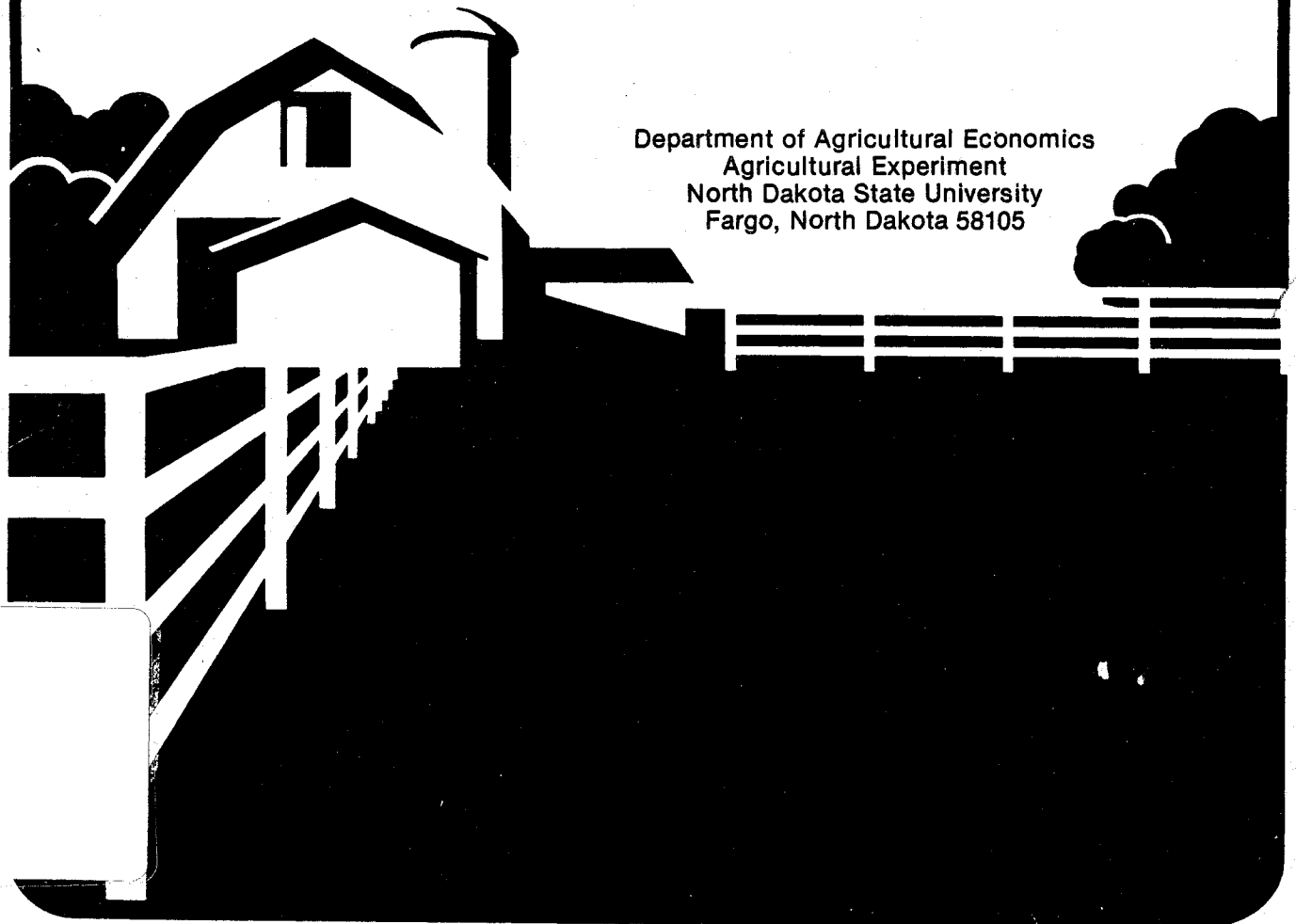


Financial, Managerial, and Attitudinal Characteristics of North Dakota Farm Families: Results of the 1986 Farm Survey

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Highlights

This report is a comprehensive analysis of survey results from the 1986 follow-up survey of over 900 North Dakota farmers initially contacted in March and April 1985. The 759 farmers who were still farming and who had completed useable questionnaires constitute the data base for this report.

This report is organized into four parts: (1) the financial situation of the farm operators making up the sample; (2) the changes in management practices brought about by the present economic environment; (3) the attitudes and opinions of these operators concerning the causes of the present situation, perceptions of farming and farmers in general, and views on financial assistance policies; and (4) the effects of economic stress on the personal lives of farm and ranch families. Please note that the 1985 and 1986 surveys sought information about their 1984 and 1985 financial position, respectively. Analysis of data from the two surveys leads to a number of conclusions. The most salient of these include the following.

- Total income of North Dakota farm families declined slightly (3 percent) from 1984 to 1985. Modest increases in net cash farm income and off-farm earnings were more than offset by declines in mineral lease income and income from nonfarm investments. Cash grain farms had levels of net farm income and total family income that were substantially greater than the state average, continuing a pattern observed in 1984.
- On average, producers' equity positions worsened in 1985. The average debt-to-asset ratio rose from 32.6 percent as of December 31, 1984, to 34.2 percent as of December 31, 1985. The average value of assets of the survey respondents declined 3.7 percent during this period, while total debt increased by 0.9 percent.
- The return to total assets was quite similar among producers of different debt-to-asset categories. In fact, the most highly leveraged groups demonstrated the highest rates of returns to assets.
- The return to equity indicates the plight of highly leveraged producers. Because the cost of borrowed funds exceeded the average return on assets, heavily indebted farmers experienced negative returns to equity.
- On average, total farm family income was adequate to cover current operating expenses, a family living allowance, and principal payments. Total income was not adequate to cover these costs plus depreciation, however.
- About 54 percent of the state's farm and ranch operators had 1985 levels of total family income that were inadequate to cover their cash expenses, family living costs, principal payments, and a depreciation allowance. More than three-fourths of this group also were unable to cover all of these costs in 1984, which suggests that the long-term viability of their farming operation may be questionable unless economic conditions improve.

- Obtaining off-farm employment is one way in which many farm families have attempted to cope with adverse economic conditions. Altogether, about 44 percent of the households surveyed reported some off-farm earnings in 1985.
- Many farmers also made changes in their farming operation in an attempt to cope with economic conditions. Adjustments reported by one-fourth or more of the respondents included postponing capital purchases, reducing tillage operations, reducing family living expenses, and reducing use of such inputs as fertilizer and chemicals. Financial variables, such as debt-to-asset ratio and net cash farm income, were significant in explaining most of these changes.
- Economic conditions have taken an emotional toll on many farm families. Of the respondents, 30 percent said that their personal lives had been affected a great deal, while 54 percent reported some effect and only 16 percent said they had not been affected at all.
- Despite the difficult economic conditions facing farmers, a minority favored special programs of federal or state assistance to farmers in financial trouble. About 39 percent favored such aid if provided by the federal government (26 percent were neutral), while 31 percent would favor such aid from the state government (25 percent were neutral).

FINANCIAL, MANAGERIAL, AND ATTITUDINAL CHARACTERISTICS
OF NORTH DAKOTA FARM FAMILIES:
RESULTS OF THE 1986 FARM SURVEY

F. Larry Leistritz, Wallace C. Hardie, Brenda L. Ekstrom,
Arlen G. Leholm, and Harvey G. Vreugdenhil*

American farmers are facing their most severe financial crisis since the 1930s. A substantial proportion of farmers may be forced to quit within the next few years as a result of low commodity prices, high interest rates, and falling land values. The most financially stressed farms tend to be concentrated in the Corn Belt, Northern Plains, and Great Lakes states--areas where land values have recently declined and where the economic dependence of rural communities on agriculture is quite high (Johnson et al. 1985). A rapid increase in the number of farm failures may lead to a substantial decline in the total number of farms and farm population in many rural areas and could, in turn, have very serious implications for agribusiness firms, for the entire trade and service sector in many agricultural trade centers, and for such public services as primary and secondary schools.

In March of 1986 the Cooperative Extension Service and the Department of Agricultural Economics at North Dakota State University and the United States Department of Agriculture joined to conduct one of the first longitudinal studies of farm operators in the 1980s. This effort was in response to the continued attention being focused on the financial condition of farmers and ranchers and attempts to provide local, state, and national policymakers with accurate financial and socioeconomic information on North Dakota operators.

Study Procedures

This report is a comprehensive analysis of survey results from the 1986 follow-up survey of over 900 North Dakota farmers initially contacted in March and April 1985. That year 933 farmers and ranchers were surveyed regarding their 1984 financial and other socioeconomic characteristics, such as their off-farm employment history and trade patterns (Leholm et al. 1985). Initial screening questions were incorporated in the 1985 survey to ensure that all respondents were less than 65 years old, were operating a farm, considered farming to be their primary occupation, and sold at least \$2,500 of farm products in 1984. Attempts were made in the 1986 survey to contact all 933 members of the original panel. Of these, 759 responded, 99 refused to participate, 18 had ceased to operate a farm or ranch, 4 were deceased, and 53 could not be contacted. The 759 farmers who were still farming and who had completed useable questionnaires constitute the data base for this report.

*The authors are, respectively, professor, extension associate, research assistant, extension economist, and research associate, Department of Agricultural Economics and Extension Agricultural Economics, North Dakota State University.

Selected characteristics of respondents to the 1986 survey were compared with data from the 1985 survey and with North Dakota data from the 1982 Census of Agriculture to determine representativeness. The distribution of farms by state planning region (see Figure 1) compares quite closely with both the 1985 survey and the 1982 census count for farms whose operators reported farming as their principal occupation (Table 1). The age distributions are also quite similar between the two surveys and the census except that the surveys included slightly smaller percentages of operators under age 25. A probable explanation for this difference is that difficult economic conditions have discouraged young people from entering farming in the last few years.

Comparison of the distributions of acres operated reveals that the two survey distributions are similar but that both surveys included a smaller percentage of small farms (less than 500 acres operated) than are represented in the census. A likely explanation is that many of these smaller units are operated by individuals (excluded from the survey) over 65 years of age or who do not consider farming to be their principal occupation.

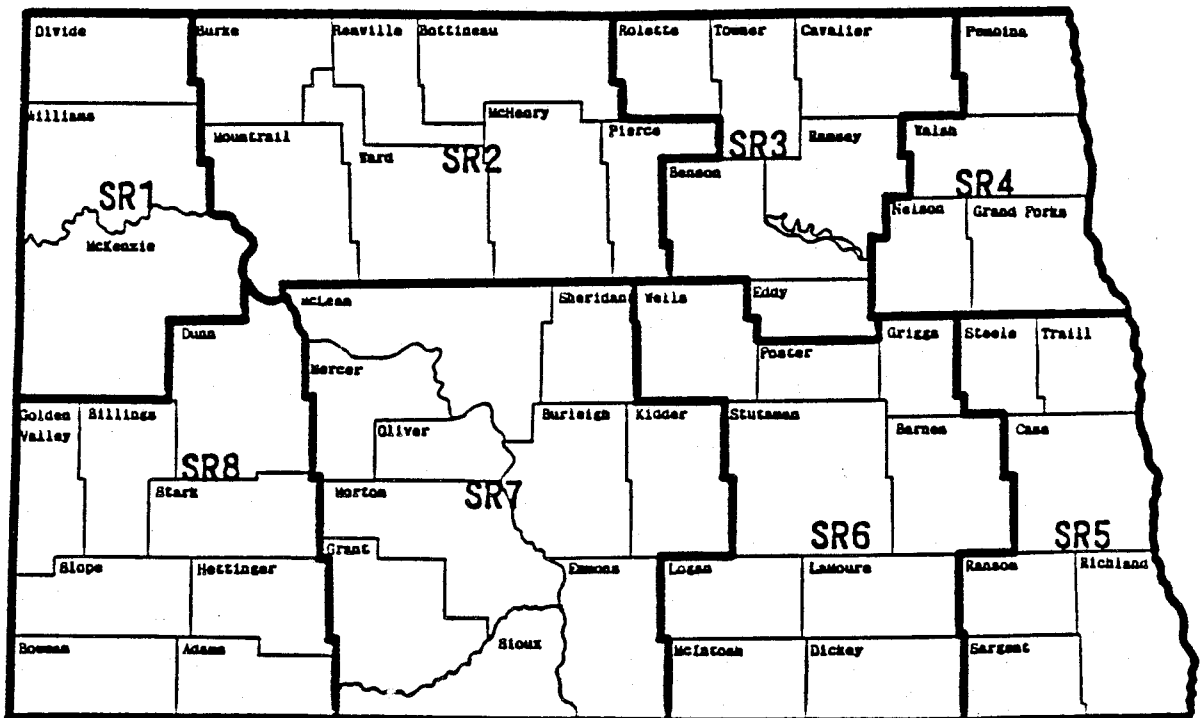


Figure 1. The Eight State Planning Regions in North Dakota

TABLE 1. DISTRIBUTIONS OF NORTH DAKOTA FARMS BY STATE PLANNING REGION, ACRES OPERATED, AND AGE OF OPERATOR FROM 1982 CENSUS OF AGRICULTURE, 1985 FARM OPERATOR SURVEY, AND 1986 FARM OPERATOR SURVEY

	1982 Census	1985 Survey	1986 Survey
-----percent-----			
Region: ^a			
1	6.2	4.9	5.0
2	14.9	15.1	14.9
3	11.0	10.9	10.4
4	9.7	9.8	9.0
5	13.4	13.2	13.4
6	17.8	17.9	17.9
7	17.4	17.9	18.3
8	9.7	10.3	11.1
Age: ^a			
Less than 25	6.2	2.8	2.6
25 to 34	20.1	20.5	19.2
35 to 44	20.2	23.4	24.8
45 to 54	24.9	25.7	24.1
55 to 64 ^b	28.7	27.6	29.2
Acres operated: ^c			
Less than 180	7.8	1.3	2.0
180 to 499	14.6	8.3	8.8
500 to 999	28.9	25.8	25.6
1,000 to 1,999	33.3	39.4	41.3
2,000 or more	15.5	25.2	21.9

^aIncludes only farms whose operator reported farming as principal occupation. Source: 1982 Census of Agriculture, Table 46.

^bFor the 1986 survey, this includes 10 operators (1.3 percent) who were 65 years old at the time of the survey.

^cIncludes only farms whose operator reported farming as principal occupation and whose age was less than 65.

This report is organized into four parts. First, the financial situation of the farm operators making up the sample is examined in detail. Second, the changes in management practices brought about by the present economic environment are explored. Third, the attitudes and opinions of these operators concerning the causes of the present situation, perceptions of farming and farmers in general, and views on financial assistance policies are reported. Finally, the effects of economic stress on the personal lives of farm and ranch families are investigated.

Financial Situation of North Dakota Farm Families

North Dakota farm families (households) have historically experienced a high degree of income variability from one year to the next as weather conditions and commodity prices fluctuate. Average net farm income of North Dakota farm families has varied from \$5,862 to \$17,961 in the past five years (Economic Research Service 1987). However, the average income measure loses much of its meaning because it masks a great deal of income variation among farm families. The following is a description of the diversity of the financial well-being of North Dakota farm families according to three measurements:

1. Income Characteristics - the ability to produce revenue over time
2. Equity Characteristics - the relative wealth and debt situation of the family
3. Cash Flow Characteristics - the ability to pay bills when due

Income Characteristics

The sources of income of North Dakota farm families were divided into four categories: (1) net cash farm income, (2) earnings from off-farm employment, (3) mineral lease income, and (4) other off-farm income. Net cash farm income for a given calendar year is the gross farm income (including government payments) less all cash expenses of farming and depreciation of farm assets. In the short run, a farm operator may be able to use income normally designated for machinery replacement to pay other obligations. From an economic perspective, however, the cost of maintaining an adequate line of machinery must be accounted for through a depreciation allowance. Earnings from off-farm employment include annual wage and salary income of the farm operator and/or his spouse. Mineral lease income is the yearly proceeds of an oil or coal lease. Other off-farm income consists primarily of interest and other revenues associated with off-farm investments.

The relative importance of each income source for 1984 and 1985 is illustrated in Figure 2. North Dakota farm families are heavily dependent on farm revenues as their primary source of income. According to survey data, net cash farm income averaged \$15,285 in 1984 and comprised about 59 percent of total farm family income; nationally, only 39 percent of total farm family income originated from the farm in 1984 (Ahearn 1986).

It should be noted that a few extreme values on either side of the mean can have a substantial influence on the average figure reported. For example, average net cash farm income in 1985 was \$15,958, but over 48 percent of the farmers reported net cash farm income of \$10,000 or less. The median or midpoint of the responses falls somewhat lower than the average. In this instance, the median net cash farm income is \$10,000. In some instances the median may be a more appropriate descriptor than the mean of the financial attributes of a typical North Dakota farm or ranch. The means (averages) and medians for other key financial characteristics are listed in Appendix Table 1.

