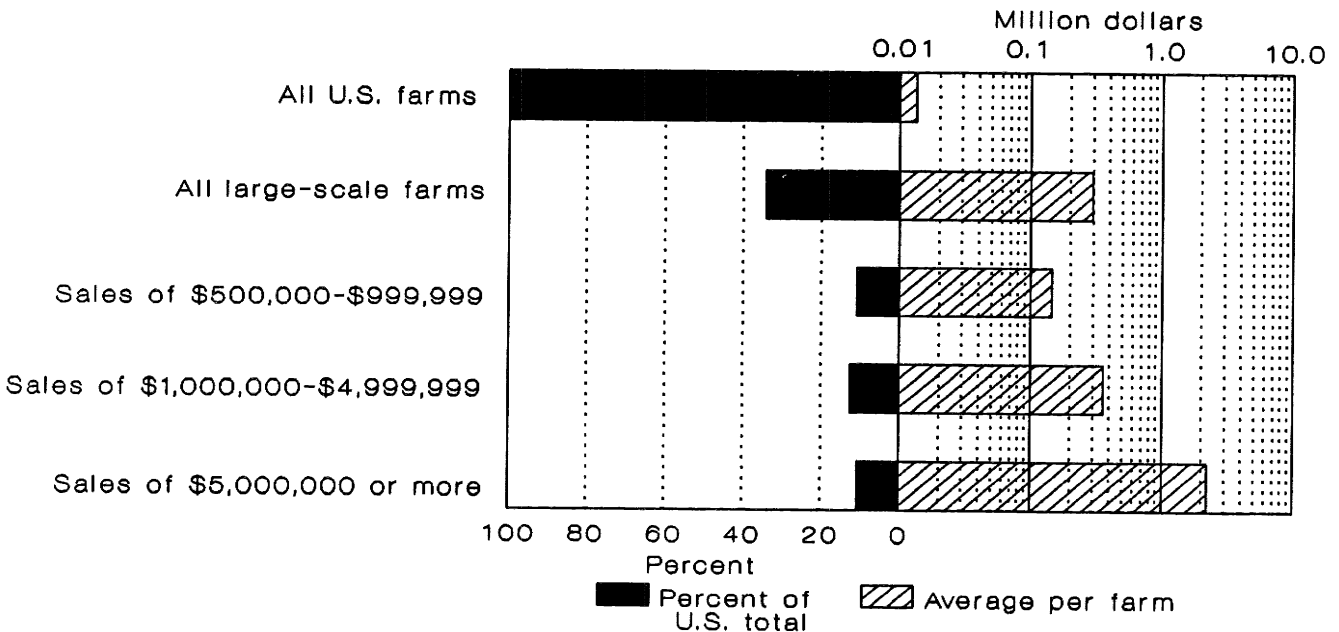
Net Cash Returns

This measure, defined as total sales less cash expenses, is among the most commonly used measures of overall profitability. Large-scale farms, although only 1.5 percent of all farms, earned 34.2 percent of all net cash returns from farm sales in 1987 (fig. 6). The per farm net cash returns averaged nearly \$300,000 for all large-scale farms, compared with only \$13,000 for all U.S. farms. Even large-scale farms with sales under \$1 million had per farm net cash returns averaging just under \$150,000. Those farms with sales of \$5 million or more averaged \$2.2 million in net cash returns.

Figure 6

Net cash returns from farm sales for large-scale farms and all farms, 1987 ¹

Large-scale farms, only 1.5 percent of all farms, earned 34.2 percent of all net cash returns from farm sales, with the largest farms averaging over \$2 million



¹ Net cash returns from farm sales equals the gross market value of farm products sold minus operating expenditures.

Source: 1987 Census of Agriculture.

Ninety-two percent of large-scale farms had positive net cash returns in 1987, compared with only 57 percent for all U.S. farms. Large-scale farms with positive net cash returns had an average gain of \$336,504, while the 8 percent with negative net cash returns had losses averaging \$144,642. These figures compare with an average gain of \$27,104 for all farms with positive net cash returns and an average loss of \$6,318 for all farms with negative returns.

Organizational Characteristics

Large-scale farms differ from all farms in the way they organize and run their operations, according to agricultural census data. These differences may affect the comparative efficiency of operations and, subsequently, financial performance. Knowledge of the organizational characteristics of farms is important for understanding how farm resources are controlled and how farms conduct their business.

