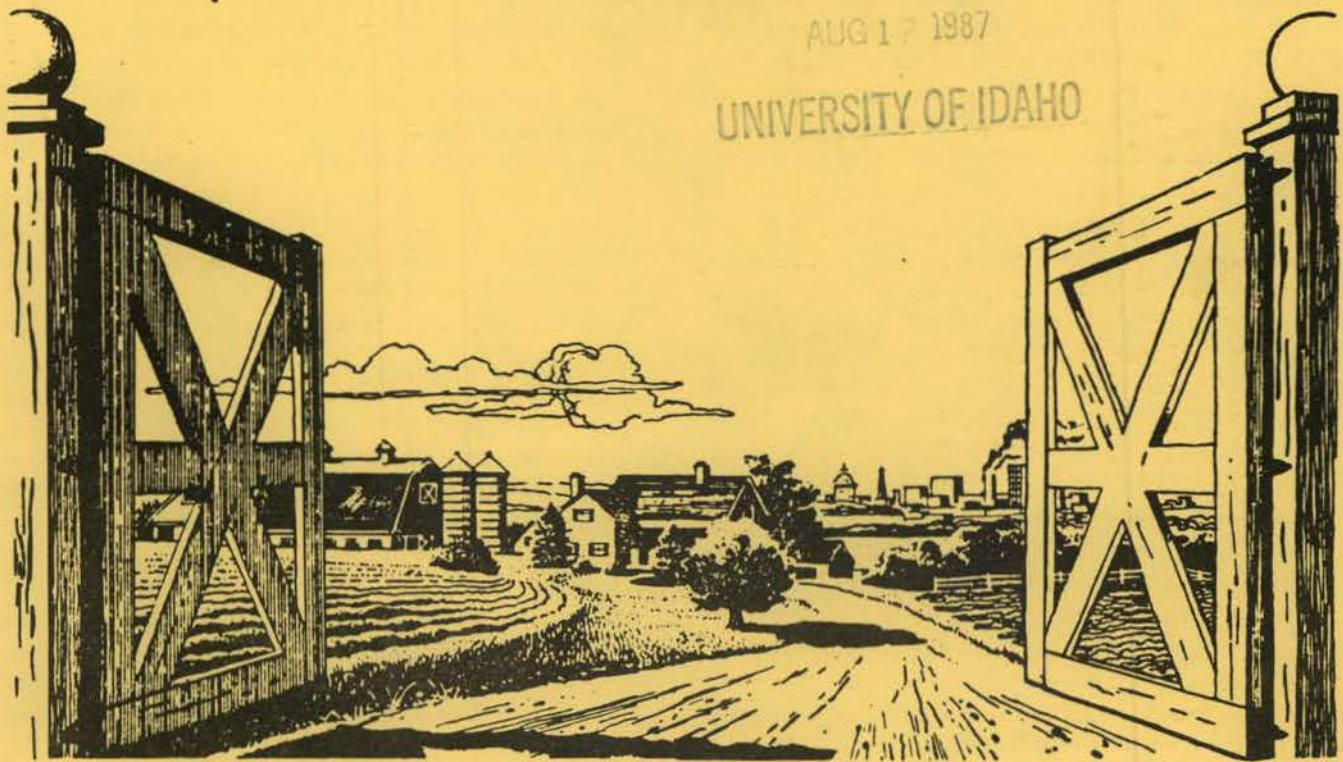


Idaho's Agriculture: A Changing Industry

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Summary

Idaho's economy depends to a large degree on the performance of agriculture, its largest industry. Agriculture is continuously changing. A review of past changes may provide information that can assist in the future structuring of agriculture to facilitate optimal performance, thus making maximum contribution to the future economy of the state. This publication reviews some of the structural and financial changes that have occurred in Idaho's agriculture over the past 3 decades.

Idaho farms are declining in number and increasing in size. In general, the percentages of total farms with over 500 acres and farms with 1 to 49 acres have been increasing while the percentage of farms in the 50 to 179 acre size class has been declining. These trends reflect attempts to achieve economies associated with larger size, and an increase in part-time and hobby farming.

Total acreage devoted to crop production has steadily increased while acreage devoted to pasture and grazing has declined slightly. Harvested acreage has increased at a higher rate than acreage devoted to crop production. This is largely due to an increase in the number of acres irrigated and the fact that considerable dryland crop acres are fallowed. Almost three-fourths of all harvested acreage is irrigated. For the present, the increase in irrigation in the state has slowed considerably.