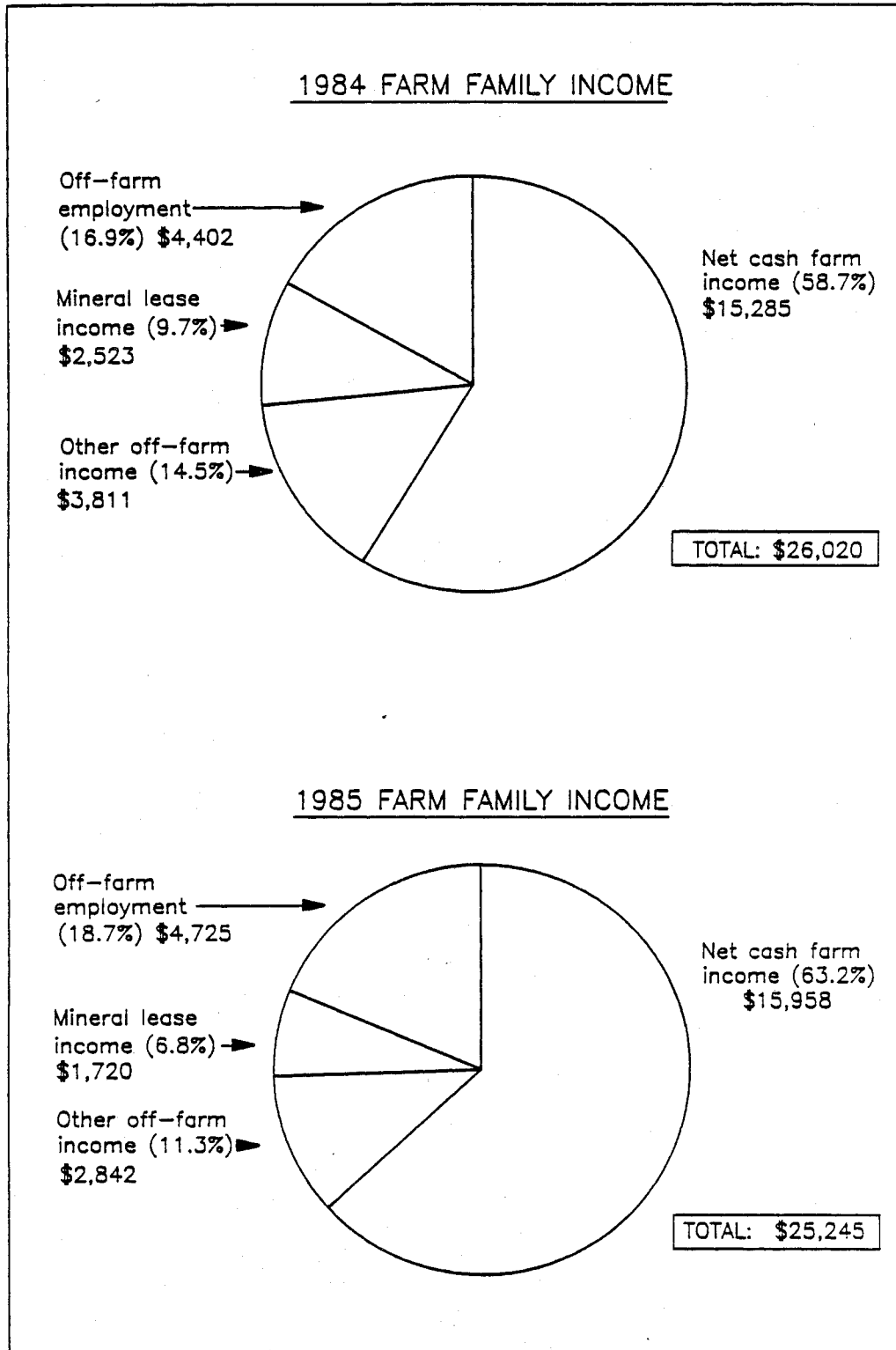


Figure 2. Farm Family Income, 1984 and 1985

Overall, average increases of \$673 in 1985 net cash farm income and \$323 in off-farm employment income were not adequate to offset an \$803 decrease in mineral lease payments and a \$969 decrease in other off-farm income. Average total farm family income fell from \$26,020 in 1984 to \$25,245 in 1985 (a 3 percent decline).

One way of evaluating the income of North Dakota farm families is to identify how many families are achieving a certain level of income and isolate the sources from which that income is derived. Results are presented in Appendix Table 2 for 1984 and 1985. In 1985, almost one-half (48.1 percent) of survey respondents reported net cash farm income less than \$10,000. For two-thirds of the farm operators and spouses employed off the farm in 1985, total wage and salary income amounted to less than \$10,000 per year. About 89 percent had annual payments for mineral leases of less than \$10,000, and most other off-farm income category (interest on investments, rent received, etc.) was also less than \$10,000 per year.

Summing various income sources reveals that a higher percentage of families fell into the lower income groups in 1985 than in 1984. About one-third of North Dakota farm households generated less than \$10,000 in total income in 1985, and there were 2.6 percent more families in this category in 1985 than in 1984. Another one-third of farm families received between \$10,000 and \$25,000 in 1985. There were 3.4 percent more families in this category in 1985 than in 1984. At the other end of the spectrum, 32.7 percent of the farm families earned \$25,000 or more in 1985--a 6 percent drop from 1984.

Family Income Profile by Selected Farm Characteristics. The average incomes of farm families, the contribution various income sources make to total family income, and the size distribution of income vary considerably among common categories of North Dakota farms. The following analysis evaluates farm family income according to volume of production, type of production, region, and off-farm employment status.

The composition of farm family income varied considerably among farms of different sizes as measured by volume of production (Figure 3 and Appendix Table 3). Farm size was defined according to gross farm income categories (total sales plus government payments). As expected, average total farm family incomes increased as gross farm income increased--the smallest farms' incomes averaged \$12,710 compared with \$79,696 for the largest farms. It should be noted that those with less than \$2,500 in agricultural product sales in 1984 were excluded from the survey.

Examining the sources of income reveals that farms with gross farm income under \$40,000 depended on farm sources of income for only one-third of their total family income. The \$40,000 to \$99,999 class received just over one-half of their total income from farming. As gross farm income rises beyond \$100,000, the percentage of total income coming from off-farm sources drops dramatically. Those families reporting \$500,000 or more gross farm income received 93 percent of their total family income from farm sources.

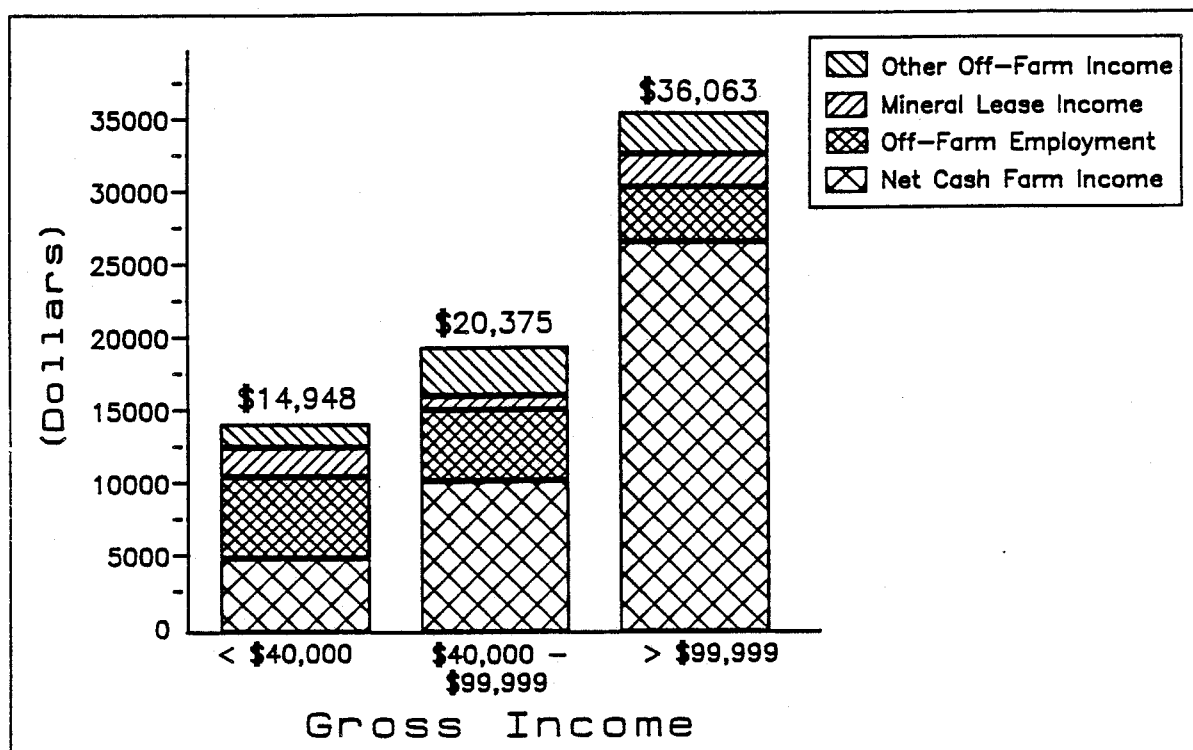


Figure 3. Composition of Total Farm Family Income

There was not a clear relationship between volume of production and the amount of income received from mineral leases and other off-farm income; however, a definite inverse relationship existed between gross farm income and off-farm employment income (Appendix Table 3). Earnings from off-farm employment comprised 37 percent of total family income among farms in the \$10,000 to \$39,999 gross farm income category, but only 12 percent of those in the \$100,000 to \$500,000 category.

Substantial variations in both the level and composition of farm family income were noted when farms of different types were compared (Figure 4 and Appendix Table 4). Farm type was defined according to the source of the majority of total sales in 1985. For example, farms with more than 50 percent of their total sales coming from beef cattle were classified as beef. All farms not falling into crop, beef, or dairy classes were categorized as diversified. Crop farms had the highest average total family incomes, \$28,891--about 16 percent above the state average. This was the result of a net cash farm income that was nearly twice that of any other farm type and off-farm employment earnings that were slightly higher than average. Beef farms had the next highest total family income, followed by dairy farms and diversified farms. The relative income status of the four farm types was similar to that found in 1984 (Leistritz et al. 1985).

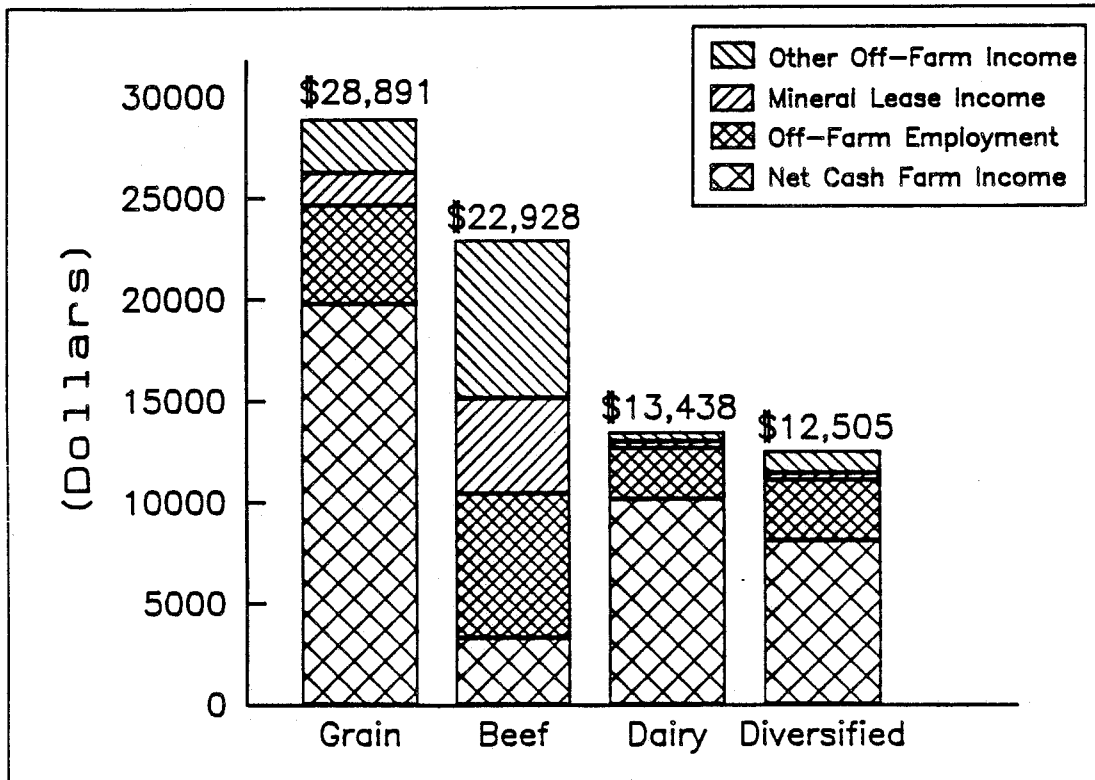


Figure 4. Composition of Total Farm Family Income by Type of Enterprise

A look at the income distribution of farmers according to type of production reveals that 28 percent of cash grain farms had total incomes less than \$10,000, compared to 45 percent of beef farmers, 43 percent of dairy farmers, and about 52 percent of diversified farmers.

The depressed state of the cattle industry in 1985 is reflected in the sources of income for beef farms. On the average, only 14 percent of their total family income came from the farm or ranch; about one-third of their income came from off-farm employment, and 20 percent came from lease income. These farms/ranches also had by far the highest level of other off-farm income.

Both the level of farm family income and the importance of its various components differed substantially among state planning regions (see Figure 1 for a map of planning regions). Altogether, four regions showed an increase in net cash farm income, and four regions showed a decrease from 1984 to 1985 (Figure 5). Most noticeable increases occurred in the southern Red River Valley, which reported nearly a \$14,000 increase over 1984; and in the region encompassing Rolette, Towner, Cavalier, Ramsey, Benson, and Eddy counties, which showed an increase of nearly \$6,800. This probably reflects both favorable weather conditions and the influence of some specialty crops grown in the Red River Valley. In contrast, the northwestern corner of the state reported the sharpest decrease in net income, which was down over \$15,000 from 1984. This decrease reflects the effects of continued severe drought conditions in that region in 1985.

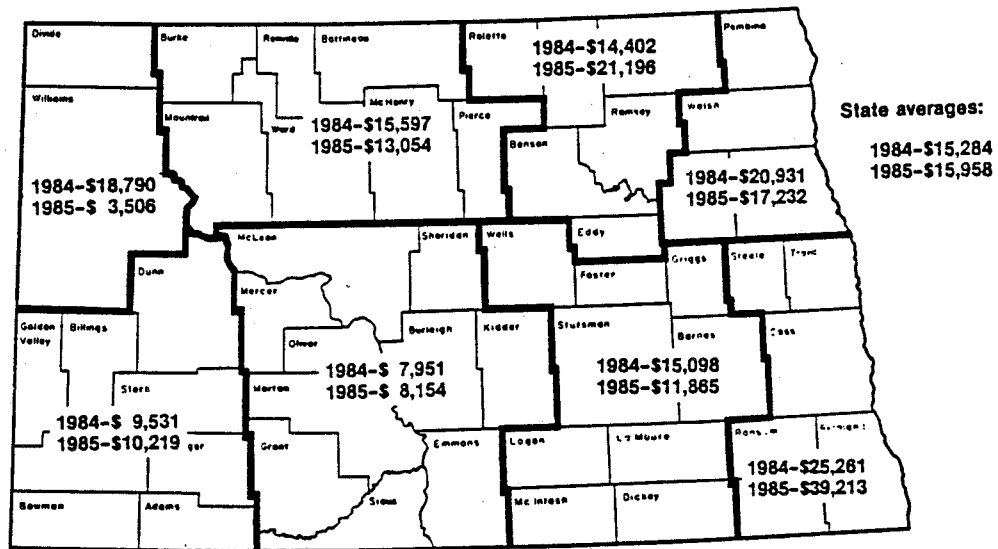


Figure 5. Regional Average Net Cash Farm Income in North Dakota, 1984 and 1985

The distribution of farm operators by total farm family income and composition of income for the eight planning regions is presented in Appendix Table 5. The contribution of sources of income to total incomes differs greatly by region. The eastern regions showed the highest dependency on farming as a source of income (e.g., 83 percent in Fargo), and the western regions showed a much lower dependency (e.g., 37 percent in the Dickinson region and 11 percent in the Williston region).

Financial Equity Characteristics

The relative equity (net worth) position of farm families in the state has been under close scrutiny in recent years. Farmers generally increased their debt loads during the 1970s due to ever-increasing profit expectations. As unfavorable economic factors entered the scene in the 1980s, land and machinery values declined steadily. The extent of the current debt load as a portion of an operator's asset base has become a critical factor in farm survivability.

The debt-to-asset ratio (total debts divided by total assets) is one of the better indicators of the financial health of a farm business. The larger the ratio, the greater the probability the farmer will experience cash flow problems. At current prices, input costs, and asset values, most commercial farms begin to experience difficulty meeting principal repayment commitments at debt-to-asset ratios of about 40 percent (Johnson, Baum, and Prescott 1985; Leistritz et al. 1985). A more critical point is reached when the debt-to-asset ratio exceeds 70 percent. Above this point, most farms have difficulty meeting interest payments and other current expenses. Statewide, the debt-to-asset ratio increased from 32.6 percent in 1984 to

34.2 percent in 1985 (Figure 6). When compared on a regional basis, all but the two westernmost regions exhibited an increase in average debt-to-asset ratio. When debt-to-asset ratios of operators providing financial information for 1984 and 1985 are compared (Appendix Table 6), about the same percentage of operators are found with no debt (17 percent) and with 41 to 70 percent debt (24 percent). The percent of farmers in the 1 to 40 percent debt category decreased from 46 percent in 1984 to 41 percent in 1985, and the proportion of operators carrying over 70 percent debt increased from 13.8 to 17.3 percent.