Type of Organization

Most large-scale farms operated under multiperson forms of business organization (partnership and corporation). In contrast, sole proprietorships accounted for nearly 90 percent of all U.S. farms in 1987 (table 11). Large-scale farms with sales under \$1 million were about equally divided between sole proprietorships and the multiowner forms of organization. The proportion of farms operated under multiowner forms of organization increased with sales volume. About 90 percent of farms with sales of \$5 million or more operated under a multiowner business arrangement, just the reverse proportion of single owners to multiowner business forms for all farms.

Even though multiperson forms of business organization predominated among large-scale farms, these farms tended to be closely held, largely family operations. Most farm partnerships involved members of the same family, such as parent and child or siblings. The 1987 data show that even incorporated large-scale farms were mostly family corporations, where 50 percent or more of the stock was owned by related persons. Nonfamily corporations were more prevalent among large-scale farms than among all farms, particularly for farms with sales of \$5 million or more, where they accounted for about 25 percent of farms. Even among these largest of farms, however, three out of every five nonfamily corporations had 10 or fewer

shareholders in 1987, indicating that very few farms were operated by large, widely held corporations.

Acre Class Distribution

Large-scale farms were more evenly distributed across acreage size classes than were all farms (table 11). Twenty-six percent of large-scale farms operated 2,000 acres or more in 1987, but nearly 40 percent operated fewer than 500 acres, and 13 percent of these relatively small parcels had fewer than 50 acres. Farms in general were much more concentrated in the smaller acreage classes: 82 percent had fewer than 500 acres and about 29 percent of these farms operated fewer than 50 acres. Only 3 percent of all farms had 2,000 or more acres.

The relatively high percentage of large-scale farms in the smaller acre size classes reflected the high-value commodity specialization of these farms. The production of high-value horticultural crops and confined livestock and poultry production are much more important to large-scale farms than to all farms. Because these commodities had high per acre sales values, many large-scale farms were able to generate very high total sales volumes on relatively small acreage.

Type of Farm

In the census of agriculture, farms are classified by type based on their production specialty (that is, the product or group of products accounting for 50 percent or more of the total value of farm products sold during the reporting year). If no single commodity or group of related commodities accounts for 50 percent or more of a farm's value of production, that farm is classified as either a general farm, primarily crops, or a general farm, primarily livestock. According to these data in 1987, livestock farms (excluding dairy, poultry, and animal specialties) were the most common farm type both for all farms and large-scale farms (table 11). However, livestock farming on large-scale operations is quite different from that on smaller operations. Large-scale livestock farms are primarily large commercial cattle feedlots or large-scale hog production units, while small cow-calf and hog farms account for most U.S. livestock farms.

Proportionately more large-scale farms than all farms specialized in poultry and dairy production in 1987. However, dairy operations were concentrated on large-scale farms with sales under \$5 million; only about 3 percent were on farms with sales over

Table 11--Selected organizational characteristics for large-scale farms and all farms, 1987

The relatively high percentage of large-scale farms in the smaller acre size classes reflects the high-value commodity specialization of these farms

Item	Large-scale farms			Total	All farms
	Sales of \$500,000-\$999,999	Sales of \$1,000,000-\$4,999,999	Sales of \$5,000,000 or more		
			<i>Number</i>		
Farms	20,930	9,738	1,355	32,023	2,087,759
			<i>Percent</i>		
Type of organization:					
Individual or family	47.63	30.68	10.04	40.88	86.66
Partnership	25.14	24.82	14.83	24.60	9.56
Corporation:					
Family held	23.59	36.16	48.41	28.46	2.91
More than 10 stockholders	.66	1.86	6.57	1.27	.06
10 or fewer stockholders	22.93	34.30	41.85	27.19	2.85
Other than family held	2.63	6.71	24.72	4.81	.30
More than 10 stockholders	.50	1.67	9.59	1.24	.04
10 or fewer stockholders	2.13	5.03	15.13	3.56	.26
Other--cooperative, estate or trust, institutional, etc.	1.01	1.63	1.99	1.24	.57
Farms by size (acres):					
1 to 49	13.17	13.87	10.48	13.27	28.53
50 to 179	10.90	11.95	14.69	11.38	30.89
180 to 499	14.68	13.53	18.97	14.51	22.91
500 to 999	16.80	14.66	12.32	15.96	9.58
1,000 to 1,999	19.61	17.40	10.77	18.56	4.89
2,000 or more	24.83	28.58	32.77	26.31	3.20
Farms by Standard Industrial Classification:					
Cash grains	8.87	2.72	.30	6.64	21.96
Cotton	4.83	3.52	1.85	4.30	1.33
Tobacco	.41	.14	.07	.31	4.20
Other field crops	6.30	5.32	3.25	5.87	6.14
Vegetables and melons	3.57	7.52	9.30	5.02	1.38
Fruits and tree nuts	6.38	9.05	8.78	7.29	4.23
Horticultural specialties	5.76	10.05	10.04	7.25	1.51
General farms, primarily crop	3.04	2.36	1.33	2.76	2.77
Livestock, except dairy, poultry, and animal specialties	30.17	28.63	42.88	30.24	42.74
Dairy farms	11.34	12.57	2.80	11.35	6.62
Poultry and eggs	17.21	15.52	17.20	16.70	1.84
Animal specialties	1.28	2.04	2.14	1.55	4.21
General farms, primarily livestock and animal specialties	.85	.55	.07	.73	1.07