Historically, about one-half of the sales of farm commodities is accounted for by crops and one-half by livestock and livestock products. Although Idaho produces almost 100 different agricultural products, 6 crop commodities (wheat, barley, hay, potatoes, sugarbeets and dry beans) and 4 livestock commodities (cattle and calves, sheep and lambs, wool and milk) have consistently accounted for over 85 percent of all farm commodity sales in Idaho. Over the last 3 decades, total value

of agricultural commodity sales has increased sevenfold. This has resulted from increased irrigation, increased yields and a general increase in price levels.

During the period 1954-1984, gross farm income in Idaho increased by 600 percent, farm production expenses increased by 761 percent and net farm income increased by 214 percent. The bulk of these increases occurred during the early 1970s when the economy was strong and expanding, with rapid inflation, growing export markets and favorable prices. These increases have slowed considerably during the 1980s because of an overall economic recession and loss of export markets.

The value of land and buildings on Idaho farms increased significantly during the period 1950 to 1982. However, the debt incurred to acquire these assets increased at a much faster rate. Thus, the ratio of debt to value almost doubled — from 8.1 percent in 1950 to 15.4 percent in 1982. Obviously, the current adverse financial situation of many Idaho farmers has been developing over a period of years, but has accelerated since 1980.

Total assets of Idaho farmers increased significantly up to 1981, primarily as a result of higher land values. Land values have declined since 1981, bringing the total farm asset value down with them. Farm debt has been increasing at a faster rate resulting in an increase in the debt/asset and debt/equity ratios and a decrease in the equity/asset ratio. These ratios have generally changed in the same direction for the U.S. Idaho ratios indicate that farmers in Idaho have a more serious debt situation than the U.S. on the average. However, over the past 8 years Idaho's situation has worsened at a slower rate than the U.S. average. Thus, the gap between the U.S. average and Idaho has narrowed significantly.

Idaho's Agriculture: A Changing Industry

Richard W. Schermerhorn, Extension Economist

Introduction

Agriculture is Idaho's largest single industry, directly or indirectly accounting for over 25 percent of Idaho's economic activity. Not only is agriculture a mainstay to Idaho's economy, it also contributes significantly to the nation's economy. Idaho ranks among the top 11 states in the production of 16 commodities and among the top 5 states in the production of 9 commodities (Table 1).

Idaho's agriculture is diverse, producing nearly 100 different commodities. Receipts from the marketings of these commodities totaled almost \$2.3 billion in 1984. Since Idaho had about 24,600 farms in 1984, farm marketings averaged \$93,500 per farm.

If there is one consistent characteristic of agriculture in Idaho, it would be change. Idaho's agriculture has in many aspects undergone considerable change over time. The remainder of this publication will review these changes over the past 3 decades.

Table 1. Idaho's rank among states in major commodities.

Commodity	Rank among states
Potatoes	1
Barley	2
Sugarbeets	3
Hops	3
All mint	3
Prunes and plums	4
American cheese	5
Dry edible beans	5
Onions	5
Sweet cherries	6
Sweet corn for processing	7
Alfalfa hay	8
Wool	10
Sheep and lambs	11
All wheat	11
Apples	11

Source: 1985 Idaho Agricultural Statistics

Table 2. Numbers and size of Idaho farms.

	1950	1954	1959	1964	1969	1974	1978	1982
Number of farms	40,284	38,740	33,670	29,661	25,475	23,680	24,249	24,714
Land in farms (000 acres)	13,224	14,365	15,232	15,302	14,417	14,274	14,699	13,922
Average farm size (acres)	328	371	452	516	566	603	606	563
Percent of Idaho land area in farms	25.0	27.1	28.8	28.9	27.2	27.0	27.8	26.4

Source: U.S. Census.

Structural Changes

Number and Size of Farms — Idaho farms have become fewer in number and larger in size, a long term trend shared throughout the United States. Since 1950, the number of Idaho farms has declined by almost 40 percent while the average size has increased by over 70 percent (Table 2).

The amount of land in Idaho farms increased by over 2 million acres during the 1950s and 1960s, primarily because new lands were brought into production by irrigation. Since the early 1970s, the rate of irrigated land development has slowed to the point where land being taken out of production by urbanization, roads and abandoned farms has exceeded the rate of new development (Table 2). Hence, the portion of Idaho land area in farms grew from 25 percent in 1950 to 28.9 percent in 1964 and then declined to 26.4 percent in 1982.