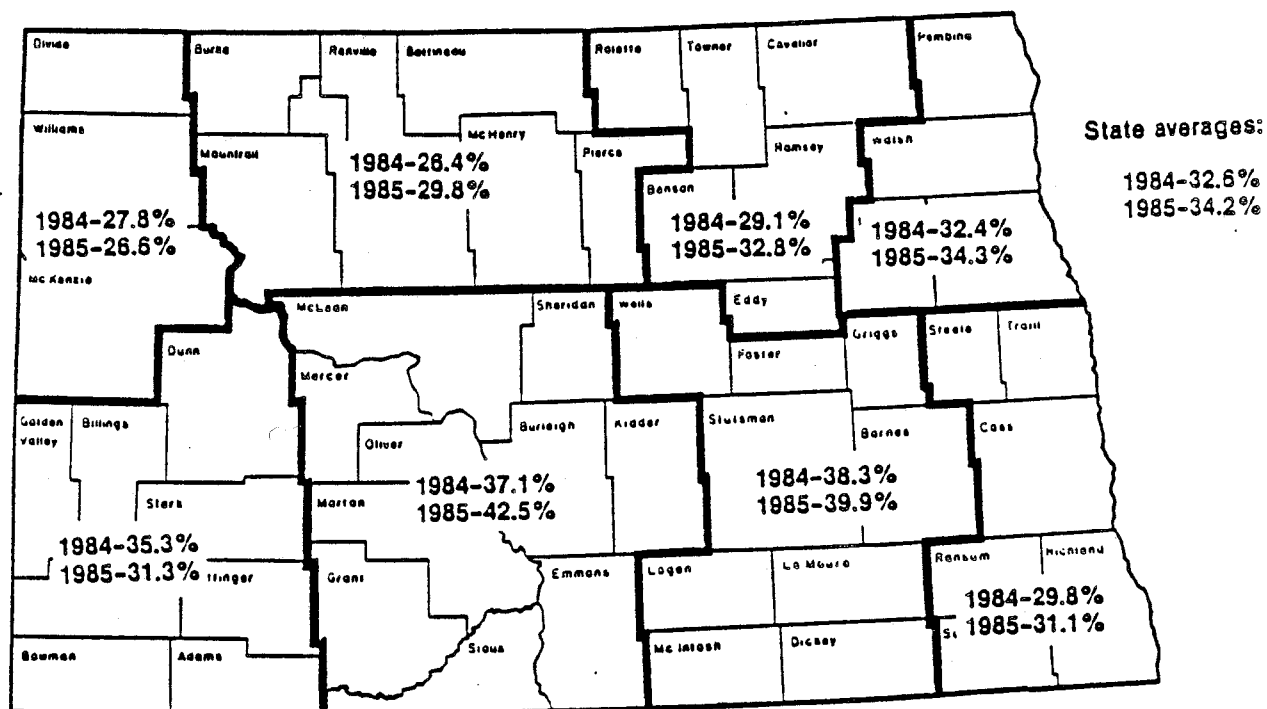


Figure 6. Regional Average Debt-to-Asset Ratios of North Dakota Farmers as of December 31, 1984 and 1985

The Influence of Debt on Total Family Income. The distribution and composition of income earned by farm families according to their level of debt is presented in Figure 7 and Appendix Table 7. The average total income of farm operators with no debt in 1985 was \$32,848, down 29 percent from 1984. This group earned over three times more income from interest and other nonfarm investments than any other equity group. Nineteen percent of these households had total incomes less than \$10,000 in 1985, compared to 64 percent of those with between .71 and 1.0 debt ratios. Income of operators with debt ratios between .41 and .70 was up 76 percent from 1984, and a relatively large proportion of this income came from off-farm employment (40 percent).

About 5 percent of respondents were technically insolvent (i.e., they owed more than their assets were worth). Average total income for this group was \$14,130 in 1985; this was a substantial improvement over the \$573 loss incurred by this group in 1984.

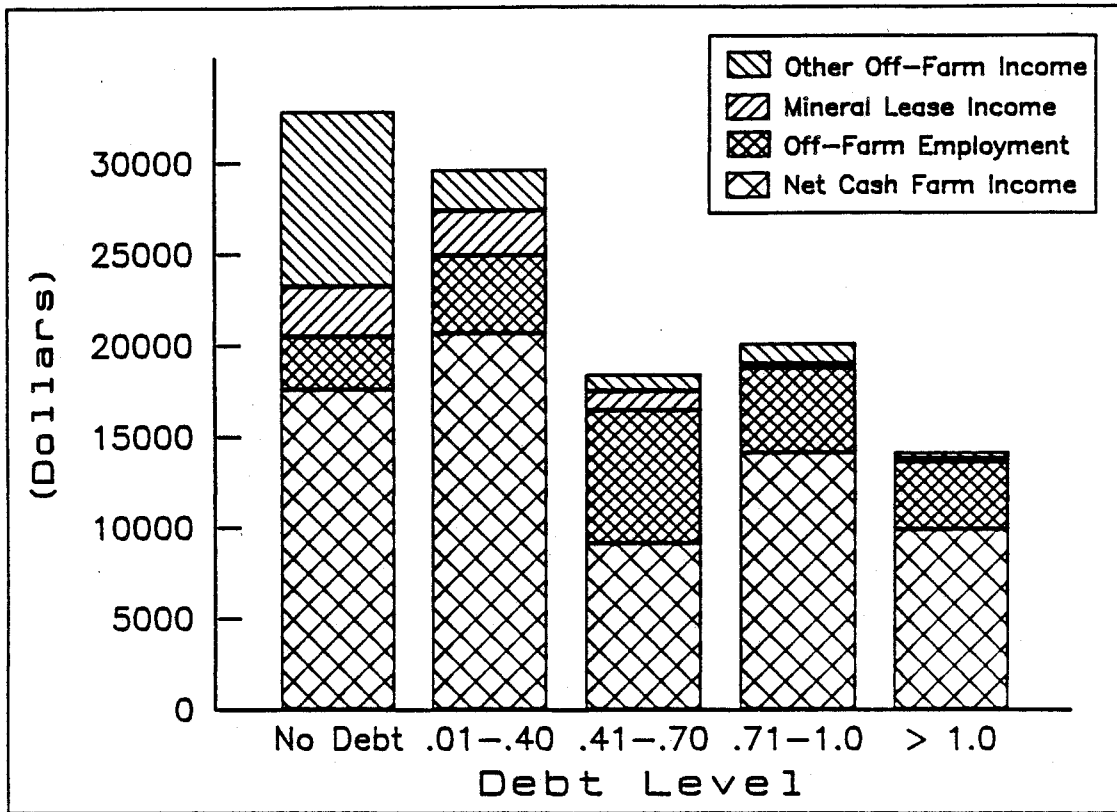


Figure 7. Composition of Total Farm Family Income by Debt-to-Asset Ratio

In 1985, as in 1984, more highly leveraged operators were more likely to be employed in off-farm jobs (Figure 8). Between 1984 and 1985, however, the percentage of operators in the highest debt category (debt-to-asset ratio of 70 percent or greater) who worked off the farm fell substantially. Spouses' off-farm work participation increased in 1985 in all the categories with debt and declined for the no debt category.

The Relationship of Farm Equity to Income. In general, one would expect total family incomes to increase as farm equity (total assets minus total debt) increases. The total incomes of farm families according to equity class are recorded in Table 2. The survey results largely supported that assumption with the exception of the class of farmers having a net worth of between \$100,000 and \$250,000. Operators with less than \$100,000 equity in the farm (35 percent of the sample) earned an average net cash farm income of \$12,280 in 1985, up 134 percent from 1984, and total income was up 73 percent from 1984.

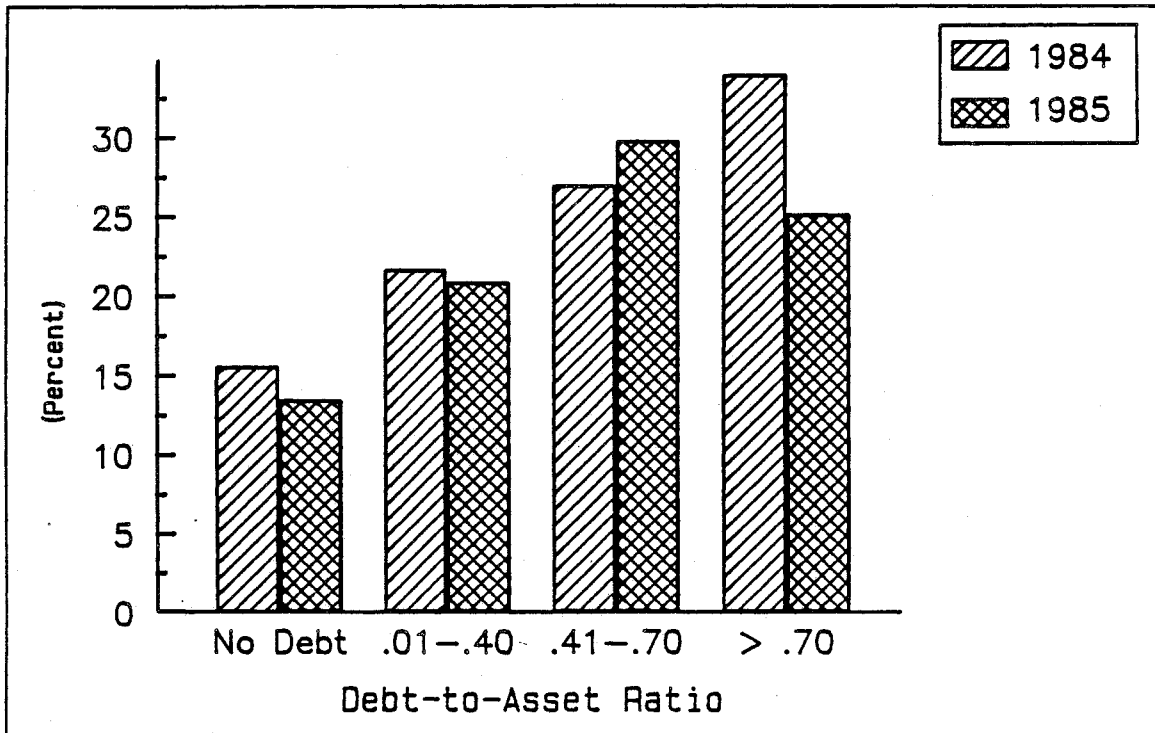


Figure 8. Percentage of Respondents Working Off the Farm by Debt-to-Asset Ratio, 1984 and 1985

About one-third of the sampled farmers had a net worth of between \$100,000 and \$250,000 in 1985. Even though their equity was higher, this group of farmers earned less farm income than the aforementioned group. The \$8,939 average net cash farm income earned was a 20 percent reduction from 1984. Total income of this group was \$15,578, down 24 percent from 1984.

Rate of Return to Assets and Owner Equity. Two key indicators of the performance of a farm or ranch business are the rate of return to farm assets (capital) and the rate of return to farm equity (net worth). Return to assets is the net income derived from the use of both owned and borrowed assets. It is computed by adding interest paid to net cash farm income and subtracting an allowance for unpaid family labor and management.¹ By dividing this dollar amount by the total capital invested in the business at the beginning of the year, the rate of return is determined. Because the cost of borrowed capital (interest) is added to net cash farm income

¹The poverty income level threshold was used as a proxy for unpaid family labor and management. It is a conservative estimate of family living expenses based on size of household and is determined by the Bureau of Labor Statistics, U.S. Department of Labor (Weinberg 1985).

TABLE 2. DISTRIBUTION AND COMPOSITION OF NORTH DAKOTA FARM FAMILY INCOME BY FARM EQUITY CLASS, 1985

Farm Equity Class	N	Distribution by Total Farm Family Income				Composition of Total Farm Family Income				
		Less than \$10,000	\$10,000 to \$24,999	\$25,000 to \$39,999	\$40,000 or More	Net Cash Farm Income	Off-Farm Employment	Mineral Lease	Other Off-Farm	Total Income
		-----percent-----				-----dollars-----				
Less than \$100,000	234	41.0	38.8	12.8	7.5	12,280	5,724	193	995	19,192
\$100,000 to \$249,999	219	40.6	33.5	15.6	10.4	8,939	4,770	505	1,364	15,578
\$250,000 to \$499,999	123	26.4	33.9	17.4	22.3	16,540	3,889	529	2,723	23,681
\$500,000 to \$999,999	75	17.3	20.0	13.3	49.3	30,935	4,183	9,826	5,595	50,539
\$1,000,000 or More	25	8.0	12.0	12.0	68.0	64,081	710	8,201	25,396	98,387

to calculate return to capital, this ratio is an acceptable indicator of business efficiency but is not a good indicator of financial stress. Return-to-asset values are listed in Table 3 according to debt-to-asset ratio, operator's age, region, and type of production.

TABLE 3. AVERAGE RATE OF RETURN TO TOTAL ASSETS BY DEBT-TO-ASSET RATIO, OPERATOR AGE, REGION, AND TYPE OF PRODUCTION, NORTH DAKOTA FARM OPERATORS, 1985

Item	Return to Total Assets ^a
	-----percent-----
Debt-to-asset ratio:	
No debt	5.1
.01 - .39	3.6
.40 - .69	5.4
.70 - 1.0	8.8
Operator's age:	
Less than 35 years	5.3
35 - 44 years	6.8
45 - 54 years	4.4
55 - 64 years	4.3
Region:	
1 (Williston)	0.3
2 (Minot)	4.1
3 (Devils Lake)	5.6
4 (Grand Forks)	6.5
5 (Fargo)	12.3
6 (Jamestown)	5.3
7 (Bismarck)	1.7
8 (Dickinson)	3.0
Type of production: ^b	
Cash grain	6.4
Beef	2.0
Dairy	0.3
Other	3.1

^a(Net cash farm income + interest paid - family labor allowance) divided by total farm assets.

^bFarms were categorized into types if over 50 percent of gross receipts were derived from a particular enterprise.

Return to assets of North Dakota farms was not significantly associated with debt load. Restated, those in high leverage positions were not demonstrably more or less efficient than their counterparts who had relatively little debt according to survey data. The age of the farm operator was somewhat associated with business efficiency as measured by the rate of return to capital; younger farmers and ranchers were able to achieve a higher average return to assets.

Rate of return to equity is used to evaluate the return an operator is receiving on his own capital and is a relative measure of financial stress. The absolute size of the ratio roughly measures the rate at which a farm business is adding to or consuming its own capital stock. It is computed by subtracting a family living allowance (a proxy for unpaid family labor and management) from net cash farm income and dividing by owner equity (assets minus liabilities). About one-half of the operators surveyed experienced a negative return to equity in 1985. One-fourth received a return to equity of between 1 and 5 percent, and another one-fourth experienced a return to equity of more than 5 percent.

Return to equity was highly correlated with the level of debt carried by the operator (Table 4). Those with no debt received an average return to equity of 4.4 percent in 1985, whereas those with 70 percent or more debt experienced a negative 25 percent return to equity.

TABLE 4. DISTRIBUTION OF NORTH DAKOTA FARM OPERATORS' RETURN TO EQUITY BY DEBT-TO-ASSET RATIO, 1985

Debt-to-Asset Ratio	Return to Owner Equity ^a				Average Return to Equity
	Negative	1% - 5%	6% - 10%	> 10%	
	-----percent-----				
No debt	29	39	19	13	4.4
.01 - .40	43	29	17	11	0.3
.41 - .70	58	17	10	15	-2.9
.70 - 1.0	73	11	2	14	-25.0
Total	48	26	14	13	-1.3

^a(Net cash farm income minus family labor allowance) divided by owner equity.

Return to equity is evaluated according to the operator's age and type of farm in Table 5. As operator age increased, return to equity increased on the average. However, younger farmers were better able than their older counterparts to generate a return to equity of 10 percent or more. North Dakota crop farmers averaged about zero return to equity in 1985; but this is significantly better than the -9 percent return of beef producers, -11.6 percent return of dairy producers, and -7.0 percent return of other types of farms. While no beef operations were able to exceed a 5 percent return to equity, about one-third of crop farms, 16 percent of dairy farms, and 14 percent of diversified farms exceeded this level of return.

TABLE 5. DISTRIBUTION OF NORTH DAKOTA FARM OPERATORS' RETURN TO EQUITY BY OPERATOR AGE AND TYPE OF FARM, 1985

Item	Return to Owner Equity ^a				Average Return to Equity
	Negative	1% - 5%	6% - 10%	> 10%	
	-----percent-----				
Operator age:					
Less than 35	56	13	12	19	-7.7
35 - 44	47	25	14	14	-1.5
45 - 54	48	30	16	6	-3.8
55 and over	42	32	16	10	1.4
Type of farm:					
Crop	40	26	17	17	0.1
Beef	75	25	0	0	-9.0
Dairy	65	19	11	5	-11.6
Diversified	58	28	10	4	-7.0

^a(Net cash farm income minus family labor allowance) divided by owner equity.

A regional comparison of return to equity is listed in Table 6. Only the Fargo, Grand Forks, and Devils Lake regions experienced positive returns to equity. Those reporting a negative return from the best region to worst were Minot, Jamestown, Williston, Bismarck, and Dickinson.

TABLE 6. DISTRIBUTION OF NORTH DAKOTA FARM OPERATORS' RETURN TO EQUITY BY STATE PLANNING REGION, 1985

Region	Return to Owner Equity ^a				Average Return to Equity
	Negative	1% - 5%	6% - 10%	> 10%	
	-----percent-----				
1 (Williston)	70	24	6	0	-8.2
2 (Minot)	57	16	18	9	-2.1
3 (Devils Lake)	41	33	10	16	1.1
4 (Grand Forks)	34	29	13	24	3.9
5 (Fargo)	23	24	24	29	18.5
6 (Jamestown)	47	28	14	11	-6.1
7 (Bismarck)	61	23	10	6	-10.9
8 (Dickinson)	55	31	9	5	-16.6

^a(Net cash farm income minus family labor allowance) divided by owner equity.

Cash Flow Characteristics

To be "viable," a farm family must generate net cash income (gross income less cash operating expenses) sufficient to meet financial obligations of four types (Salant, Smale, and Saupe 1986). First, it must provide for basic family needs, i.e., food, clothing, shelter, and education. Second, all federal and state income taxes and social security taxes on earned income (farm and nonfarm) must be paid. Third, to maintain a line of farm credit and prevent foreclosure of the business, the family must meet principal payments on debt as scheduled. Fourth, to continue operating the farm business at an efficient level, capital assets (machinery, equipment, and breeding stock) that are no longer performing effectively must be replaced.