Source: 1987 Census of Agriculture.

\$5 million. The proportion of large-scale farms specializing in vegetables, fruits, and horticultural specialties (largely nursery and greenhouse crops) was also much higher than the proportion of all farms specializing in these crops. Cash grain farms, which accounted for about 22 percent of all farms, accounted for slightly less than 7 percent of large-scale farms, and most of these were in the smallest large-scale sales class.

Operator Tenure and Landownership

The tenure arrangements under which large-scale farms operate their land differ widely from those of farmers in general. Operators of large-scale farms

are much less likely than farmers in general to be full owners of the land they operate and more likely to be part owners. In 1987, 60 percent of farmers nationwide were full owners of their land, compared with only about 40 percent of operators of large-scale farms (table 12). Part owners accounted for nearly 50 percent of all large-scale farms but about 30 percent of all farms. Tenant farms made up only a small share of both large-scale farms and all farms.

Among large-scale farms, the proportion of full owners increased as sales volume increased, from about 35 percent of the \$500,000-\$999,999 sales class to over 50 percent of farms in the \$5 million or

Table 12--Landownership for large-scale farms and all farms, 1987

Operators of large-scale farms were more likely than farmers in general to rent some of the land they operated

Item	Unit	Large-scale farms			Total	All farms
		Sales of \$500,000-999,999	Sales of \$1,000,000-4,999,999	Sales of \$5,000,000 or more		
Farms	<i>Number</i>	20,930	9,738	1,355	32,023	2,087,759
Land in farms	<i>Acres</i>	62,826,059	52,745,195	9,980,419	125,551,673	964,470,625
Farms by operator tenure:						
Full owners	<i>Percent</i>	34.47	40.54	52.25	37.07	59.32
Part owners	<i>do.</i>	52.10	43.80	33.36	48.78	29.17
Tenants	<i>do.</i>	13.44	15.66	14.39	14.15	11.51
Owned and rented land:						
Land owned	<i>Farms</i>	18,208	8,248	1,165	27,621	1,856,097
do.	<i>Acres</i>	36,419,065	37,066,897	6,572,570	80,058,532	613,655,204
Owned land operated	<i>Farms</i>	18,118	8,213	1,160	27,491	1,847,559
do.	<i>Acres</i>	34,924,159	34,635,467	6,252,456	75,812,082	562,150,756
Land rented or leased from others	<i>Farms</i>	13,813	5,844	653	20,310	854,980
do.	<i>Acres</i>	28,535,495	18,727,334	3,857,328	51,120,157	409,644,152
Rented or leased land operated	<i>Farms</i>	13,716	5,790	647	20,153	849,212
do.	<i>Acres</i>	27,901,900	18,109,728	3,727,963	49,739,591	402,319,869
Land rented or leased to others	<i>Farms</i>	2,307	1,416	257	3,980	236,778
do.	<i>Acres</i>	2,128,501	3,049,036	449,479	5,627,016	58,828,731

Source: 1987 Census of Agriculture.

more sales class, while tenant operations remained relatively constant.

The high proportion of full ownership farms in the \$5 million or more sales class reflected their commodity specialization. A higher proportion of these farms was involved in the production of fruit and other horticultural crops that require long-term fixed capital investments that are not amenable to being put on leased or rented land. Likewise, livestock production on the largest large-scale farms ran heavily toward commercial cattle feedlots, which like horticultural crop production require large, immobile fixed investments. The smallest large-scale farms, by contrast, were more heavily involved in producing cash grains and other field crops and range livestock. These types of farming enterprises are more amenable to being carried out on leased land, hence a much higher proportion of these farms were part-owner operations.

Landownership patterns on large-scale farms mirror their tenure patterns. The smallest class of large-scale farms operated only slightly less rented land than owned land, while the larger large-scale farms operated nearly twice as much owned land as rented land.