Land Use in Farming — The use of land in farms has changed significantly over these 3 decades. Total acreage devoted to the production of crops increased by 24 percent. Acreage devoted to pasture and grazing increased until the late 1960s and has declined since. Now, acreage devoted to pasture and grazing is about the same as in 1950 (Table 3). The result of this trend is that the share of total land in farms devoted to crop production increased from 39.5 percent in 1950 to 46.6 percent in 1982.

The acreage of harvested cropland also increased over the 30-year period but at a higher rate than the increase in total cropland. Harvested acreage increased by 34 percent, compared to the 24 percent increase in total cropland acreage (Table 3). This was a result of increased use of irrigation in crop production. Irrigated cropland is harvested each year while part of the dryland crop acreage is fallowed.

Irrigated Agriculture — Irrigation has become increasingly important in Idaho agriculture. Acres irrigated have increased by over 60 percent over the 3 decades. The percent of harvested cropland that is irrigated increased from 58.6 percent in 1950 to 70.6 percent in 1982, and the percent of all land in Idaho farms that is irrigated increased from 16.2 percent in 1950 to 24.8 percent in 1982 (Table 4). The total number of farms with irrigated land has declined over the 30 years, due primarily to consolidation of farms. As a result, the average number of acres irrigated per farm increased from 73 acres in 1950 to 199 in 1982.

Size Distribution of Farms — Accompanying the decline in the number of farms and the increase in average size of farms in Idaho has been a change in the

size distribution of Idaho farms. The major change has been the increase in percentage of farms 500 acres and larger (Table 5). In 1950, 12.3 percent of all farms were over 500 acres in size; by 1982, this percentage was 22.1. The percentage of total farms falling in the 1- to 49-acre category also increased, reflecting the trend to part-time and hobby farming. One-third of all farms in Idaho are less than 50 acres in size. The major decline has occurred in the 50 to 179 acre category. In general, farms formerly in this category have increased in size to achieve economies associated with larger size.

Crop and Livestock Sales — Sales of crops and livestock by Idaho farmers increased by almost 700 percent between 1950 and 1982 (Table 6). Crop sales have typically accounted for slightly over one-half of

Table 3. Land use on Idaho farms.

	1950	1954	1959	1964	1969	1974	1978	1982
Total cropland (000 acres)	5,230	5,476	5,784	5,878	6,172	6,248	6,540	6,484
Cropland as percent of total land in farms	39.5	38.1	38.0	38.4	42.8	43.8	44.5	46.6
Total pasture & grazing land (000 acres)*	7,353	8,423	8,959	9,268	NA	NA	8,138	7,451
Pasture & grazing land as percent of total land in farms	55.6	58.6	58.8	60.8	NA	NA	55.4	53.5
Harvested cropland (000 acres)**	3,648	3,728	3,832	3,935	3,955	4,531	4,821	4,888
Farms with harvested cropland	36,150	33,697	29,251	25,636	21,640	20,854	20,815	19,596
Cropland harvested per farm (acres)	101	111	131	153	183	217	232	249
Harvested cropland as percent of total land in farms	27.6	26.0	25.2	25.7	27.4	31.7	32.8	35.1

*Includes cropland used for pasture or grazing; woodland pastured; and other pastureland and rangeland not classified as woodlands or cropland.

**Excludes cropland used only for pasture or grazing; cropland in cover crops, legumes, and soil improvement grasses not harvested and not pastured; cropland on which all crops failed; cropland in cultivated summer fallow; and idle cropland.

Source: U.S. Census

Table 4. Irrigated farming in Idaho.

	1950	1954	1959	1964	1969	1974	1978	1982
Acres irrigated (000 acres)	2,137	2,325	2,577	2,801	2,761	2,859	3,475	3,450
Farms with irrigated land	29,413	28,218	25,383	22,251	17,840	16,825	18,215	17,355
Acres irrigated per farm	73	82	102	126	155	170	191	199
Irrigated land as percent of land in farms	16.2	16.2	16.9	18.3	19.2	20.0	23.6	24.8
Irrigated land as percent of harvested cropland	58.6	62.4	67.2	71.2	69.8	63.1	72.1	70.6

Source: U.S. Census

Table 5. Size distribution of Idaho farms.