The average sources and uses of cash among North Dakota farm families in 1985 are summarized in Table 7. According to the survey data, the "average" farm family of four persons was able to produce cash revenue from all sources of \$42,258 in 1985. To provide for the livelihood of its members, an average minimum of \$10,666 was required. This figure varies according to the size of household and is a conservative estimate of family living expenses based on the poverty income level threshold determined by the U.S. Bureau of Labor Statistics. The income tax and social security tax liability of the above family was estimated to be \$4,841. The average annual principal payments on intermediate and long-term debt in 1985 was \$12,774. The above data suggest that the average North Dakota farm family was able to pay household expenses, pay taxes, make principal payments, and have almost \$14,000 cash remaining in 1985. However, if they elected to replace machinery or breeding livestock in a timely fashion according to their depreciation schedule, they would have invested \$16,796 in capital assets in 1985, resulting in a cash deficit of \$2,819. Clearly, most North Dakota producers are postponing capital purchases due to this shortage of investment capital as well as falling machinery values.

Farm Viability Analysis. The above analysis is helpful in identifying the relative income and obligations on North Dakota farms, but does not address the issue of variation in income adequacy among farm families. The following analysis is an attempt to measure the ability of the farm family to meet immediate financial obligations. First, an allowance for family living expenses (FLE) based on the poverty income level threshold was subtracted from total family income (TFI) in 1984 and 1985. Principal payments (P) on intermediate-term and long-term debt were also deducted, but income and social security taxes were not included as a cash withdrawal. Total family income (TFI) minus family living expense (FLE) and principal (P) was calculated for each operation, which was then placed in one of four categories:

1. Stressed: Total family income (TFI) minus family living expenses (FLE) and principal (P) was negative in both 1984 and 1985.

TABLE 7. AVERAGE SOURCES AND USES OF CASH, NORTH DAKOTA FARM FAMILIES, 1985

Item	Amount
Sources of cash:	
Gross farm income less cash expenses (including interest paid)	\$32,971
Earnings from off-farm employment (operator and spouse)	4,725
Mineral lease income	1,720
Other off-farm income (investments)	2,842
Total cash generated by the family	<u>\$42,258</u>
Uses of cash:	
Family living expenditures ^a	\$10,666
Cash less family living expenses	\$31,592
Federal and state income taxes ^b	\$2,932
Social security taxes ^c	<u>1,909</u>
Total taxes	4,841
Cash less family living expenses and taxes	26,751
Annual principal payment on intermediate and long-term debt ^d	12,774
Cash less family living expenses, taxes, and principal	13,977
Annual machinery replacement cost (depreciation) ^e	16,796
Cash less family living expenses, taxes, principal, and machinery replacement	-2,819

^aBased on poverty income thresholds (Weinberg 1985).

^bIncome tax liability on an adjusted gross income of \$25,462, family of four, \$2,665 federal income tax, and \$267 state income tax.

^cSocial security tax on net farm income of \$16,175.

^dPrincipal payment obligations were estimated by taking 5 percent of the value of long-term debt and 20 percent of the value of intermediate-term loans.

^eFor those operators who did not report a depreciation cost, the value was estimated by taking 14.4 percent of the value of intermediate-term assets (the average for those reporting depreciation cost).

2. Slipping: The family was able to meet living expenses and principal payments in 1984 but not in 1985.
3. Improving: They were cash short in 1984 but not in 1985.
4. Strong: They had a cash surplus in both 1984 and 1985.

The percentage distribution statistics in Table 8 show what proportion of farm operators in the sample fell into each viability group. The largest proportion of sampled operators, 42.1 percent, was in group 1, the stressed category. The slipping category (group 2) contained 11.7 percent of survey respondents; the improving category (group 3) 10.0 percent; and the strong category (group 4) 36.2 percent.

A closer look at this distribution reveals that almost one-third of sampled operators (31.8 percent) were at least \$5,000 short of meeting basic family expenses and principal payments in both 1984 and 1985. Only 13.7 percent of sampled operators had a cash surplus of at least \$20,000 in both 1984 and 1985.

TABLE 8. DISTRIBUTION OF NORTH DAKOTA FARM OPERATORS BY VIABILITY GROUPS IN 1984 AND 1985

1984 Viability Position	1985 Viability Position				
	Less than \$-5,000	\$-4,999 to \$0	\$0 to \$4,999	\$5,000 to \$20,000	\$20,000 and Over
<u>Group 1: Stressed</u>			<u>Group 3: Improving</u>		
Less than \$-5,000	31.8%	3.3%	2.6%	2.9%	1.7%
\$-4,999 to \$0	4.0%	3.0%	1.4%	1.3%	0.1%
Group 1 Total = 42.1%			Group 3 Total = 10.0%		
<u>Group 2: Slipping</u>			<u>Group 4: Strong</u>		
\$0 to \$4,999	1.9%	1.6%	2.3%	1.8%	0.9%
\$5,000 to \$19,999	3.4%	1.4%	2.1%	6.6%	4.0%
\$20,000 and over	2.7%	0.7%	1.4%	3.4%	13.7%
Group 2 Total = 11.7%			Group 4 Total = 36.2%		

Note: Based on total family income less family living expenditures and principal payments. Unlike the summary analysis presented in Table 7, the simulations summarized here do not include taxes as a use of funds.

Characteristics of Farm Operators According to Viability. Selected characteristics of farm operators for the four viability groups are reported in Table 9. The following observations can be made:

- As expected, farmers with viability problems tended to be younger and have more dependents than those in a strong viability position.
- There are relatively small differences in the value of owned assets across viability groups. Farmers in group 1 controlled \$374,169 worth of assets. Farmers in group 4 controlled only 20 percent more assets (\$467,874).
- Farmers in group 1 had an average total debt of \$207,020. This is more than three times the \$68,579 average debt owed by farmers in group 4.
- There was a significant difference in the ownership equity (net worth) situation among the four groups. Group 1 farmers' average net worth was \$167,149. Group 4 farmers had a net worth two and one-half times greater (\$399,295).
- The solvency position (debt-to-asset ratio) also varied a great deal according to viability group. Farmers in a stressed position owed 55.3 cents for each dollar of assets. Farmers in a strong liquidity position owed only 14.6 cents for each dollar of assets.
- A major difference among viability groups was the net cash farm income reported. Group 1 farmers' average net cash farm income (gross farm income less cash farm expenses and depreciation) was only \$1,337 in 1985. Conversely, group 4 farmers reported net cash farm income averaging \$32,915 in 1985.

TABLE 9. AVERAGE OPERATOR CHARACTERISTICS OF NORTH DAKOTA FARMERS BY VIABILITY GROUPS, 1985

Operator Characteristics	Viability Group			
	#1 Stressed	#2 Slipping	#3 Improving	#4 Strong
Age	42.7	45.1	44.4	48.7
Persons in household	3.8	3.4	3.6	3.0
Total assets	\$374,169	\$377,974	\$358,627	\$467,874
Total debt	\$207,020	\$139,921	\$128,762	\$ 68,579
Net worth	\$167,149	\$238,053	\$229,865	\$399,295
Debt-to-asset ratio	55.3%	37.0%	35.9%	14.6%
Net cash farm income	\$ 1,337	\$ 4,868	\$ 25,902	\$ 32,915

It is possible to ascertain from survey data whether or not a farmer's financial condition has improved or worsened during the preceding year. Changes in viability positions between 1984 and 1985 are presented in Table 10. For example, three-fourths of farmers in the severely stressed liquidity category (less than \$-5,000) in 1984 remained in that class in 1985. Farmers in most other viability categories showed a high degree of variability between 1984 and 1985. Most of those who moved into another viability category in 1985 moved into a lower category.

TABLE 10. CHANGE IN PERCENTAGE DISTRIBUTION OF SAMPLE NORTH DAKOTA FARM OPERATORS BY VIABILITY POSITION, 1984 TO 1985

1984 Viability Position	1985 Viability Position				
	Less than \$-5,000	\$-4,999 to \$0	\$0 to \$4,999	\$5,000 to \$19,999	\$20,000 and Over
	-----percent-----				
Less than \$-5,000	<u>75</u>	8	6	7	4
\$-4,999 to \$0	41	<u>30</u>	14	13	2
\$0 to \$4,999	22	19	<u>27</u>	22	10
\$5,000 to \$19,999	20	8	12	<u>37</u>	23
\$20,000 and over	12	3	7	16	<u>62</u>

The distribution of operators according to type of farm (Figure 9) reveals that about one-fourth of crop farmers were slipping in terms of their viability position in 1985. Only about 2 percent of farms in the diversified farm income category were in the improving or strong category.

The distribution of viability status of survey operators on a regional basis is presented in Appendix Table 8. For most regions a bimodal distribution exists in net cash flow. In all but the Fargo region, between 40 and 70 percent of the respondents had a negative viability position; however in all but the Bismarck region, about 20 percent also had a positive position of \$20,000 or more. In every region other than Region 4 (Grand Forks), a relatively small proportion of farmers (20 to 25 percent) generated between \$0 and \$20,000 in net cash flow.

Short-Run Cash Flow Analysis. While the foregoing analysis reflects the adequacy of farm households' income to meet financial obligations required to remain viable in the long run, some observers would argue that it presents an unnecessarily pessimistic short-run view. These observers would point out that capital replacement (depreciation) charges can sometimes be deferred for several years and thus do not always impose an immediate demand for cash outlays. (On the other hand, the viability

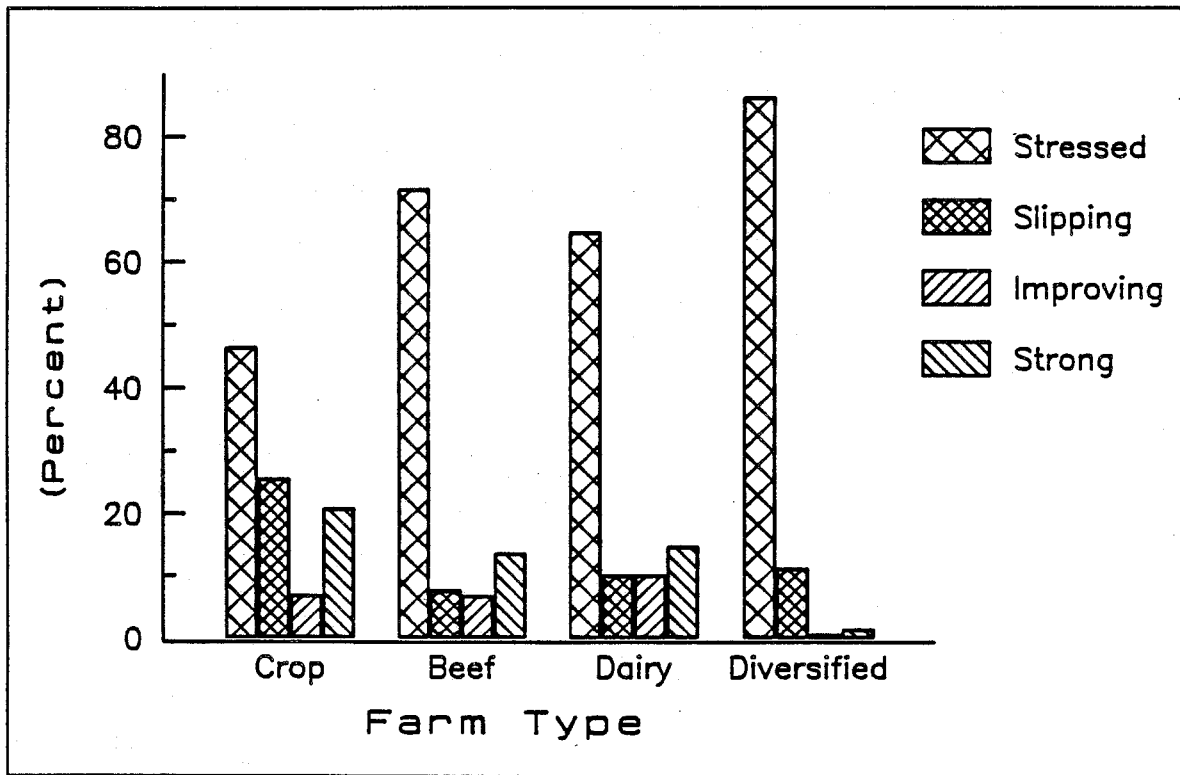


Figure 9. Viability Groups by Farm Type

analysis was somewhat optimistic in that it did not consider income and social security taxes as a demand for cash outlays.) An alternative view of the short-run cash flow situation of North Dakota farm and ranch operators is provided in Tables 11 and 12. In these analyses, the depreciation charge was added to total family income to obtain an estimate of total cash available, then family living allowance and principal payments were subtracted. Overall, about one-third of the farm families surveyed had insufficient cash available to meet these obligations (Table 11). This percentage rose to 80 percent for farmers with debt-to-asset ratios exceeding 70 percent.

In recognition of the fact that part or all of a household's principal payment obligations can sometimes be deferred through special arrangements with creditors, an analysis of the adequacy of families' net cash flow to meet even minimal family living expenses is provided in Table 12. Overall, 13.5 percent were not able to meet these expenses, and more than one-fourth of the highest debt category fell into this category.

Off-Farm Employment Characteristics. Off-farm work is one of the few means by which farm families can increase their income and cope with cash flow problems. This section examines the nonfinancial characteristics of North Dakota farm and ranch operators and spouses who were employed off the farm in 1984 and 1985.

TABLE 11. NET CASH AVAILABLE LESS FAMILY LIVING ALLOWANCE AND PRINCIPAL PAYMENTS, NORTH DAKOTA FARM OPERATORS, 1985

Item	Less than \$0	\$0 to \$4,999	\$5,000 to \$19,999	\$20,000 or More
Debt-to-asset ratio:				
No debt	10.7	9.7	21.4	58.3
.01 to .40	18.1	8.9	30.1	42.9
.41 to .70	49.3	10.5	18.4	21.7
.71 and greater	80.2	5.7	9.4	4.7
Total	35.2	8.9	22.3	33.7
Region:				
1 (Williston)	34.3	5.7	28.6	31.4
2 (Minot)	35.1	15.6	18.2	31.2
3 (Devils Lake)	23.5	8.8	35.3	32.4
4 (Grand Forks)	21.1	12.3	21.1	45.6
5 (Fargo)	22.2	8.9	20.0	48.9
6 (Jamestown)	41.0	6.8	19.7	32.5
7 (Bismarck)	49.1	8.8	21.9	20.2
8 (Dickinson)	42.9	2.9	18.6	35.7
Farm type:				
Crop	28.7	9.2	23.3	38.8
Beef	48.7	7.9	18.4	25.0
Dairy	53.7	9.8	14.6	22.0
Other	52.1	6.2	23.1	18.5

TABLE 12. NET CASH AVAILABLE LESS FAMILY LIVING ALLOWANCE, NORTH DAKOTA FARM OPERATORS, 1985

Item	Less than \$0	\$0 to \$4,999	\$5,000 to \$19,999	\$20,000 or More
Debt-to-asset ratio:				
No debt	10.7	9.7	21.4	58.3
.01 to .40	8.5	8.1	32.1	51.4
.41 to .70	15.0	11.1	32.0	41.8
.71 and greater	26.4	20.8	27.4	25.5
Total	13.5	11.3	29.5	45.7
Region:				
1 (Williston)	17.1	8.6	40.0	34.3
2 (Minot)	13.0	16.9	35.1	35.1
3 (Devils Lake)	8.8	5.9	38.2	47.1
4 (Grand Forks)	8.8	12.3	17.5	61.4
5 (Fargo)	5.6	6.7	21.1	66.7
6 (Jamestown)	11.9	14.4	27.1	46.6
7 (Bismarck)	23.7	13.2	30.7	32.5
8 (Dickinson)	18.6	7.1	28.6	45.7
Farm type:				
Crop	11.0	9.4	27.6	52.0
Beef	22.4	11.8	31.6	34.2
Dairy	7.3	19.5	36.6	36.6
Other	25.8	16.7	31.8	25.8

The employment status of farm operators and spouses in 1984 and 1985 is compared in Table 13. The number of operators who worked off the farm dropped slightly in 1985; of the 175 operators who had been employed off the farm in 1984, 41 (or 23 percent) did not work off the farm in 1985, but 37 operators who had not worked off the farm in 1984 began off-farm work in 1985. Employment of spouses in off-farm jobs increased between 1984 and 1985, rising from 31 percent in 1984 to almost 34 percent in 1985.

TABLE 13. OFF-FARM EMPLOYMENT IN 1984 AND 1985, NORTH DAKOTA FARM OPERATORS AND SPOUSES

Respondent Worked Off the Farm in 1985:	Respondent Worked Off the Farm in 1984		
	No	Yes	Total
No	547	41	588
Column percent	93.7	23.4	77.5
Yes	37	134	171
Column percent	6.3	76.6	22.5
Total	584	175	759
Column percent	100.0	100.0	100.0

Spouse Worked Off the Farm in 1985:	Spouse Worked Off the Farm in 1984			
	No	Yes	Not Married	Total
No	412	21	4	437
Column percent	92.0	10.3	57.1	66.4
Yes	36	182	3	221
Column percent	8.0	89.7	42.9	33.6
Total	448	203	7	658
Column percent	100.0	100.0	100.0	100.0

The relationship between the age of the farm operators and their employment off the farm is illustrated in Figure 10. Younger operators, as well as spouses, were much more likely to work off the farm.

The relationship between the highest level of education attained by the operators and their off-farm employment is shown in Figure 11. Both operators and spouses who have completed some postsecondary education had higher than average rates of off-farm work.