Operator Characteristics

The census of agriculture provides selected information on the individuals who operate the Nation's farms. However, information is collected on only one person per farm, namely the person officially designated the operator on the census report form. In the case of partnerships and corporations, the senior and older partner is usually selected. Characteristics of partners and comanagers are not individually reported. This procedure tends to understate the actual number of people farming and weight the statistics toward characteristics of the senior person. Because of the comparatively large share of partnerships, the large-scale farms data are among the most affected by this tendency.

Off-Farm Work

Operators of large-scale farms engage in substantially less off-farm work than operators of

smaller farms. Only about 20 percent of large-scale farm operators reported any off-farm work in 1987, and just 9 percent reported working off-farm 200 or more days (table 13). The comparable figures for all farms were 53 percent with off-farm work and 35 percent with 200 days or more. This variable changed little among the three classes of large-scale farms, with operators of the largest farms only slightly more likely than others to report off-farm work.

Years on Present Farm

This item, based on the year operation of the present farm began, reflects stability of farm operators on particular farms. Operators of large-scale farms with sales under \$5 million generally had been operating their present farms longer than all farm operators (table 13). However, the distribution of operators by years on present farm was almost identical for large-scale farms with sales of \$5 million or more and all farms.

Age and Sex

Comparison of age distributions shows that operators of large-scale farms were more likely than farmers in general to be in the prime work age groups of 35 years to 64 years. This age range contained about 77 percent of large-scale farm operators, but only 65 percent of all farm operators. In contrast, a higher percentage of farmers in general were 65 years of age or over (21 percent of all farm operators compared with 13 percent of large-scale farmers). At the other end of the age distribution, only slightly fewer large-scale farm operators (10 percent) than all farm operators (13 percent) were under 35 years of age. The age distributions differed little among the three size classes of large-scale farms.

Ninety-four percent of all farm operators reported in the census were male. If males comprised an overwhelming proportion of all farm operators, they were an even more overwhelming proportion of large-scale farm operators, accounting for about 98 percent of all large-scale operators and 99 percent of those who operate farms with sales of \$5 million or more.

Table 13--Selected operator characteristics for large-scale farms and all farms, 1987

Operators of large-scale farms were more likely than farmers in general to be in the prime work age groups of 35 years to 64 years

Item	Large-scale farms			Total	All farms
	Sales of \$500,000-\$999,999	Sales of \$1,000,000-\$4,999,999	Sales of \$5,000,000 or more		
			<i>Number</i>		
Farms	20,930	9,738	1,355	32,023	2,087,759
			<i>Percent</i>		
Operators by days of work off farm:					
None	73.31	73.75	71.88	73.38	40.45
Any	19.68	19.68	21.92	19.78	53.43
200 or more	8.75	9.99	11.44	9.24	35.31
Not reported	7.00	6.57	6.20	6.84	6.12
Operators by years on present farm:					
2 or fewer	4.02	4.45	5.83	4.23	5.44
3 or 4	4.13	4.93	6.86	4.49	6.49
5 to 9	10.76	12.10	14.39	11.32	14.56
10 or more	63.95	61.46	53.73	62.76	55.72
Not reported	17.13	17.07	19.19	17.20	17.80
Operators by sex:					
Male	97.33	97.78	99.04	97.54	93.69
Female	2.67	2.22	.96	2.46	6.31
Operators by age group (years):					
Under 25	.54	.47	.15	.51	1.72
25 to 34	10.24	8.31	6.05	9.47	11.62
35 to 44	24.07	21.75	22.14	23.28	19.69
45 to 54	27.18	26.93	27.31	27.11	21.79
55 to 64	25.61	27.34	27.53	26.22	23.75
65 and over	12.36	15.21	16.83	13.41	21.43

Source: 1987 Census of Agriculture.

Appendix: Concentration of Agricultural Production

A common method of measuring the level of concentration in an industry is to calculate the percentage of the industry's total output that is accounted for by the 4 or 20 largest firms. The resulting percentages are referred to as the 4- and 20-firm concentration ratios. This method of measuring concentration is not appropriate to agriculture because of the large number of farms and the relatively small size of farms. A similar procedure for measuring concentration that is more appropriate to the relatively atomistic industrial structure of agriculture was developed, beginning with the 1987 Census of Agriculture.