	1950	1954	1959	1964	1969	1974	1978	1982
Total number of farms	40,284	38,740	33,670	29,661	25,475	23,680	24,249	24,714
	Percent of Total Farms							
Acres in farm								
1-9	9.5	11.2	7.8	6.9	7.1	5.4	7.0	11.9
10-49	20.4	18.4	17.9	18.0	17.2	18.0	18.7	21.4
50-179	40.2	38.9	37.4	33.7	31.6	31.4	28.0	24.8
180-499	17.6	17.9	20.4	22.3	22.9	22.3	22.8	19.8
500-999	6.4	7.1	8.2	9.2	10.1	10.6	10.8	10.4
1,000-1,999	5.9	6.5	4.7	5.6	6.4	7.0	7.3	6.3
2,000 or more			3.6	4.3	4.7	5.3	5.4	5.4

Source: U.S. Census

total sales throughout the 30-year period. This has continued through 1984 when crop sales accounted for 56 percent of total sales.

Table 7 compares the sales of selected crop and livestock commodities for the years 1954 and 1984. Six crop commodities — wheat, barley, hay, potatoes, sugarbeets and dry beans — produced 50 percent of the total crop and livestock sales in both years. Four livestock commodities — cattle and calves, sheep and lambs, wool and milk — produced another 36 percent of total sales in both years. Thus, the same 10 commodities accounted for 86 percent of all crop and livestock sales at the beginning and at the end of the 30-year period. The other 90 commodities produced in the state provided the remaining 14 percent of total sales. Although Idaho's agriculture is diversified, the major source of sales has remained the same over these 3 decades.

Significant shifts have occurred among the 10 commodities accounting for the 86 percent of total sales, however. As a percent of total sales, wheat, dry beans, sheep and lambs and wool have declined, while barley,

hay, potatoes, cattle and calves and milk have increased. Sugarbeets have remained stable.

Many factors affect the sales value of agricultural commodities from year to year — technology, yield levels, acreage planted, government programs and prices. For example, sales of wheat increased by 466 percent between 1954 and 1984, from \$63.3 million to \$358.2 million. Acreage harvested in both years was almost the same — 1.224 million in 1954 compared to 1.280 million in 1984. The increase in sales was a result of:

1. A shift to irrigated wheat production — in 1954, 309,000 acres of wheat were irrigated and 915,000 acres were not. In 1984, 596,000 acres were irrigated and 684,000 were not. Thus, 25 percent of harvested wheat acreage was irrigated in 1954 compared to 47 percent in 1984.
2. Yield doubled between 1954 and 1984. Average yields on non-irrigated wheat acreage increased from 25.0 bushels per acre in 1954 to 46.4 in 1984, while average yields on irrigated acreage increased from 46.6 to 83.3 bushels per acre.

Table 6. Crop and livestock sales from Idaho farms.

	1950	1954	1959	1964	1969	1974	1978	1982
Total crop and livestock sales (\$000)	281,025	332,126	438,383	478,494	649,571	1,378,676	1,633,160	2,231,605
Livestock and poultry sales (\$000)	126,321	133,890	195,967	211,132	352,072	502,917	836,360	1,070,863
Percent of total sales	45.0	40.3	44.7	44.1	54.2	36.5	51.2	48.0
Crop sales (\$000)	154,704	198,236	242,416	267,362	297,499	875,759	796,800	1,160,742
Percent of total sales	55.0	59.7	55.3	55.9	45.8	63.5	48.8	52.0

Source: U.S. Census

Table 7. Comparison of selected crop and livestock sales, 1954 and 1984.¹

Commodity	1954		1984		Percent change in sales - 1954-1984
	Sales	Percent of total sales	Sales	Percent of total sales	
	(\$000)		(\$000)		
Wheat	63,280	19.1	358,210	15.7	+ 466
Barley	12,789	3.9	136,607	6.0	+ 968
Corn	585	0.2	15,714	0.7	+ 2,586
Oats	3,256	1.0	2,738	0.1	- 16
Hay	11,911	3.6	90,212	3.9	+ 657
Lentils	195	*	5,250 ²	0.2	+ 2,592
Dry beans	18,095	5.4	23,300	1.0	+ 29
Potatoes	41,489	12.5	415,231	18.1	+ 900
Sugarbeets	18,415	5.5	125,029	5.5	+ 579
Mint	21	*	4,455	0.2	+ 21,114
Apples	2,640	0.8	22,637	1.0	+ 757
Cherries	136	*	1,095	*	+ 705
Peaches	544	0.2	1,273	*	+ 134
Plums & prunes	2,132	0.6	2,230	0.1	+ 5
Cattle & calves	63,609	19.2	531,715	23.2	+ 736
Hogs	4,344	1.3	20,359	0.9	+ 369
Sheep & lambs	17,483	5.3	22,791	1.0	+ 30
Wool	5,014	1.5	2,747	0.1	- 45
Milk	36,316	10.9	274,743	12.0	+ 657
Eggs	3,569	1.1	13,020	0.6	+ 265
Total	305,823	92.1	2,069,356	90.4	+ 577
Total sales	332,126		2,288,457		+ 589