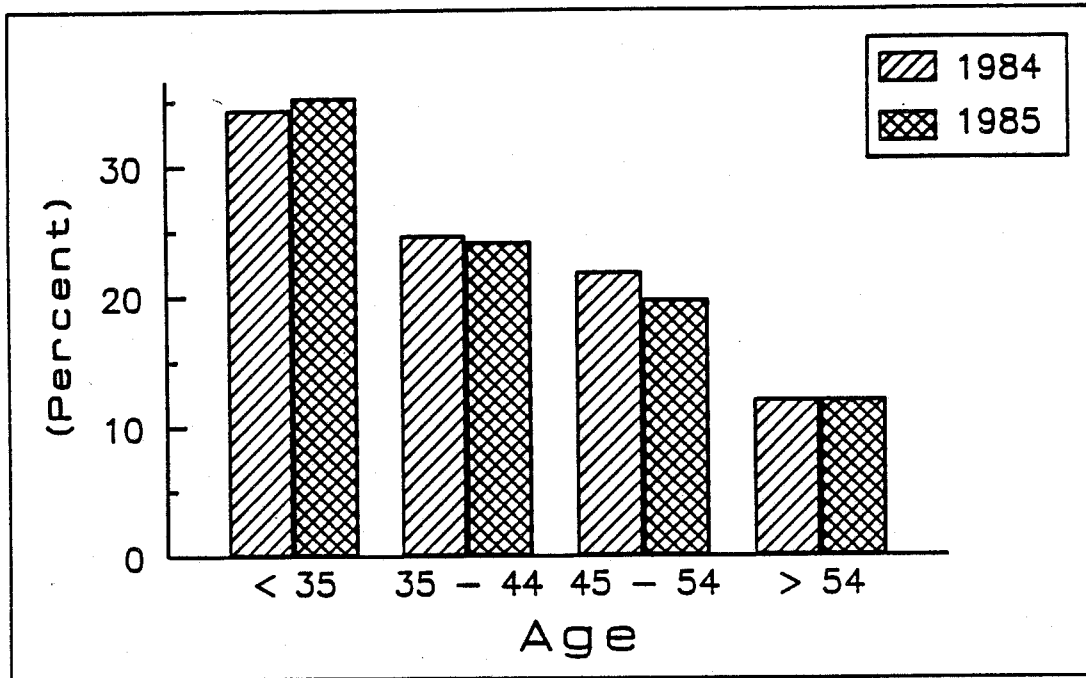


Figure 10. Off-Farm Employment of Respondent by Age, 1984 and 1985

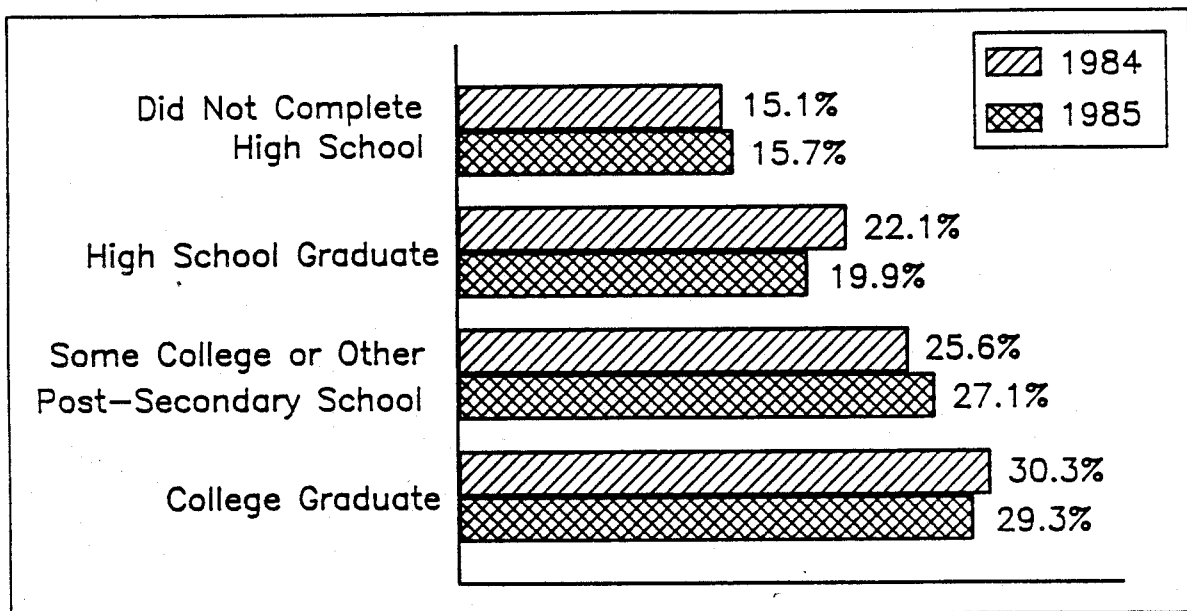


Figure 11. Off-Farm Employment of Respondent by Educational Level

Off-farm employment by region is reported in Appendix Table 9. Rates of off-farm work for operators were highest in the western regions (Regions 1, 2, and 8) while rates for spouses were highest in the northeast (Regions 3 and 4). It may be noteworthy that both Regions 1 and 8 registered substantial decreases in participation by operators and Region 1 showed a sizeable decrease in employment of spouses also. These decreases in off-farm work may be resulting, either directly or indirectly, from the decline of the oil industry.

Other salient employment characteristics--including the industry in which employed, the distance traveled to the off-farm job, the number of years employed off the farm, and the number of days worked off the farm on an annual basis--are included for operators and spouses in Appendix Tables 10 and 11, respectively. Fringe benefits received by farm operators and spouses are addressed in Appendix Table 12.

Management Responses to a Declining Economic Environment

This section examines the adjustments farmers and ranchers are making in their management practices in an effort to cope with current economic conditions. Specific methods for reducing farm indebtedness are examined first. The management adjustments made in 1985 that would not have been made in a typical year are then explored. Significant factors involved in explaining why farmers make certain changes are analyzed, and proposed changes in farming practices are outlined.

Strategies to Reduce Farm Debt

Attempts to reduce farm indebtedness have been foremost in the minds of many farmers and agricultural lenders in recent years. Farm operators were asked if they had made certain financial management changes during 1985 in an effort to reduce farm debt. Twenty-eight percent of these operators made at least one of the five changes listed in Figure 12. Over 14 percent of farmers surveyed renegotiated a loan in 1985 to reduce principal payments. Nearly 9 percent sold breeding livestock, and 3.6 percent sold machinery in an attempt to lower their debt load. Only about 1 percent of sampled farmers sold or deeded land to a creditor as a method of reducing debt. A breakdown of those making the above changes according to their level of debt (debt-to-asset ratio) reveals that, as expected, those having debt ratios over .41 were most likely to renegotiate a loan. The sale of breeding livestock was less closely correlated with the debt-to-asset ratio. The forced sale of cattle due to the drought in 1985 may explain this aberration.

Cross-tabulating the changes by net cash farm income and by age reveals that those with lower incomes tended to initiate the above changes to a higher degree than those with higher incomes, but the income variable was less correlated to specific changes than the debt variable. The only change that was clearly defined by age was renegotiation of a loan to reduce principal. Nineteen percent of younger operators (less than age 35) employed this strategy, but only 8.5 percent of the older operators (over

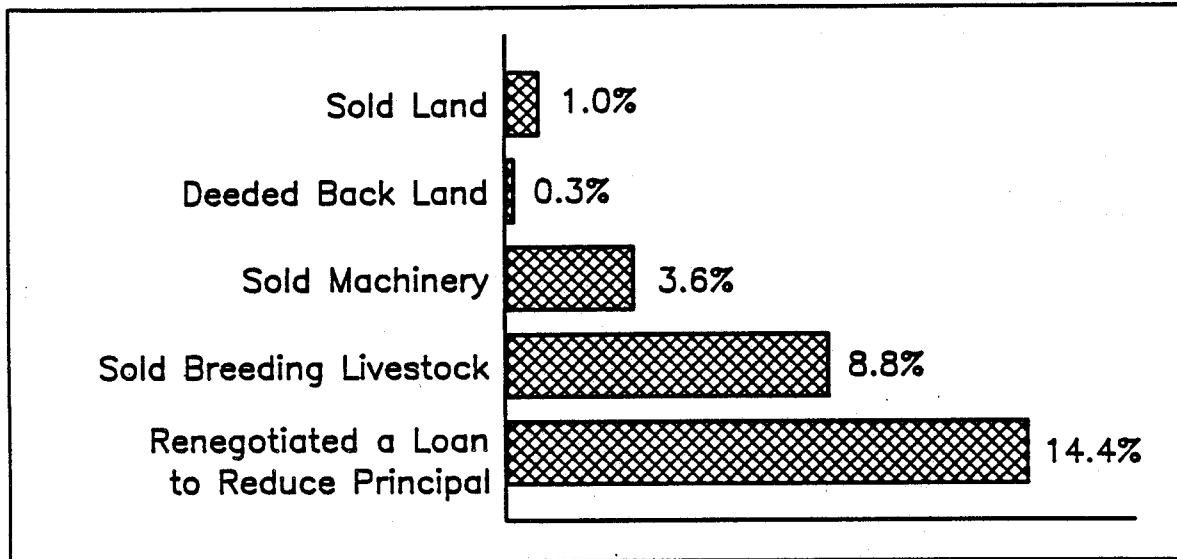


Figure 12. Management Changes Made to Reduce Farm Debt, North Dakota Farmers, 1985

age 55) did so in 1985. The above changes are evaluated on a regional basis in Appendix Table 13.

Farm Management Adjustments

Farm operators were asked if they had made specific changes in their farming operation in 1985 that would not have been made in a typical year. Responses indicate that North Dakota farm and ranch managers are making major adjustments to the economic climate of the 1980s (Figure 13). More than three out of five farmers postponed capital purchases in 1985. Almost one-half cut back on tillage operations and reduced family living expenses from 1984 to 1985. The next most common action was to cut back on yield-increasing expenditures such as fertilizer and chemicals; nearly 27 percent had done this. Next came beginning or increasing participation in government programs, renegotiation of a loan to reduce the interest charge, and obtaining professional financial advice. Table 14 lists the percent of farmers who made specific changes according to their debt-to-asset ratio. Analysis of these changes revealed that, as expected, those with no debt made fewer changes than those in the higher debt categories. A number of farmers reporting no debt in 1985 made significant changes in three areas--they postponed capital purchases, reduced tillage operations, and reduced family living expenditures. However, very few of these operators made many of the other changes listed.

Those farmers in the middle two debt categories (1 to 70 percent debt) were more prone to initiate changes. However, only about 10 to 15 percent of these farmers and ranchers made many of the changes listed. About two-thirds of these operators reduced capital purchases, and one-half reduced tillage operations and cut family living expenses.

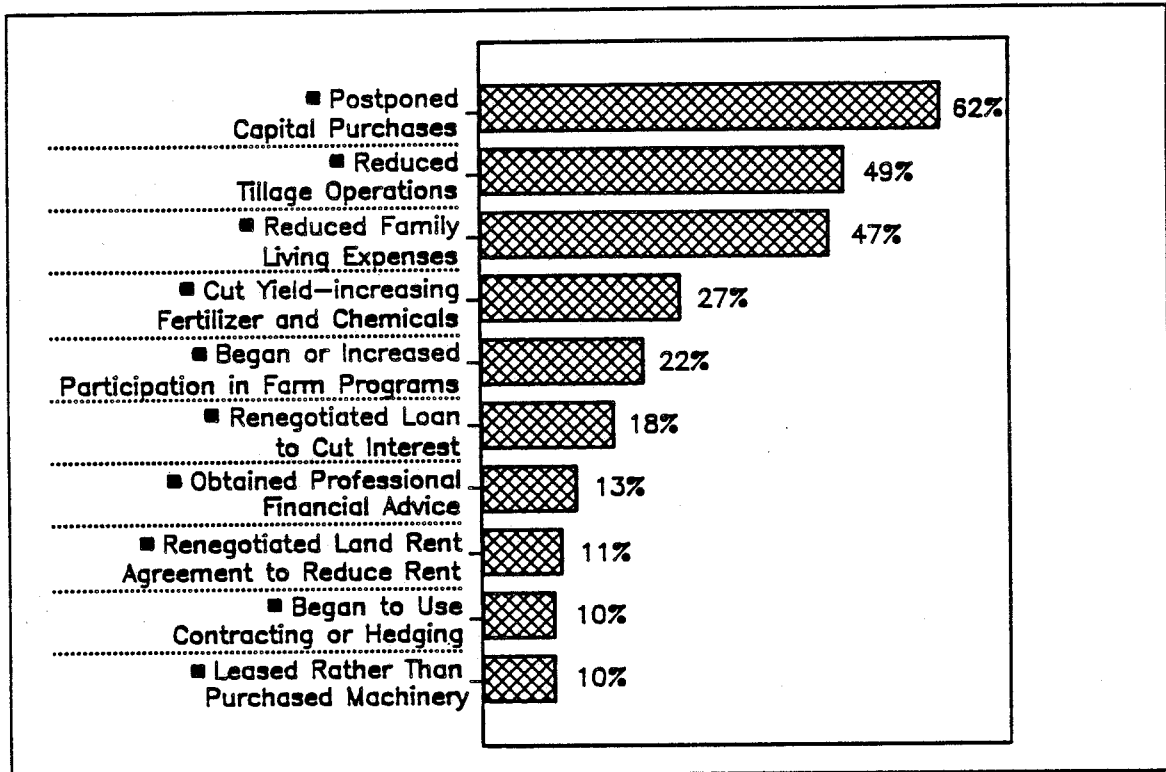


Figure 13. Management Adjustments, 1985

Operators who were heavily indebted (70 percent or more) were making significant changes in their operations in 1985. Almost all of these individuals postponed capital purchases, 70 percent reduced family living outlays, about one-half reduced tillage operations and renegotiated a loan to reduce interest, 43 percent cut back on fertilizer and chemicals, 28 percent obtained financial advice, and 20 percent began using crop insurance. From a farm management perspective, the proportion of farmers cutting back on critical inputs such as fertilizer and chemicals may have significant implications. Cuts in these inputs often lead to greater than proportional reductions in yields and thereby increase the per-unit cost of production and cut farm profits. The most plausible explanation for this tendency among the highly indebted group is that they were unable to obtain the cash or credit necessary to purchase needed inputs or were forced to allocate scarce operating capital among competing uses. The proportions of farmers among four debt categories and five income levels who were making specific changes in their operation are listed in Appendix Tables 14 and 15, respectively.

An analysis of management changes by age category is presented in Appendix Table 16. Younger farmers were more apt to renegotiate a loan to reduce interest, use hedging and forward contracting as marketing tools, and use crop insurance.

TABLE 14. PERCENT OF NORTH DAKOTA FARM OPERATORS MAKING SPECIFIC CHANGES ACCORDING TO THEIR LEVEL OF DEBT

Specific Change	Operators Responding to the Specific Change		Operators Making the Specific Change							
			No Debt		1% to 40% Debt		41% to 70% Debt		Over 70% Debt	
	N	%	N	%	N	%	N	%	N	%
Renegotiated a loan to reduce interest ^b	128	17.6	a	0.8	28	9.3	41	24.0	58	47.2
Renegotiated a land rental agreement to reduce land rents ^b	80	11.0	a	1.5	27	8.9	31	18.1	20	16.2
Switched from cash to share rent	24	3.3	0	0.0	9	3.0	9	5.3	6	4.9
Changed lending institutions ^b	50	6.9	0	0.0	18	6.0	16	9.4	16	13.0
Began to use contracting or hedging as marketing tools	74	10.2	5	3.8	34	11.3	23	13.5	12	9.8
Began to use crop insurance ^b	78	10.7	a	3.0	30	10.0	19	11.1	25	20.3
Obtained professional financial advice ^b	94	12.9	a	1.5	33	10.9	25	14.6	34	27.6
Leased machinery rather than purchased ^b	75	10.3	6	4.5	25	8.3	24	14.0	20	16.3
Reduced family living expenses ^b	342	46.9	28	21.1	129	42.7	98	57.3	87	70.7
Postponed capital purchases ^b	454	62.3	45	33.8	169	56.0	136	79.5	104	84.6
Started participating in government farm programs ^b	70	9.6	8	6.0	30	9.9	11	6.4	21	17.0
Increased participation in farm programs ^b	88	12.1	5	3.8	38	12.6	22	12.9	23	18.7
Cut back on yield increasing expenditures, such as fertilizer and chemicals ^b	194	26.7	21	15.8	80	26.5	41	24.0	52	42.6
Reduced tillage operations ^b	360	49.4	45	33.8	155	51.3	91	53.2	69	56.1
Number and percent of respondents in each debt category			133	18.2	302	41.4	235	23.5	123	16.9

^an < 5.

^bSignificant at the 1 percent (.01) level.

Note: N = 729.

A regional analysis of the fourteen changes in management practices is presented in Appendix Table 17. The percentages reported are the proportion of farmers within a particular region initiating the specific change listed. In general, about the same proportion of farmers from various localities throughout the state were making certain changes. However, for some management adjustments the degree of implementation varied considerably from one region to the next. About one-fourth of farmers in the Williston and Dickinson regions (areas beset with drought in 1985) renegotiated a loan to reduce interest. In most other regions, only about 15 percent of farmers and ranchers did so. Farmers have typically been reluctant to forward contract or hedge a portion of their production prior to planting. In the Williston and Bismarck regions, 5 to 6 percent of farmers began to employ these marketing tools in 1985 (although others no doubt were already using them). About one in ten began forward contracting or hedging throughout most of the state, and almost 16 percent of farmers in the southeast region initiated this strategy. Starting to use all-risk crop insurance varied a great deal regionally. In the northwest (Williston) region, 26.3 percent of farmers or ranchers began to use crop insurance in 1985. In the adjoining region to the east (Minot), only 8.9 percent began to write crop insurance. The lowest incidence of the addition of crop insurance as a management practice was in the Bismarck region, only 6.5 percent.