Farms counted in the 1987 Census of Agriculture were arrayed from largest to smallest based on their value of products sold. We can then determine the fewest number of farms accounting for a specified percentage of the value of farm products sold. This procedure was followed for all farms in the United States and for all farms in each State. The results are shown in appendix tables 1 and 2 for the fewest number of farms accounting for 10 percent of sales and the fewest number of farms accounting for 25 percent of sales.

At the national level, 469 farms (0.02 percent of all farms) with an average value of products sold of slightly over \$29 million accounted for 10 percent of sales, and 7,648 farms (0.4 percent of all farms) with an average sales volume of \$4.45 million accounted for 25 percent of sales. The farms accounting for 10 percent of sales had an average of 7,569 acres, while those accounting for 25 percent of sales had an average of 6,114 acres. In comparison, the average value of sales for all farms with sales of \$1 million or more was \$3.4 million, and they had an average of 5,655 acres. For all farms, the average value of sales was \$65,165 and the average size was 462 acres.

The fewest number of farms accounting for 10 percent of sales by State ranged from a low of 1 in Maine, Connecticut, and Alaska to a high of 472 in Illinois. In 35 of the 50 States, 0.1 percent or less of farms accounted for 10 percent of sales. States with the lowest degree of concentration (the largest percentage of farms) at the 10-percent of sales level were concentrated in the East North Central and West North Central States. Seven of 15 States in which 0.2 percent or more of farms accounted for

10 percent of sales were in these Midwest regions. A major reason for the lower degree of concentration in these Midwest regions was the predominance of cash grain farms, which were more uniform in size than most other farm types.

The largest farms, measured by value of sales, were in the Central and Southern Plains, Mountain and Pacific regions, and Florida. The fewest number of farms accounting for 10 percent of sales had a 1987 average sales volume of \$91.3 million in Texas and \$85.7 million in Kansas. In only two States, Vermont and North Dakota, was the average value of sales of the fewest number of farms accounting for 10 percent of sales less than \$1 million.

The State and regional patterns of degree of concentration and average sales volume of the fewest number of farms accounting for 25 percent of sales were very similar to those of the 10-percent of sales degree of concentration. The States with the lowest degree of concentration were largely located in the East and West North Central regions, and the States with the largest farms were in the Central and Southern Plains, Mountain and Pacific regions, and Florida. New England, particularly Connecticut and Maine, also had a large average sales volume at the 25-percent degree of concentration. This large farm sales volume in New England was not apparent at the 10-percent degree of concentration because the small number of farms resulted in data on acreage and value of sales being withheld for all but two States.

The fewest farms accounting for 10 percent and 25 percent of the value of sales, on average, operated much larger acreage than the all-farms average of 462 acres. Even so, these farms accounted for a much lower percentage of land in farms than of value of products sold. The farms accounting for 10 percent of sales in 1987 operated less than 0.4 percent of land, while those accounting for 25 percent of sales operated 4.8 percent of total farmland. The per acre value of sales of the farms accounting for 10 and 25 percent of sales far outstripped the all-farms per acre sales value. The 469 farms accounting for 10 percent of sales had average sales of \$3,836 per acre in 1987, and the 7,648 farms accounting for 25 percent of sales had an average of \$727 per acre. The all-farms average sales per acre was \$141.

Appendix table 1--Fewest number of farms accounting for 10 percent of farm product sales, 1987