¹1954 data from U.S. Census and 1984 data from Idaho Crop and Livestock Reporting Service.

²Estimated by Idaho Pea and Lentil Commission.

*Less than 0.1 percent.

3. Average price increased from \$1.97 per bushel in 1954 to \$3.27 in 1984 — a 66 percent increase.

Financial Change

Net Income from Farming — Net farm income in Idaho has been erratic in its general upward trend over the past 3 decades (Table 8), primarily because of factors beyond the control of producers — prices, weather and government programs and policies.

Gross income from farming in Idaho increased by 600 percent between 1954 and 1984, but net farm income increased by only 214 percent. This is because farm production expenses increased by 761 percent during the period.

The trend toward net farm income increasing at a slower rate than gross farm income can be put in perspective by considering net income as a proportion of production costs (Table 8). Increasing production costs reflect the basic underlying inflationary trend in the general economy.

A strong economy, growing export markets and favorable prices led to relatively dramatic increases in both gross and net farm income during the early 1970s. Gross farm income increased by 110 percent and net farm income by 191 percent during the 5 years 1969 to 1974. During the next 10 years (1974 to 1984), gross farm income increased by only 60 percent, and net farm income actually declined by 37 percent. This was the result of the overall economic recession and loss of export markets.

Farm Real Estate Value and Debt — The value of land and buildings on Idaho farms increased by 1,178 percent (an average annual rate of 37 percent) from 1950 through 1982 (Table 9). Debt on this real estate increased by 2,332 percent (an average annual rate of 73 percent) during the period. Thus, the ratio of debt to value increased from 8.1 percent in 1950 to 15.4 percent in 1982. The high point in this ratio occurred in 1969, at a time of relatively large expansion in the development of new land accompanied by the cost of land development and installation of irrigation equipment. Increased costs of land and irrigation have been the primary cause of both increased real estate value and debt.

Real estate value per farm in Idaho increased by 1981 percent during the period, from \$24,300 per farm to \$505,800 per farm. Debt increased by 3,785 percent, from \$2,000 per farm to \$77,700. Obviously the current adverse financial situation of many farmers in Idaho has been developing over a period of years.

Farm Balance Sheet — The Idaho farm balance sheet shows another dimension of the trends previously discussed. The Idaho Farm Balance Sheet (Table 10) measures current wealth in the farm sector as of December 31 each year. The balance sheet calculates the assets at current market value instead of book value, so it reflects land value and equipment prices as they were each year.

Total assets of Idaho farmers increased dramatically during the 1970s, driven upward primarily by higher land values. Increased farm profits (Table 8) provided incentive for land price increases. However, the economic

Table 8. Idaho farm income.

	1950	1954	1959	1964	1969	1974	1978	1982
	(\$ million)							
Gross farm income ¹	375.1	476.0	527.8	730.5	1,530.9	1,719.7	2,402.8	2,623.3
Farm production expenses	250.5	345.3	430.8	554.1	1,008.7	1,478.1	2,135.2	2,155.6
Change in inventory value	+ 11.7	- 3.8	- 22.9	+ 25.1	+ 64.6	+ 306.5	+ 72.9	- 39.8
Net farm income	136.2	126.9	74.1	201.5	586.9	548.1	340.5	427.9
Net farm income as percent of gross farm income	36.3	26.7	14.0	27.6	38.3	31.9	14.2	16.3
Net farm income as percent of farm production expenses	54.4	36.8	17.2	36.4	58.2	37.1	15.9	19.9

¹Includes cash receipts from farm marketings, government payments and non-money income such as imputed rental value of farm dwellings. Source: Economic Indicators of the Farm Sector-State Financial Summary, USDA.