Pronounced regional differences in the tendency to cut back on yield-increasing inputs, such as fertilizer and chemicals, became very evident as data were compared from east to west. In the Red River Valley region, only about 13 percent of farmers cut back on these inputs. Moving west to the Jamestown and Devils Lake regions, about 27 percent were cutting back on these expenditures. Further west, (i.e., Bismarck and Minot regions) 33 percent were cutting back. In the westernmost regions (Williston and Dickinson), almost 40 percent were reducing expenses for these inputs; however, drought in these regions may have been partially responsible for these decisions.

The decision to reduce tillage operations was demonstrated by 40 to 50 percent of operators in most regions of the state. However, the northwest (Williston and Minot) regions showed the highest propensity to limit tillage; about 70 percent did so in 1985. Conversely, in the southeast (Fargo) region, only about one-third of the farm operators reduced tillage trips.

Why Farmers Are Making Changes

To assess the influence of various financial, individual, family, farm, and area characteristics on the decision of farm operators to make certain management changes, multiple discriminant analysis was used. The results are summarized in Table 15. In seven out of ten cases, the financial pressures brought about by a high level of debt proved to be the most significant factor in explaining why farmers were making changes in 1985. Low net cash farm income was significant in inducing a change in lending institutions, a reduction in family living expenses, and a postponement of capital purchases. Farmers and ranchers in western regions

TABLE 15. VARIABLES THAT EXPLAIN WHY NORTH DAKOTA FARMERS ARE MAKING SPECIFIC CHANGES, 1985

Specific Change	Variables Entered in Order of Significance		
	First	Second	Third
Renegotiated a loan to reduce interest	°Debt-to-asset ratio	°Region	--
Changed lending institutions	°Debt-to-asset ratio	°Net cash farm income	°Respondent's education
Began to use contracting or hedging as marketing tools	°Respondent's education	--	--
Began to use crop insurance	°Age of operator	°Type of farm	--
Obtained professional financial advice	°Debt-to-asset ratio	°Type of farm	°NDSU cooperatord ^b
Leased machinery rather than purchased	°Debt-to-asset ratio	--	--
Reduced family living expenses	°Debt-to-asset ratio	°Spouse's education	°Net cash farm income less family living expenses ^a
Postponed capital purchases	°Debt-to-asset ratio	°NDSU cooperatord ^b	°Net cash farm income less family living expenses ^a
Started participating in government farm programs	°Debt-to-asset ratio	--	--
Cut back on yield increasing expenditures, such as fertilizer and chemicals	°Region	°Debt-to-asset ratio	--

^aFamily living expense allowance is based on the poverty income threshold.

^bAttends meetings and receives literature through the NDSU Cooperative Extension Service.

NOTE: The discriminant functions for farm operators and spouses were estimated using the BMDP 7M stepwise discriminant analysis program (Dixon, et al.). A tolerance level of 0.01 was specified which in effect ensured that all variables selected for the discriminant function would be significant at the 5 percent level.

were more inclined to renegotiate the interest on a loan and cut back on yield-increasing expenditures. Those operators with higher levels of education were more prone to adopt hedging and forward contracting as marketing strategies and to change lending institutions. Younger operators (less than 35) were more likely to begin using crop insurance than their older counterparts. Farmers receiving more than 50 percent of their gross earnings from crops had a higher propensity to use crop insurance and obtain professional financial advice than more diversified operators. Those who took part in educational programs sponsored by North Dakota State University were more likely to postpone capital purchases and obtain professional financial advice in 1985.

Proposed Changes in Farming Practices

In addition to asking what changes were made last year (1985), operators were asked what adjustments they planned to make in the coming year (1986) to improve their financial position. These projected changes are listed in Figure 14 in order of frequency reported. The desire to better manage the use of fertilizer and chemicals in the production process was the most frequently mentioned adjustment. It is presumed that many producers feel a number of low-cost refinements can be applied to the use of these two inputs, i.e., increased use of soil testing, selection of least-cost fertilizers, better knowledge of the fertility needs of each crop grown, proper calibration of spraying equipment, and identification of the most appropriate chemical for the weed problems of individual fields.

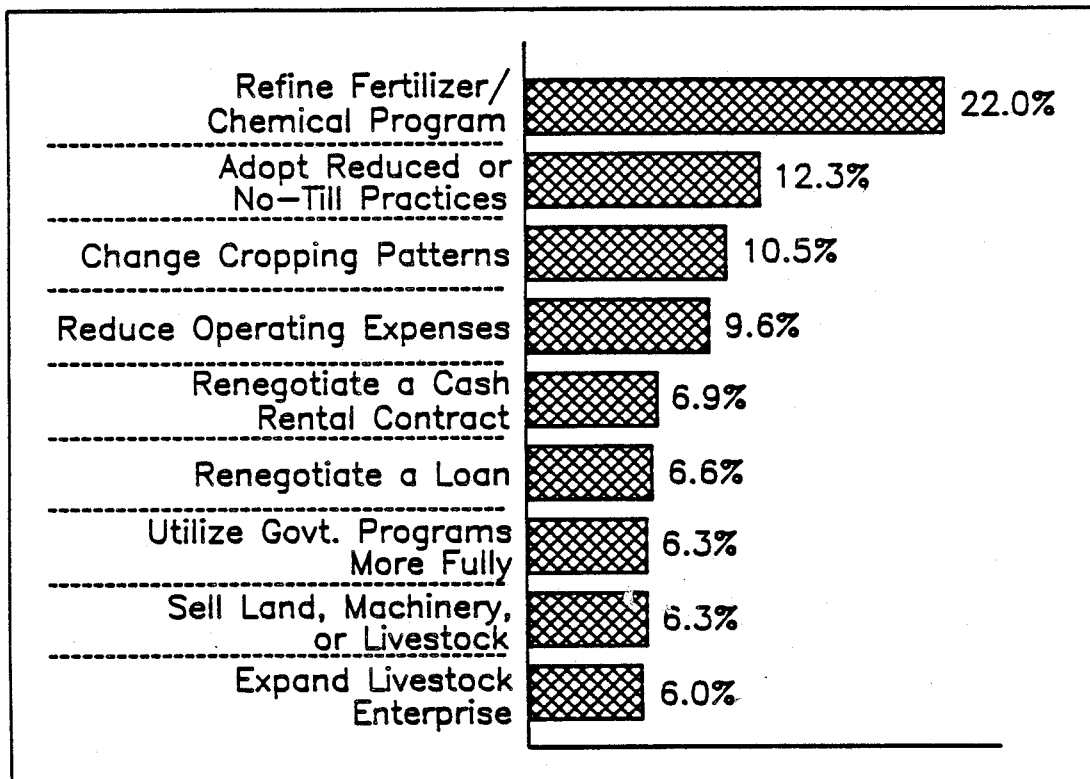


Figure 14. Planned Future Adjustments to Improve Financial Position

The second most frequently mentioned adjustment planned was the adoption of minimum till and no-till practices. The main advantages of this production system are lower machinery operating costs, lower labor requirements, and minimization of soil moisture loss. The main disadvantages are increased expenditures for chemicals, more refined management, and increased capital asset outlays (for the specialized equipment necessary). For many operators, especially those in the more arid regions of the state, the advantages of minimum/no-till outweighed the disadvantages.

A number of operators intended to change cropping patterns in 1986. The need to find a crop not affected by the restrictions of the farm program to replace sunflower (a low-return crop in 1985) was implied here. An intent to reduce operating expenses was fourth on the list of respondent goals. Surprisingly, of those farmers indicating this desire, 72 percent had relatively low debt levels. Lowering operating cost does not necessarily include reducing fertilizer and chemical inputs. For many operators, increased use of volume discounts and early payment bonuses can cut input costs. More effective use of hired labor, better machinery maintenance programs, and marketing plans designed to meet cash flow needs are all effective methods of reducing operating costs without sacrificing output (Hardie, Leholm, and Reff 1984).

Renegotiating a loan and/or cash rental contract was a priority item for those operators with relatively high levels of debt. Certain operators expressed a need to increase their knowledge of the current farm program so that they could maximize the benefits offered by the program. Selling some land or machinery was viewed as a necessary objective in 1986 by relatively few of the farmers responding. Of those stating this objective, one half had a debt-to-asset ratio of over 70 percent. Expanding a livestock enterprise was ninth on the list of proposed changes. About three-fourths of the operators with this objective also had relatively high levels of debt. For those operators able to survive 1985 without heavy losses, expansion of the livestock enterprise was viewed as an opportunity since breeding stock was relatively inexpensive.

Attitudes and Opinions of Farm Operators

This section examines the attitudes and opinions of North Dakota farm and ranch operators toward the nature of the downturn in agriculture. It describes the extent to which farmers perceive the crisis as externally versus internally induced. The perception of the status of farming and farmers in general is then presented. Finally, attitudes toward various forms of financial assistance, which could be implemented by federal and/or state governments, are explored.

Causes of the Current Farm Financial Situation

Survey respondents were asked to evaluate a number of factors that are frequently cited as contributing to the current financial situation in agriculture. Their ratings of these causes are summarized in Table 16.

TABLE 16. NORTH DAKOTA FARM OPERATORS' EVALUATION OF POSSIBLE CAUSES OF THE CURRENT FARM FINANCIAL SITUATION

Cause	Percent of Farmers Who Rate This Cause As:			Mean Score ^a	Percent Who Rate This As Most Important Cause of Current Farm Financial Situation
	Very Important	Somewhat Important	Not at All Important		
High interest rates	81.9	16.1	2.0	1.2	23.4
Low prices for farm products	91.6	7.7	0.8	1.1	37.9
Government involvement in agriculture	42.6	45.8	11.7	1.7	7.1
Corporate farms	11.4	24.6	64.0	2.5	2.8
Farmers' attempting to expand the size of their farms too rapidly	58.1	30.6	11.3	1.5	8.1
Farmers' being poor managers	33.1	48.1	18.8	1.9	3.1
The high cost of farm supplies and equipment	78.5	19.9	1.6	1.2	3.8
Changing land values	69.1	24.6	6.3	1.4	3.5
Changing export markets for farm products	71.0	24.2	4.8	1.3	9.8
Farmers' living beyond their means	40.0	44.1	16.0	1.8	3.1

^aBased on scores of 1 for very important, 2 for somewhat important, and 3 for not at all important.

More than 80 percent of the respondents considered external forces, such as low prices for farm products and high interest rates, to be very important causes of the current situation. The high cost of farm supplies and changing export markets for farm products were rated as very important factors by more than 70 percent of the respondents. Regarding farmer-controlled factors, only 11 percent of the respondents considered corporate farms to be a very important factor, while 33 percent gave this rating to farmers' lack of management skills and 40 percent to farmers' living beyond their means.

When asked which cause they considered most important, almost 38 percent of respondents picked low prices for farm products, and 23 percent chose high interest rates. Changing export markets for farm products was a distant third with about 10 percent.

Opinions regarding the nature of the downturn in agriculture varied somewhat according to the operator's debt position, age, and education. Ratings of possible causes by debt-to-asset ratio of the respondent are listed in Table 17. High interest rates were labeled as a very important cause more frequently by those with higher debt levels. Almost 70 percent of operators with no debt felt farmers' attempts to expand too rapidly was a very important cause of the farm crisis; only 46 percent of those with high debt levels (.71 or more) felt this factor was very important. Whereas only 35 percent of farmers in moderate to high debt positions felt farmers' living beyond their means was a very important cause, almost half of farmers with no debt felt this was an important cause.

TABLE 17. NORTH DAKOTA FARM OPERATORS' RATING OF POSSIBLE CAUSES OF THE CURRENT FARM FINANCIAL SITUATION, BY DEBT-TO-ASSET RATIO, 1985

Cause	Debt-to-Asset Ratio			
	No Debt	.01 - .40	.41 - .70	.71 or More
	-----percent ^a -----			
High interest rates	74.4	80.8	84.2	87.0
Low prices for farm products	91.7	91.7	90.6	93.5
Government involvement in agriculture	39.9	41.3	47.1	45.1
Corporate farms	13.7	11.9	7.0	14.2
Farmers' attempting to expand the size of their farms too rapidly	69.2	63.6	47.4	46.3
Farmers' being poor managers	36.8	34.6	30.0	29.5
The high cost of farm supplies and equipment	83.5	76.8	75.4	81.3
Changing land values	72.2	63.5	70.6	78.9
Changing export markets for farm products	72.0	67.7	71.9	78.7
Farmers' living beyond their means	48.5	41.4	35.1	35.2

^aPercent of farmers who rate this cause as very important.

When opinions about the causes of the agricultural recession were compared among various age categories, few differences were noted. Older operators were somewhat more inclined than younger operators to point to high interest rates and to cite attempts to expand too rapidly as very important causes. On the other hand, younger farmers tended to cite changing export markets as an important cause.

When the above opinions were evaluated according to the educational level of the operator, some differences were apparent. Those with fewer years of formal education were more inclined to blame high interest rates, corporate farms, attempts to expand too rapidly, the high cost of farm supplies and equipment, and farmers' living beyond their means as primary causes of the farm crisis. Those farmers with more years of formal education tended to lay less blame on the farmer himself and more on external forces such as changing export markets.

Attitudes Concerning Farming and Farmers

Survey respondents were asked to respond to a number of statements about farming and farmers. The percentages of respondents who "strongly agree," "agree," "neither agree nor disagree," "disagree," or "strongly disagree" with each statement are summarized in Table 18. Almost all of the farmers and ranchers agreed that agriculture plays a vital role in the nation's economy, and more than 97 percent either agreed or strongly agreed that agriculture is the nation's most basic industry. Almost none felt that farmers are to blame for high food prices, and less than one-third agreed that most farms today are too large. More than 92 percent agreed that the proportion of farmers who are now in financial trouble is much greater than at most times in the past, and more than 73 percent felt that farmers should organize to bargain for the prices of farm products. About 73 percent agreed that the family farm is rapidly going out of existence, but about the same proportion also agreed that to them farming is strictly a business.

An evaluation of these statements according to the debt position of the operator is accomplished in Appendix Table 18. Farmers with little or no debt were somewhat more inclined to indicate that today's farms are too large and that farming is strictly a business than those operators with relatively high debt loads. Those in high debt positions felt somewhat more strongly than their counterparts with lower debt levels that the family farm is going out of existence and that large corporations control agriculture.

When statements about farmers and farming were evaluated by farmers in various age groups, differences of opinion were not demonstrably apparent. However, when statements about farmers were commented on by those of varying educational levels, some differences of opinion were noted. Those farmers with fewer than average years of formal education felt more strongly that most farms today are too large, farmers should organize to bargain for farm prices, farming is strictly a business, the family farm is going out of existence, and large corporations control agriculture.

TABLE 18. NORTH DAKOTA FARM OPERATORS' LEVEL OF AGREEMENT WITH SELECTED STATEMENTS ABOUT FARMERS AND FARMING

Statement	Percent of Farmers Who:			Mean Score ^c
	Agree ^a	Neutral	Disagree ^b	
Most farms today are too large	30.3	11.6	58.1	3.3
Farmers should organize to bargain for the prices of farm products	73.2	10.7	16.1	2.3
The proportion of farmers who are now in financial trouble is much greater than at most times in the past	92.8	1.7	5.5	1.8
Agriculture is our nation's most basic industry	97.3	1.6	1.2	1.6
Farming is strictly a business	72.2	6.2	21.6	2.3
The family farm is rapidly going out of existence	72.8	5.8	21.5	2.3
Agriculture plays a vital role in the nation's economy	98.5	0.7	0.9	1.4
American farmers will always be able to produce enough food to feed America	81.2	6.0	12.9	2.1
Today, large corporations, not farmers, control agriculture	57.7	9.9	32.5	2.6
Farmers are primarily to blame for high food prices	1.6	1.1	97.4	4.6

^aIncludes both agree and strongly agree.

^bIncludes both disagree and strongly disagree.

^cBased on scores of 1 for strongly agree, 2 for agree, 3 for neither agree nor disagree, 4 for disagree, and 5 for strongly disagree.

Attitudes Toward Financial Assistance

In the 1985 survey, respondents were asked whether they felt farmers in financial trouble should receive help from the federal and/or state government. A yes or no response was requested. In the 1986 survey, farmers were asked to respond to the same question with strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree. In 1985, 54 percent of the respondents indicated that they favored assistance from the federal government. In 1986, 39 percent agreed and 35 percent disagreed (Table 19). Similarly, about 46 percent of the farmers did not favor federal aid in 1985; about 35 percent disagreed in 1986.

TABLE 19. FARMERS' ATTITUDES TOWARD FEDERAL AND STATE FINANCIAL ASSISTANCE, 1985 AND 1986 (IN PERCENT)

Source of Aid	1985 Response		1986 Response		
	Yes	No	Agree	Neutral	Disagree
Federal	54.4	45.6	39.3	26.1	34.6
State	45.6	54.4	31.3	24.7	44.1

A similar pattern was evident with respect to aid from state government, except that a somewhat smaller percentage of farmers were in favor of state assistance in either year. In 1986, about 31 percent of the respondents favored state aid to financially stressed farmers.

Farmers who favored aid from one level of government generally tended to also favor aid from the other level (Table 20). Of the farmers who agreed that federal assistance was desirable, about two-thirds favored state aid. Conversely, 84 percent of the farmers who were in favor of state aid agreed that federal assistance would be desirable. Only 22 percent of those who favored federal aid disagreed with the concept of state assistance. Many of these farmers commented that the state's resources were not adequate to undertake such an effort.