Area	Farms		Land in farms		Farm sales	
	Number	Percent	Acres	Acres/farm	1,000 dollars	Dollars/farm
United States	469	(Z)	3,549,764	7,569	13,615,631	29,031,196
Northeast--New England:						
Maine	1	(Z)	(D)	(D)	(D)	(D)
New Hampshire	2	0.1	(D)	(D)	(D)	(D)
Vermont	54	.9	49,796	922	37,614	696,550
Massachusetts	4	.1	11,700	2,925	36,704	9,176,038
Rhode Island	2	.3	(D)	(D)	(D)	(D)
Connecticut	1	(Z)	(D)	(D)	(D)	(D)
Northeast--Middle Atlantic:						
New York	96	.3	113,512	1,182	245,140	2,553,537
New Jersey	5	.1	8,613	1,723	50,554	10,110,700
Pennsylvania	55	.1	35,467	645	308,715	5,612,994
Midwest--East North Central:						
Ohio	87	.1	70,019	805	344,587	3,960,771
Indiana	159	.2	178,772	1,124	407,094	2,560,339
Illinois	472	.5	705,942	1,496	638,543	1,352,845
Michigan	61	.1	105,416	1,728	255,615	4,190,417
Wisconsin	344	.5	500,100	1,454	491,230	1,427,995
Midwest--West North Central:						
Minnesota	271	.3	369,650	1,364	568,370	2,097,306
Iowa	465	.4	518,575	1,115	893,094	1,920,632
Missouri	240	.2	479,674	1,999	364,631	1,519,295
North Dakota	258	.7	1,126,726	4,367	219,108	849,258
South Dakota	46	.1	292,282	6,354	273,342	5,942,217
Nebraska	19	(Z)	22,835	1,202	658,664	35,192,849
Kansas	8	(Z)	7,774	972	685,846	85,730,752
South--South Atlantic:						
Delaware	5	.2	11,874	2,375	49,524	9,904,723
Maryland	18	.1	11,679	649	100,062	5,558,992
Virginia	55	.1	63,882	1,161	159,158	2,893,774
West Virginia	14	.1	18,976	1,355	27,882	1,991,601
North Carolina	44	.1	97,448	2,215	354,983	8,067,804
South Carolina	15	.1	16,808	1,121	88,065	5,870,971
Georgia	59	.1	101,225	1,716	283,617	4,807,061
Florida	7	(Z)	358,752	51,250	449,654	64,236,347
South--East South Central:						
Kentucky	40	(Z)	40,742	1,019	208,914	5,222,861
Tennessee	109	.1	181,167	1,662	162,540	1,491,193
Alabama	27	.1	11,076	410	193,644	7,172,000
Mississippi	55	.2	268,730	4,886	188,192	3,421,674
South--West South Central:						
Arkansas	55	.1	114,456	2,081	333,207	6,058,317
Louisiana	89	.3	375,347	4,217	134,660	1,513,033
Oklahoma	5	(Z)	3,660	732	290,282	58,056,300
Texas	12	(Z)	9,135	761	1,096,173	91,347,744
West--Mountain:						
Montana	53	.2	2,715,670	51,239	155,314	2,930,460
Idaho	5	(Z)	11,121	2,224	293,671	46,734,263
Wyoming	8	.1	370,471	46,309	71,171	8,896,371
Colorado	2	(Z)	(D)	(D)	(D)	(D)
New Mexico	5	(Z)	89,188	17,838	120,782	24,156,373
Arizona	4	.1	3,043	761	184,358	46,089,501
Utah	17	.1	284,111	16,712	63,074	3,710,218
Nevada	2	.1	(D)	(D)	(D)	(D)
West--Pacific:						
Washington	9	(Z)	3,649	405	298,846	33,205,069
Oregon	14	(Z)	88,638	6,331	188,762	13,483,017
California	43	.1	791,226	18,401	1,396,891	32,485,831
Alaska	1	.2	(D)	(D)	(D)	(D)
Hawaii	2	(Z)	(D)	(D)	(D)	(D)

(D) Withheld to avoid disclosure.

(Z) Less than 0.05 percent.

Source: 1987 Census of Agriculture.

Appendix table 2--Fewest number of farms accounting for 25 percent of farm product sales, 1987