Table 9. Idaho farm real estate value and debt.

	1950	1954	1959	1964	1969	1974	1978	1982
Value of land & buildings (\$million)	978	1,314	1,665	1,993	2,581	4,449	7,936	12,501
Farm real estate debt (\$million)	79	126	205	347	549	779	1,277	1,921
Debt as percent of value	8.1	9.6	12.3	17.4	21.3	17.5	16.1	15.4
Number of farms	40,284	38,740	33,670	29,661	25,475	23,680	24,249	24,714
Value of land & buildings per farm (\$000)	24.3	33.9	49.5	67.2	101.3	187.9	327.3	505.8
Real estate debt per farm (\$000)	2.0	3.3	6.1	11.7	21.6	32.9	52.7	77.7

Source: U.S. Census

Table 10. Idaho farm balance sheet.

	1977	1978	1979	1980	1981	1982	1983	1984 ¹
	(\$ million)							
Total farm assets ²	8,499.3	9,542.3	11,068.7	14,295.7	14,951.6	14,536.4	14,585.6	13,480.2
Total farm debts ³	1,771.0	1,928.5	2,101.3	2,855.2	3,210.6	3,376.4	3,408.0	3,360.3
Total farm equity	6,728.3	7,613.8	8,967.4	11,440.5	11,741.0	11,160.0	11,177.6	10,119.9
Total debt/asset ratio								
Idaho	20.8	20.2	19.0	20.0	21.5	23.2	23.4	24.9
U.S.	17.5	16.8	16.9	17.0	18.8	20.8	21.2	23.2
Total debt/equity ratio								
Idaho	26.3	25.3	23.4	25.0	27.3	30.3	30.5	33.2
U.S.	21.2	20.2	20.3	20.5	23.1	26.3	26.9	30.3
Total equity/asset ratio								
Idaho	79.2	79.8	81.0	80.0	78.5	76.8	76.6	75.1
U.S.	82.5	83.2	83.1	83.0	81.2	79.2	78.8	76.8

¹Preliminary.

²Includes real estate except value of operators dwellings; value of livestock and poultry; farm share of value of machinery and motor vehicles; value of all crops held on farms including crops under CCC and crops held off farms by farm operators; and financial assets.

³Includes real estate debt; nonreal estate debt; and CCC loans.

Source: Economic Indicators of the Farm Sector; ECIFS 4-5 — State Financial Summary, 1984; ECIFS 4-3 — National Financial Summary, 1984

recession and loss of export markets have caused a decline in farm incomes since 1980. Consequently, land prices have fallen, bringing total farm asset value down with them. The peak in total asset value in Idaho was reached in 1981. The total has declined since, particularly in 1984.

Total farm debt also increased consistently from 1977 through 1983 but declined slightly in 1984. Farm debt actually increased at a more rapid rate than the value of assets from 1977 through 1984. Debt increased by 90 percent while asset values increased by only 59 percent. The result was that farm equity increased by only 50 percent over the period.

Three ratios in Table 10 describe the financial situation in Idaho and, for comparison, in the U.S. In 1977, farm debts as a percent of farm assets (total debt/asset ratio) amounted to 20.8 percent in Idaho and 17.5 percent in the U.S. These ratios declined for the next 2 years and have steadily increased since. In 1984, the Idaho total debt/asset ratio was 24.9 percent; the U.S., 23.2 percent. Thus, Idaho has consistently had a higher ratio of debt to assets than the U.S. as a whole, but the gap has narrowed.

The ratio of farm debt to farm equity shows essentially the same trend. The ratio declined slightly between 1977 and 1979 and then increased. Idaho has also had a consistently higher ratio of debt to equity than the U.S. but the gap is narrowing.

The total equity/asset ratio shows the percent of farm assets owned by farmers. Again, the trend is the same as for the other ratios: Idaho farmers have consistently owned a smaller percentage of their assets than farmers in the U.S., but the gap has narrowed. Even in 1984, Idaho farmers owned three-quarters of their assets.

The financial condition of Idaho farmers in terms of assets, debt and equity has worsened during the first part of the 1980 decade. However, the situation in Idaho has not worsened at the same rate as the average of the U.S. Thus, the gap between the U.S. and Idaho financial situation has narrowed over the past few years. The financial condition of both Idaho and the U.S. will continue to decline over the next couple of years until exports begin to increase and the economic situation improves.



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