TABLE 20. FARMERS' ATTITUDES TOWARD FINANCIAL ASSISTANCE FROM FEDERAL GOVERNMENT AND STATE GOVERNMENT, 1986

Federal Government Assistance	State Government Assistance			Total
	Agree	Neutral	Disagree	
	-----percent-----			
Agree	66.8	11.2	22.0	268
Neutral	8.9	71.4	19.8	192
Disagree	6.4	4.4	89.2	251
Total	29.8	25.0	45.1	711

Some financial and personal characteristics of producers who favored federal and state aid are summarized in Table 21. A definite relationship between a farmer's debt-to-asset ratio and his attitude toward assistance from either source is apparent. Less than one-fourth of the operators in the no debt category were in favor of either form of assistance, while more than half of those with debt ratios exceeding 70 percent agreed with aid from each source. A very similar pattern can be noted with respect to the operator's status on debt payments. More than half of the operators who were not current were in favor of state aid, and nearly two-thirds agreed with federal assistance. It is also interesting to note, however, that even in the highest debt categories a substantial percentage of operators do not favor aid from either federal or state sources.

TABLE 21. FARMERS' ATTITUDES CONCERNING FEDERAL AND STATE FINANCIAL ASSISTANCE BY SELECTED FINANCIAL AND PERSONAL CHARACTERISTICS, 1986

Item	Percent of Farmers in Group Who Favor: ^a	
	Federal Aid	State Aid
Debt-to-asset ratio:		
No debt	24.2	21.1
0.1 to 40 percent	30.1	21.2
41 to 70 percent	46.0	35.8
71 percent and greater	59.5	51.6
Status with respect to payments on debt:		
No debt	24.2	21.1
Current on payments	34.4	25.7
Not current on payments	62.3	53.4
Net cash farm income:		
Negative or zero	51.6	36.4
\$1 to \$9,999	46.1	36.4
\$10,000 to \$19,999	35.4	28.3
\$20,000 and greater	29.1	23.5
Total family income less family living expenses:		
Negative or zero	44.2	36.8
\$1 to \$19,999	38.3	28.4
\$20,000 or greater	32.2	23.2

^aIncludes respondents who "strongly agree" or "agree" that the federal (state) government should assist farmers who are in financial trouble.

Two other financial variables reinforce this association. A relationship between net cash farm income and attitude toward aid is also apparent from Table 21, particularly with respect to federal assistance. The variable, total family income less family living expenses, also appears

to be associated with these attitudes; operators whose family income was inadequate to cover living expenses were more likely to favor aid than operators with higher income levels. This relationship, however, is not as pronounced as for the other financial variables.

Some regional variations in attitudes were evident, but a clear pattern did not emerge. Generally, attitudes toward federal aid were somewhat more positive in the western regions than in the eastern part of the state, although Region 5 (the southern Red River Valley and adjacent areas) had the third highest rate of agreement. The percentage agreeing with federal aid ranged from 30.2 percent (Region 4) to 41 percent (Region 8). Less variation was evident with regard to state assistance; the percentage agreeing ranged from a high of 32.1 percent (Region 7) to a low of 27.8 percent (Region 1).

Little variation in attitudes toward either federal or state aid was found among operators of different age groups. Some association appeared to exist between education and farmers' attitudes toward state aid; the more highly educated operators were generally less favorable to state assistance. Little relationship appeared to exist between education and the attitude toward federal assistance. For a discussion of the specific forms of financial assistance preferred by respondents, see Leistriz et al. 1986.

Effects of Economic Stress on the Personal Lives of Farm Families

This section examines the effects of the current farm financial situation on the personal lives of North Dakota farm and ranch operators and their families. Farm operators were asked what effect the current farm financial situation had on their personal lives. Of the respondents, 30 percent indicated that it had "a great deal" of effect, 54 percent reported "some" effect, and 16 percent said they had "not been affected at all." Effects mentioned by many respondents included stress, a general need to get along on less, the need to repair equipment rather than purchase it, and the necessity of foregoing vacations and other nonessential expenses.

The relationship between the perceived effect of the financial situation on farm families' personal lives and selected indicators of their own financial situation are also shown in Table 22. There was a strong association between the debt-to-asset ratio and the farm operator's perception of the effect of current farm financial conditions on his personal life. Only 10.5 percent of farmers with no debt reported that they had been affected a great deal, and 36.1 percent said they had not been affected at all. On the other hand, 61 percent of the operators with debt-to-asset ratios over 70 percent said they had been affected a great deal, and only 4.9 percent said they had not been affected at all.

A similar relationship appeared to exist between the level of net cash farm income and the effect on personal life. Of the respondents with net cash farm income that was zero or negative, almost 48 percent said they had been affected a great deal; only about 7 percent indicated they had not

TABLE 22. EFFECT OF FARM FINANCIAL SITUATION ON PERSONAL LIVES OF NORTH DAKOTA FARM OPERATORS, BY SELECTED FINANCIAL INDICATORS, 1985

Item	Extent of Effect on Personal Life		
	A Great Deal	Some	Not at All
-----percent-----			
Debt-to-asset ratio:			
No debt	10.5	53.4	36.1
Less than .40	18.9	63.9	17.2
.40 to .70	43.3	50.9	5.9
Over .70	61.0	34.2	4.9
Total	30.2	53.9	15.9
Net cash farm income:			
Zero or negative	47.8	45.3	6.8
\$1 to \$10,000	31.7	58.4	9.9
\$10,001 to \$20,000	22.6	60.1	17.3
\$20,001 to \$50,000	21.4	53.6	25.0
\$50,001 or more	17.4	54.4	28.3
Total	30.2	54.4	15.4
Total family income less family living allowance:			
-\$5,000 or less	48.0	45.0	7.0
-\$4,999 to \$0	33.3	57.0	9.7
\$1 to \$4,999	21.3	62.8	16.0
\$5,000 to \$19,999	27.7	57.7	14.7
\$20,000 or more	20.0	52.8	27.2
Total	30.3	53.9	15.8

Note: All three relationships were found to be statistically significant at the 0.01 level using the chi square (χ^2) test.

been affected at all. On the other hand, only 17 percent of the operators with net cash farm income of \$50,000 or more reported that they had been affected a great deal; and 28 percent indicated they had not been affected at all.

A very similar pattern is revealed when the effects on personal life are compared to the level of total family income less a family living allowance (Table 22). All three of these relationships were found to be statistically significant.

The operators were also asked whether they or any member of their immediate family had experienced any of a number of specific events, which are normally stressful, during the past two years. The responses to this question are summarized in Table 23. More than 24 percent of all respondents reported that they or a member of their immediate family had suffered depression or other emotional problems, 22 percent reported a

reduction in pay, benefits, or working hours because a business had to cut back, and 15 percent reported unusual marital or other family stress or conflict. About 15 percent also reported that they or a family member had lost a job because a business had to cut back, and about 15 percent had experienced the death of a relative. Nearly 4 percent reported that they or a family member had lost a farm due to financial difficulties, and a similar percentage reported loss of a home, car, or other major asset; 3.2 percent reported the loss of a business.

The respondents were then asked which of the events they reported were a direct or indirect result of the farm financial situation (Table 23). More than 84 percent of those who had reported depression or family stress indicated that their problems were associated with the farm financial situation. About 64 percent of those who reported a reduction in pay or benefits, and about 60 percent of those who had lost a job felt the economic situation in agriculture was at least partially to blame. Divorce and the death of a relative were the only types of events which less than half the respondents felt were associated with the farm crisis.

Overall, 45 percent of the respondents had experienced none of the events listed in Table 23, and 25 percent reported only one of those events. About 17 percent had experienced two of the events, about 7 percent reported three, and nearly 4 percent reported four. Slightly over 2 percent of the respondents reported that they or their immediate family had experienced five or more of these stressful events within the last two years.

Two of the experiences listed in Table 23 have been frequently cited as symptoms which may arise as a result of unusual financial pressures associated with adverse economic conditions (Hargrove 1986; Heffernan and Heffernan 1985). These are (1) depression and other emotional problems and (2) marital and family conflict. The relationships between these two stress indicators and the three financial indicators are summarized in Table 24. In each case, a strong relationship appears to exist between the indicators of financial pressure and the manifestations of emotional stress. Almost 44 percent of respondents with debt-to-asset ratios of 70 percent or more reported that they or a member of their immediate family had experienced depression or other emotional problems (Figure 15), and one-third reported experiencing unusual marital or family stress or conflict. Corresponding values for respondents with no debt were 11 percent and 6 percent. All three relationships were found to be statistically significant.

TABLE 23. EVENTS EXPERIENCED BY NORTH DAKOTA FARM OPERATORS OR THEIR IMMEDIATE FAMILIES WITHIN THE LAST TWO YEARS

Event	Percent Who Have Experienced	Percent Who Believe Event Was a Direct or Indirect Result of Financial Conditions in Agriculture ^a
Lost a farm due to financial difficulties	3.6	96.4
Lost a business due to financial difficulties	3.2	75.0
Lost a job because a business had to cut back its staff	15.2	60.0
Had a reduction in pay, benefits, or working hours because a business had to cut back	22.0	63.5
Lost a home, car or other major possession to a finance company or bank	3.6	70.4
Had an immediate relative die	14.9	11.5
Suffered depression or other emotional problems	24.4	84.3
Committed suicide	0.7	60.0
Experienced unusual marital or other family stress or conflict	15.2	80.9
Been divorced	4.5	23.5
Been convicted of a crime other than a minor traffic violation	0.5	50.0

^aPercentages represent the proportion of those who experienced the various events.

TABLE 24. EFFECT OF FARM FINANCIAL SITUATION ON PERSONAL LIVES OF NORTH DAKOTA FARM OPERATORS, BY SELECTED FINANCIAL INDICATORS, 1985

Item	Percent of Respondents Who Reported:	
	Depression or Other Emotional Problems	Unusual Marital or Other Family Stress or Conflict
Debt-to-asset ratio:		
No debt	11.3	6.0
Less than .40	18.5	10.9
.40 to .70	32.2	16.4
Over .70	43.9	33.3
Total	24.7	15.1
Net cash farm income:		
Zero or negative	35.4	20.5
\$1 to \$10,000	32.3	19.3
\$10,001 to \$20,000	20.8	18.5
\$20,001 to \$50,000	15.0	7.1
\$50,001 or more	13.0	2.2
Total	25.3	15.7
Total family income less family living allowance:		
-\$5,000 or less	37.4	21.6
-\$4,999 to \$0	28.0	18.3
\$1 to \$4,999	23.4	16.0
\$5,000 to \$19,999	22.4	15.9
\$20,000 or more	15.9	7.2
Total	25.0	15.2

Note: All three relationships were found to be statistically significant at the 0.01 level using the chi square (χ^2) test.

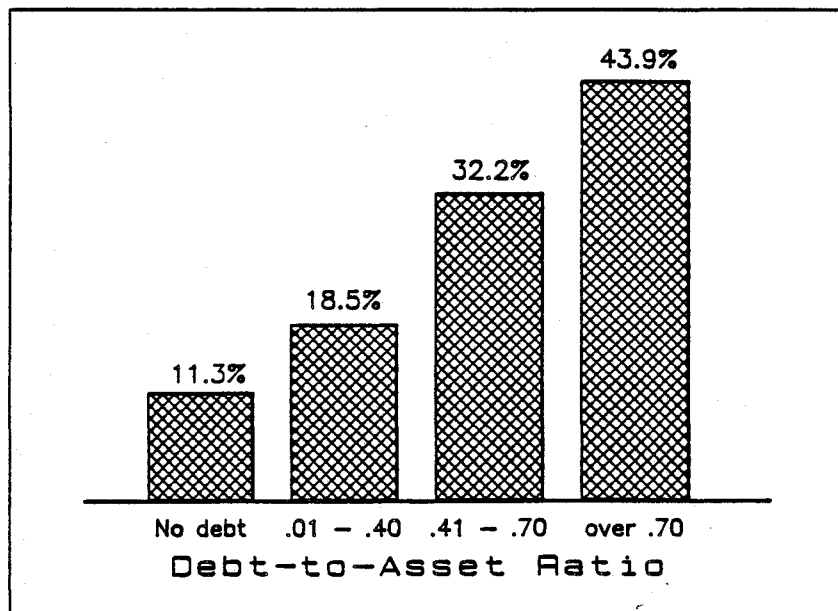


Figure 15. Percent of North Dakota Farm Families Who Report Depression and Other Emotional Problems, by Debt-to-Asset Ratio, 1985

Conclusions and Implications

This longitudinal study of North Dakota farm and ranch operators was undertaken in order to provide local, state, and national policymakers with accurate information concerning producers' financial status and the adjustment strategies they are pursuing. Analysis of data from surveys conducted in 1985 and 1986 leads to a number of conclusions. The most salient of these include the following:

- North Dakota farm families are much more dependent on farm revenues as their primary source of income than are agricultural producers nationwide. In 1984, net cash farm income comprised 59 percent of total farm family income in North Dakota, compared to 39 percent nationwide.
- Total income of North Dakota farm families declined slightly (3 percent) from 1984 to 1985. Modest increases in net cash farm income and off-farm earnings were more than offset by declines in mineral lease income and income from nonfarm investments. Substantial changes in net cash farm income were noted at the regional level with large increases occurring in the southern Red River Valley and the Devils Lake area, while substantial decreases occurred in the northwestern corner of the state. Cash grain farms had levels of net farm income and total family income that were substantially greater than the state average, continuing a pattern observed in 1984.
- On average, producers' equity positions worsened in 1985. The average debt-to-asset ratio rose from 32.6 percent as of December 31, 1984, to 34.2 percent as of December 31, 1985. Declining asset values were the primary cause of operators' deteriorating equity positions. The average value of assets of the survey respondents declined 3.7 percent during this period, while total debt increased by 0.9 percent.
- The return to total assets was quite similar among producers of different debt-to-asset categories, suggesting that the more highly leveraged producers are not less efficient managers. In fact, the most highly leveraged groups demonstrated the highest rates of returns to assets.
- The return to equity indicates the plight of highly leveraged producers. Because the cost of borrowed funds exceeded the average return on assets, heavily indebted farmers experienced negative returns to equity.
- On average, total farm family income was adequate to cover current operating expenses, a family living allowance, and principal payments. Total income was not adequate to cover these costs plus depreciation, however.

- About 54 percent of the state's farm and ranch operators had 1985 levels of total family income that were inadequate to cover their cash expenses, family living costs, principal payments, and a depreciation allowance. More than three-fourths of this group also were unable to cover all of these costs in 1984, which suggests that the long-term viability of their farming operation may be questionable unless economic conditions improve.
- Obtaining off-farm employment is one way in which many farm families have attempted to cope with adverse economic conditions. Altogether, about 44 percent of the households surveyed reported some off-farm earnings in 1985. Operators of farms with low gross and net farm incomes were more likely to work off the farm than their counterparts with higher incomes, whereas spouses of all income groups had similar patterns of off-farm work. Both operators and spouses on highly leveraged farms were more likely to work off the farm or, if not currently employed, to seek off-farm work.
- Some producers have taken steps to reduce their debt. More than 14 percent reported that they had renegotiated a loan to reduce principal in 1985, while almost 9 percent sold livestock and nearly 4 percent sold machinery. These measures were more frequently employed by highly leveraged operators.
- Many farmers also made changes in their farming operation in an attempt to cope with economic conditions. Adjustments reported by one-fourth or more of the respondents included postponing capital purchases, reducing tillage operations, reducing family living expenses, and reducing use of such inputs as fertilizer and chemicals. Financial variables, such as debt-to-asset ratio and net cash farm income, were significant in explaining most of these changes.
- Economic conditions have taken an emotional toll on many farm families. Of the respondents, 30 percent said that their personal lives had been affected a great deal, while 54 percent reported some effect and only 16 percent said they had not been affected at all. About 24 percent of the respondents reported that they or some member of their immediate family had experienced depression or other emotional problems, and 15 percent reported unusual marital or other family stress or conflict. These problems were more frequently reported by the more highly leveraged operators, and more than 80 percent of those reporting these difficulties indicated that they were either a direct or indirect result of financial conditions in agriculture.
- Despite the difficult economic conditions facing farmers, a minority favored special programs of federal or state assistance to farmers in financial trouble. About 39 percent favored such aid if provided by the federal government (26 percent were neutral), while 31 percent would favor such aid from the state government (25 percent were neutral).

APPENDIX

APPENDIX TABLE 1. ALTERNATIVE MEASUREMENTS OF THE FINANCIAL CHARACTERISTICS OF NORTH DAKOTA FARM AND RANCH OPERATORS, 1985

Item	Mean ^a	Median ^b
	-----dollars-----	
Net cash farm income	15,958	10,000
Gross farm income	110,266	78,000
Mineral lease income	1,720	450
Other nonfarm income	2,842	1,500
Total assets	413,396	300,000
Total debts	141,409	76,000
Net worth	289,166	200,000
Farm-related interest paid	15,320	9,000
Depreciation expense	16,909	12,000

^aThe average of all farmers reporting.

^bThe midpoint of the responses.