Area	Farms		Land in farms		Farm sales	
	Number	Percent	Acres	Acres/farm	1,000 dollars	Dollars/farm
United States	7,648	0.4	46,758,996	6,114	34,013,379	4,447,356
Northeast--New England:						
Maine	11	.2	22,961	2,087	102,461	9,314,623
New Hampshire	13	.5	7,939	611	27,498	2,115,244
Vermont	230	3.9	161,889	704	93,889	408,213
Massachusetts	26	.4	25,228	970	85,658	3,294,553
Rhode Island	5	.7	2,271	454	10,192	2,038,416
Connecticut	6	.2	2,962	494	95,054	15,842,335
Northeast--Middle Atlantic:						
New York	669	1.8	668,899	1,000	610,690	912,841
New Jersey	44	.5	33,108	752	124,092	2,820,280
Pennsylvania	482	.9	205,391	426	770,039	1,597,592
Midwest--East North Central:						
Ohio	956	1.2	963,508	1,008	858,519	898,033
Indiana	1,132	1.6	1,280,244	1,131	1,017,116	898,512
Illinois	2,613	2.9	3,412,400	1,306	1,594,465	610,205
Michigan	530	1.0	681,186	1,285	636,689	1,201,300
Wisconsin	2,343	3.1	2,014,682	860	1,227,558	523,926
Midwest--West North Central:						
Minnesota	2,049	2.4	2,426,430	1,184	1,419,148	692,605
Iowa	3,011	2.9	2,694,063	895	2,231,926	741,257
Missouri	1,594	1.5	2,357,934	1,479	911,519	571,844
North Dakota	1,320	3.7	4,166,324	3,156	547,221	414,562
South Dakota	532	1.5	2,879,498	5,413	679,892	1,277,992
Nebraska	138	.2	293,388	2,126	1,668,689	12,091,947
Kansas	30	(Z)	43,221	1,441	1,623,170	54,105,668
South--South Atlantic:						
Delaware	44	1.5	74,905	1,702	111,589	2,536,108
Maryland	163	1.1	123,688	759	247,663	1,519,405
Virginia	360	.8	311,265	865	397,422	1,103,950
West Virginia	69	.4	78,166	1,133	67,901	984,071
North Carolina	431	.7	463,457	1,075	885,800	2,055,222
South Carolina	122	.6	198,054	1,623	220,480	1,807,212
Georgia	444	1.0	659,853	1,486	704,175	1,585,980
Florida	54	.1	1,186,801	21,978	1,090,769	20,199,430
South--East South Central:						
Kentucky	641	.7	842,079	1,314	518,968	809,623
Tennessee	613	.8	879,154	1,434	404,535	659,927
Alabama	259	.6	263,103	1,016	477,349	1,843,046
Mississippi	313	.9	1,101,788	3,520	466,390	1,490,063
South--West South Central:						
Arkansas	582	1.2	1,037,872	1,783	830,237	1,426,524
Louisiana	390	1.4	937,286	2,403	335,214	859,523
Oklahoma	140	.2	771,472	5,511	679,584	4,854,174
Texas	55	(Z)	88,991	1,618	2,642,769	48,050,346
West--Mountain:						
Montana	438	1.8	9,509,867	21,712	386,926	883,393
Idaho	64	.3	921,619	14,400	568,889	8,888,883
Wyoming	79	.9	3,816,241	48,307	169,296	2,142,987
Colorado	13	(Z)	7,162	551	787,229	60,556,115
New Mexico	20	.1	698,239	34,912	267,340	13,366,987
Arizona	16	.2	112,221	7,014	413,667	25,854,107
Utah	103	.7	694,331	6,741	154,654	1,501,491
Nevada	14	.5	375,066	26,790	62,863	4,490,206
West--Pacific:						
Washington	113	.3	434,719	3,847	731,593	6,474,277
Oregon	140	.4	662,595	4,733	461,691	3,297,791
California	293	.4	2,111,343	7,206	3,480,793	11,879,839
Alaska	4	.7	954	239	5,065	1,266,178
Hawaii	5	.1	179,290	35,858	167,161	33,432,140

(Z) Less than 0.05 percent.

Source: 1987 Census of Agriculture.

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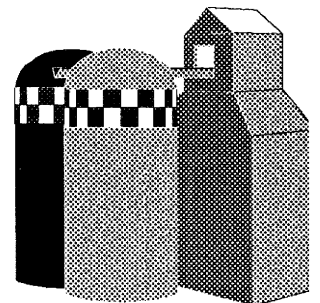
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SUMMARY OF REPORT

U.S. Farm Sector Continues Financial Recovery

Number 4, December 1992

Contact: Mitchell Morehart (202) 219-0800

In 1990, U.S. farm businesses continued to recover from the financial problems encountered during the early and mid-1980's, according to the most recent Farm Costs and Returns Survey. Based on their overall financial performance, a combination of net cash farm income and debt/asset ratio, farm businesses in 1990 were in the strongest financial condition since 1984.

Gross income more than kept pace with rising expenses, even with dramatic reductions in Government support. Following widespread drought in 1988, average net incomes rebounded strongly in 1989 and 1990. After several years of reductions in the use of debt capital, 1990 saw a moderate rise in debt-financed capital purchases. Farm businesses were also in a better position to service debt in 1990 than at any other time during the 1987-90 period.

Number of Vulnerable Farms Down

Each year, a segment of farms experiences extreme financial difficulties, but the size of that segment has been steadily declining over the past few years. Roughly 7 percent of farms entered 1991 in a vulnerable financial position, having a relatively high amount of debt in combination with negative net income. This level of vulnerability compares with 11.6 percent in 1986.

Nearly two-thirds of vulnerable farms had gross sales below \$40,000. These small, part-time operations are perhaps better able to cope with farm financial difficulties, since many have access to off-farm earnings to support their farm business.

Even though the composition of vulnerable farms has not changed much with regard to farm size, the geographic locations and production specialties associated with vulnerable farms have changed considerably since 1987. The Corn Belt had the largest concentration of vulnerable farms in both 1987 and 1990, yet its share of vulnerable farms went from 22 percent in 1987 to 16 percent in 1990. The Lakes States also had a substantial

reduction in the share of vulnerable farms. In contrast, the Southeast and Southern Plains regions had the largest 1987-90 increase in vulnerable farms.

The proportion of vulnerable farms that specialized in cash grains dropped from 26 percent in 1987 to 18 percent in 1990, the largest reduction for any production specialty.

Incomes Vary by Region and Commodity

The highest average net farm income occurred in the Northern Plains, Mountain, and Pacific regions. Increases in expenses outpaced income growth in 1990 for farms in the Northeast, Southeast, and Mountain regions, resulting in lower average net farm income than in 1989. Production specialties that, on average, had their most profitable year (since 1987) in 1990 were: tobacco; vegetables, fruits, or tree nuts; nursery or greenhouse; beef, hogs, or sheep; and other livestock.

To Order This Report...

The information presented here is excerpted from *Financial Performance of U.S. Farm Businesses, 1987-90*, AER-661, by Mitchell J. Morehart, James D. Johnson, and David E. Banker. The cost is \$14.00.

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The Japanese Presence in U.S. Agriculture

Japanese investment companies have come to the United States since the late 1980's to purchase, among other things, agricultural land and agribusinesses. How much land? How many businesses? This report gives you the answers and puts those answers in perspective.

Japanese investment in U.S. farmland and agribusiness has grown to over \$3 billion, but these holdings represent less than 1 percent of total investment in U.S. agriculture. Japan ranks fourth among the foreign owners of U.S. agricultural land and agribusinesses in terms of value. Investments have been made in cattle ranches and livestock slaughterhouses, citrus groves and other orchards, vineyards, bottled water companies, food processing and beverage companies, bakeries, fisheries, grain storage facilities, restaurants, convenience foodstores, and grocery stores.

International agreements like the 1988 U.S. -Japan Beef and Citrus Understanding have liberalized Japanese imports, presenting both Japanese investors and American growers with opportunities to invest profitably in an expanding market. Foreign direct investment contributes to the growth of employment and income in the host country. (The U.S. Commerce Department defines foreign direct investment as an investment of 10 percent or more in an enterprise.) U.S. policy has generally been to welcome foreign direct investment.

This report determines the types of Japanese investment in U.S. agriculture and agribusiness, puts that investment into perspective in the context of the U.S. economy, determines the reasons for the investment during the late 1980's, and evaluates the impact of this recent phenomenon on the U.S. economy.

The Japanese Presence in U.S. Agriculture.

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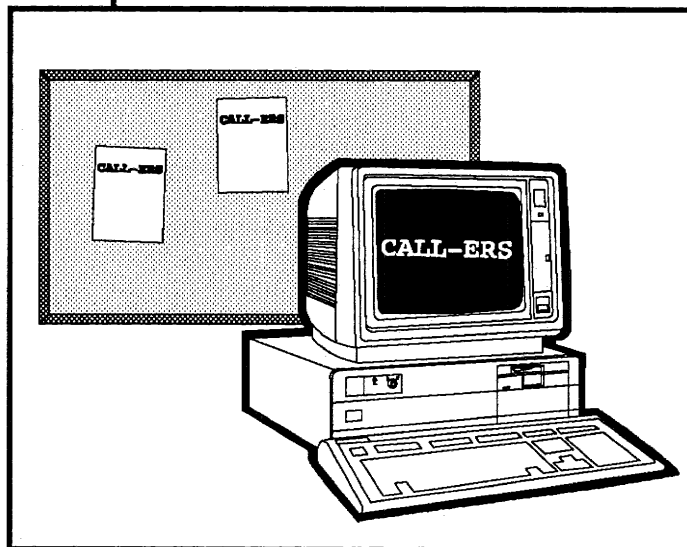
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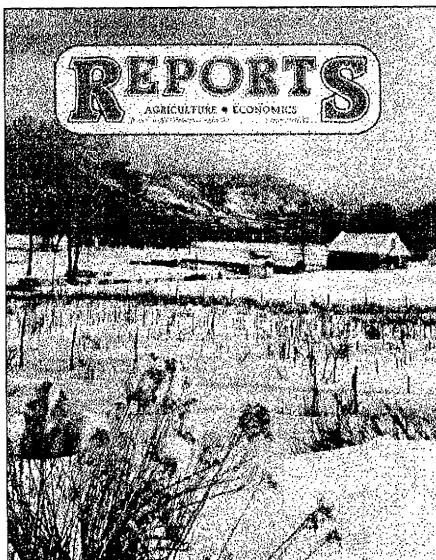
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