APPENDIX TABLE 2. PERCENT OF RESPONDENTS REPORTING VARIOUS SOURCES OF INCOME BY LEVEL OF INCOME RECEIVED, NORTH DAKOTA FARM OPERATORS, 1984 AND 1985

Income Source	Level of Income Received							
	Less than \$10,000		\$10,000 to \$24,999		\$25,000 to \$39,999		\$40,000 or More	
	<u>1984</u>	<u>1985</u>	<u>1984</u>	<u>1985</u>	<u>1984</u>	<u>1985</u>	<u>1984</u>	<u>1985</u>
	-----percent-----							
Net cash farm income	44.4	48.1	30.7	31.0	11.7	9.7	13.3	11.2
Off-farm employment	66.3	65.9	27.9	26.2	5.3	5.2	0.6	2.7
Mineral lease income	86.5	88.6	5.5	5.3	3.7	2.3	4.3	3.8
Other off-farm income	92.5	92.6	5.1	5.8	0.7	0.7	1.7	0.9
Total farm family income	31.6	34.2	29.6	33.0	17.7	14.5	21.0	18.2

APPENDIX TABLE 3. DISTRIBUTION AND COMPOSITION OF NORTH DAKOTA FARM FAMILY INCOME BY SIZE OF PRODUCTION, 1985

Gross Farm Income	N	Distribution by Total Farm Family Income				Composition of Total Farm Family Income				
		Less than \$10,000	\$10,000 to \$24,999	\$25,000 to \$39,999	\$40,000 or More	Net Cash Farm Income	Off-Farm Employment	Mineral Lease	Other Off-Farm	Total Income
		-----percent-----				-----dollars-----				
Less than \$10,000	15	42.9	57.1	0.0	0.0	4,241	7,220	23	1,227	12,710
\$10,000 to \$39,999	125	45.9	37.7	9.0	7.4	5,455	5,641	2,367	1,911	15,374
\$40,000 to \$99,999	259	32.0	41.5	15.0	11.5	10,843	5,058	991	3,483	20,375
\$100,000 to \$499,999	231	27.8	22.9	19.4	30.0	24,938	4,105	2,451	2,905	34,400
\$500,000 and over	13	30.8	0.0	0.0	69.2	73,208	460	755	5,273	79,696

APPENDIX TABLE 4. DISTRIBUTION AND COMPOSITION OF NORTH DAKOTA FARM FAMILY INCOME BY TYPE OF PRODUCTION, 1985

Type of Production	N	Distribution by Total Farm Family Income				Composition of Total Farm Family Income				
		Less than \$10,000	\$10,000 to \$24,999	\$25,000 to \$39,999	\$40,000 or More	Net Cash Farm Income	Off-Farm Employment	Mineral Lease	Other Off-Farm	Total Income
		-----percent-----				-----dollars-----				
Cash grain	457	28.0	32.7	17.0	22.2	19,789	4,862	1,596	2,644	28,891
Beef	77	45.3	32.0	10.7	12.0	3,295	7,144	4,708	7,781	22,928
Dairy	43	40.5	45.2	7.1	7.1	10,136	2,513	335	454	13,438
Diversified	66	51.5	33.3	9.1	6.1	8,074	2,994	346	1,091	12,505

1
23
1

APPENDIX TABLE 5. DISTRIBUTION AND COMPOSITION OF NORTH DAKOTA FARM FAMILY INCOME BY STATE PLANNING REGION, 1985

Region	N	Distribution by Total Farm Family Income				Composition of Total Farm Family Income				
		Less than \$10,000	\$10,000 to \$24,999	\$25,000 to \$39,999	\$40,000 or More	Net Cash Farm Income	Off-Farm Employment	Mineral Lease	Other Off-Farm	Total Income
		-----percent-----				-----dollars-----				
1 Williston	37	41.7	33.3	5.6	19.4	3,506	3,423	21,534	4,466	32,929
2 Minot	91	37.8	33.3	13.3	15.6	13,054	5,315	610	1,461	20,440
3 Devils Lake	73	30.6	34.7	15.3	19.4	21,196	3,995	27	1,993	27,210
4 Grand Forks	60	19.3	29.8	26.3	24.6	17,233	6,646	70	3,290	27,239
5 Fargo	93	16.3	33.7	15.2	34.8	39,214	5,418	57	2,816	47,505
6 Jamestown	126	37.8	33.6	15.1	13.4	11,866	4,091	502	2,128	18,587
7 Bismarck	124	45.5	35.8	10.6	8.1	8,154	3,753	191	773	12,871
8 Dickinson	72	39.4	26.8	15.5	18.3	10,220	5,673	2,944	9,086	27,922

APPENDIX TABLE 6. LEVEL OF DEBT OF OPERATORS PROVIDING FINANCIAL DATA FOR BOTH 1984 AND 1985

Debt-to-Asset Ratio	1984	1985
	--percent of respondents---	
No debt	16.26	17.55
.01 to .40	46.22	41.23
.41 to .70	23.68	23.97
.71 or more	13.84	17.26

APPENDIX TABLE 7. DISTRIBUTION AND COMPOSITION OF NORTH DAKOTA FARM FAMILY INCOME BY DEBT-TO-ASSET RATIO, 1985

Debt-to-Asset Ratio	N	Distribution by Total Farm Family Income				Composition of Total Farm Family Income				
		Less than \$10,000	\$10,000 to \$24,999	\$25,000 to \$39,999	\$40,000 or More	Net Cash Farm Income	Off-Farm Employment	Mineral Lease	Other Off-Farm	Total Income
		-----percent-----				-----dollars-----				
No debt	110	18.5	33.3	20.4	27.8	17,589	2,908	2,745	9,606	32,848
.01 - .40	259	27.8	34.5	13.7	23.9	20,633	4,285	2,451	2,274	29,643
.41 - .70	153	35.8	37.2	16.2	10.8	9,111	7,319	1,057	921	18,408
.71 - 1.0	74	63.9	23.6	8.3	4.2	14,096	4,652	214	1,123	20,085
Insolvent	32	46.9	40.6	6.3	6.3	9,851	3,749	162	368	14,130

APPENDIX TABLE 8. DISTRIBUTION OF NORTH DAKOTA FARM OPERATORS BY VIABILITY POSITION BY STATE PLANNING REGION, 1985

Region	1985 Viability Position				
	Less than \$-5,000	\$-4,999 to \$0	\$0 to \$4,999	\$5,000 to \$19,999	\$20,000 and Over
	-----percent-----				
1 (Williston)	51	6	6	14	22
2 (Minot)	40	17	11	13	18
3 (Devils Lake)	32	17	4	25	21
4 (Grand Forks)	30	11	7	33	19
5 (Fargo)	33	3	10	16	37
6 (Jamestown)	49	13	7	14	17
7 (Bismarck)	54	17	9	11	9
8 (Dickinson)	48	6	8	14	24

APPENDIX TABLE 9. OFF-FARM EMPLOYMENT IN 1984 AND 1985, NORTH DAKOTA FARMERS AND SPOUSES, BY REGION

Employment Status	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7	Region 8	State Total
Percent of operators employed off the farm:									
1984	29.0	30.1	25.3	25.0	24.5	16.9	13.7	31.0	23.1
1985	26.3	29.2	24.1	25.0	23.5	15.4	18.0	26.2	22.5
Percent of spouses employed off the farm:									
1984	29.0	24.0	39.1	42.1	30.3	32.8	21.9	39.7	31.2
1985	22.6	30.3	45.3	47.5	31.5	33.9	24.4	38.4	33.6

APPENDIX TABLE 10. SELECTED EMPLOYMENT CHARACTERISTICS OF NORTH DAKOTA FARM OPERATORS, 1984 AND 1985

Item	Units	1984	1985
Industry in which operator was employed off the farm:			
Agriculture	Percent	19.5	22.0
Mining	Percent	7.7	5.5
Construction	Percent	17.2	15.9
Manufacturing	Percent	15.9	14.0
Wholesale trade	Percent	5.3	3.0
Retail trade	Percent	7.7	4.3
Business and repair services	Percent	5.3	8.5
Professional	Percent	11.8	15.2
Government	Percent	5.3	7.9
Other	Percent	4.3	3.7
Distance traveled to off-farm job:			
Average	Miles	20.3	18.2
Distribution:			
Less than 5 miles	Percent	38.9	35.1
5 to 9.9 miles	Percent	16.0	19.9
10 to 14.9 miles	Percent	13.6	13.2
15 to 19.9 miles	Percent	4.9	9.9
20 to 29.9 miles	Percent	9.8	7.3
More than 30 miles	Percent	16.0	14.6
Number of years operator has worked off the farm:			
Average	Years	8.7	8.4
Distribution:			
One or less	Percent	12.7	12.0
Two to three	Percent	19.1	19.8
Four to five	Percent	16.8	14.4
Six to ten	Percent	27.7	28.1
More than ten	Percent	23.7	25.8
Number of days operator worked off the farm:			
Average	Days	107	115
Distribution:			
1 to 24	Percent	14.0	10.8
25 to 49	Percent	14.0	20.5
50 to 99	Percent	25.6	18.8
100 to 149	Percent	15.7	15.3
150 to 200	Percent	17.4	17.6
More than 200	Percent	13.4	17.0

APPENDIX TABLE 11. SELECTED EMPLOYMENT CHARACTERISTICS OF NORTH DAKOTA FARM SPOUSES, 1984 AND 1985

Item	Units	1984	1985
Industry in which spouse was employed off the farm:			
Manufacturing	Percent	6.4	8.0
Retail trade	Percent	15.3	11.7
Finance and business	Percent	8.4	7.5
Personal Service	Percent	3.7	5.6
Professional	Percent	48.4	46.9
Government	Percent	6.3	11.3
Other	Percent	11.5	9.0
Distance traveled to off-farm job:			
Average	Miles	12.9	13.1
Distribution:			
Less than 5 miles	Percent	35.0	32.1
5 to 9.9 miles	Percent	20.5	23.1
10 to 14.9 miles	Percent	15.5	15.6
15 to 19.9 miles	Percent	9.0	9.0
20 to 29.9 miles	Percent	12.5	13.7
More than 30 miles	Percent	7.5	6.6
Number of years spouse has worked off the farm:			
Average	Years	7.2	7.3
Distribution:			
One or less	Percent	15.3	13.3
Two to three	Percent	21.8	23.4
Four to five	Percent	20.8	20.6
Six to ten	Percent	19.8	20.2
More than ten	Percent	22.3	22.5
Number of days spouse worked off the farm:			
Average	Days	163	154
Distribution:			
1 to 24	Percent	11.5	13.3
25 to 49	Percent	6.5	13.3
50 to 99	Percent	11.1	20.5
100 to 149	Percent	14.7	16.3
150 to 200	Percent	16.1	18.7
More than 200	Percent	40.1	18.1

APPENDIX TABLE 12. FRINGE BENEFITS RECEIVED BY FARM OPERATORS AND SPOUSES EMPLOYED OFF THE FARM, NORTH DAKOTA, 1985

Type of Benefit	Farm Operators	Spouses
	-----percent-----	
Health insurance	17.5	36.7
Life insurance	7.6	15.4
Disability	8.2	10.4
Retirement plan	9.4	24.9

Two or more benefits	12.3 ^a	29.9 ^a

^aThese individuals are also included in the percentage receiving each type of benefit.

APPENDIX TABLE 13. PERCENT OF NORTH DAKOTA FARMERS MAKING CHANGES TO REDUCE FARM DEBT BY REGION, 1985

Specific Change	Region 1		Region 2		Region 3		Region 4		Region 5		Region 6		Region 7		Region 8		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Sold land	0	0.0	a	1.8	a	1.3	a	1.5	a	0.9	0	0.0	0	0.0	a	2.4	7	0.9
Deeded back land	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	a	0.7	a	0.7	a	1.2	a	0.4
Sold machinery	a	5.3	5	4.4	a	1.3	a	1.5	a	2.9	7	5.2	5	3.6	a	2.4	26	3.4
Sold breeding livestock	8	21.1	7	6.2	a	5.1	a	2.9	a	2.9	15	11.0	15	10.8	15	17.9	69	9.1
Renegotiated a loan to reduce principal	7	18.4	17	15.0	13	16.5	11	16.2	12	11.8	21	15.4	16	11.5	11	13.1	108	14.2
Total farms in region	38	5.0	113	14.9	79	10.4	68	9.0	102	13.4	136	17.9	139	18.3	84	11.1	759	100.0

aN < 5.

APPENDIX TABLE 14. PERCENT OF NORTH DAKOTA FARMERS AMONG FOUR DEBT CATEGORIES WHO WERE MAKING SPECIFIC MANAGEMENT CHANGES IN 1985

Specific Change	Farms Responding to the Specific Change*		Farms Making the Specific Change								Total	
			No Debt		1% to 40% Debt		41% to 70% Debt		Over 70% Debt			
	N	%	N	%	N	%	N	%	N	%	N	%
Renegotiated a loan to reduce interest	128	17.6	a	0.8	28	21.9	41	32.0	58	45.3	128	100.0
Renegotiated a land rental agreement to reduce land rents	80	11.0	a	2.5	27	33.8	31	38.8	20	25.0	80	100.0
Switched from cash to share rent	24	3.3	0	0.0	9	37.5	9	37.5	6	25.0	24	100.0
Changed lending institutions	50	6.9	0	0.0	18	36.0	16	32.0	16	32.0	50	100.0
Began to use contracting or hedging as marketing tools	74	10.2	5	6.7	34	46.0	23	31.1	12	16.2	74	100.0
Began to use crop insurance	78	10.7	a	5.1	30	38.5	19	24.4	25	32.1	78	100.0
Obtained professional financial advice	94	12.9	a	2.1	33	35.1	25	26.6	34	36.2	94	100.0
Leased machinery rather than purchased	75	10.3	6	8.0	25	33.3	24	32.0	20	26.7	75	100.0
Reduced family living expenses	342	46.9	28	8.2	129	37.7	98	28.7	87	25.4	342	100.0
Postponed capital purchases	454	62.3	45	9.9	169	37.2	136	30.0	104	22.9	454	100.0
Started participating in government farm programs	70	9.6	8	11.4	30	42.9	11	15.7	21	30.0	70	100.0
Increased participation in farm programs	88	12.1	5	5.7	38	43.2	22	25.0	23	26.1	88	100.0
Cut back on yield-increasing expenditures, such as fertilizer and chemicals	194	26.7	21	10.8	80	41.2	41	21.1	52	26.8	194	100.0
Reduced tillage operations	360	49.4	45	12.5	155	43.1	91	25.3	69	19.2	360	100.0
Column percent of total				18.2		41.4		23.5		16.9		

*729 total respondents.

a N < 5.

APPENDIX TABLE 15. PERCENT OF NORTH DAKOTA FARMERS AMONG FIVE INCOME CATEGORIES WHO WERE MAKING SPECIFIC MANAGEMENT CHANGES IN 1985

Specific Change	Farms Responding to the Specific Change*		Net Cash Farm Income Category										Total	
			Negative to Zero		\$1 to \$9,999		\$10,000 to \$19,999		\$20,000 to \$49,999		\$50,000 & Over			
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Renegotiated loan to reduce interest	123	18.2	54	43.9	23	18.7	25	20.3	15	12.2	6	4.9	123	100.0
Renegotiated a land rental agreement to reduce land rent	78	11.5	24	30.8	21	26.9	13	16.7	13	16.7	7	8.9	78	100.0
Switched from cash to share rent	23	3.4	7	30.4	8	34.8	a	13.0	a	8.7	a	13.0	23	100.0
Changed lending institutions	45	6.7	14	31.1	8	17.8	6	13.3	12	26.7	5	11.1	45	100.0
Began to use contracting or hedging as marketing tools	69	10.2	11	15.9	15	21.7	12	17.4	21	30.4	10	14.5	69	100.0
Began to use crop insurance	74	11.0	29	13.2	11	14.9	16	21.6	12	16.2	6	8.1	74	100.0
Obtained professional financial advice	88	13.0	29	33.0	17	19.3	19	21.6	16	18.2	7	8.0	88	100.0
Leased machinery rather than purchased	69	10.2	27	39.1	12	17.4	15	21.7	11	15.9	a	5.8	69	100.0
Reduced family living expenses	323	47.8	107	33.1	79	24.5	81	25.1	41	12.7	15	4.6	323	100.0
Postponed capital purchases	423	62.6	118	27.9	101	23.9	98	23.2	80	18.9	26	6.2	423	100.0
Started participating in government farm programs	70	10.4	14	20.0	14	20.0	21	30.0	15	21.4	6	8.6	70	100.0
Increased participation in farm programs	84	12.4	24	28.6	14	16.7	22	26.2	17	20.2	7	8.3	84	100.0
Cut back on yield-increasing expenditures, such as fertilizer and chemicals	182	27.0	60	33.0	43	23.6	54	29.7	18	9.9	7	3.9	182	100.0
Reduced tillage operations	335	49.6	86	25.7	76	22.7	82	24.5	65	19.4	26	7.8	335	100.0
Column percent of total			161	23.8	161	23.8	168	24.9	140	20.7	46	6.8		

*676 total respondents.

aN < 5.

APPENDIX TABLE 16. PERCENT OF NORTH DAKOTA FARMERS MAKING SPECIFIC MANAGEMENT CHANGES BY AGE CATEGORY, 1985

Specific Change	Age Category of Farmers Making the Change							
	Less than 35 Years		35 - 44 Years		45 - 55 Years		Over 55 Years	
	N	%	N	%	N	%	N	%
Renegotiated a loan to reduce interest ^b	49	26.6	30	16.5	32	16.7	20	10.1
Renegotiated a land rental agreement to reduce land rents ^b	26	14.1	28	15.4	22	11.5	7	3.5
Switched from cash to share rent	10	5.4	5	2.8	6	3.1	a	1.5
Changed lending institutions	16	8.7	13	7.1	16	8.3	6	3.0
Began to use contracting or hedging as marketing tools ^b	26	14.1	25	13.7	15	7.8	12	6.0
Began to use crop insurance	29	15.8	20	11.0	22	11.5	11	5.5
Obtained professional financial advice	21	11.4	27	14.8	26	13.5	21	10.6
Leased machinery rather than purchased	20	10.9	24	13.2	16	8.3	17	8.5
Reduced family living expenses	80	43.5	94	51.7	94	49.0	87	43.7
Postponed capital purchases ^b	122	66.3	135	74.2	112	58.3	104	52.3
Started participating in government farm programs	26	14.1	16	8.8	17	8.9	17	8.5
Increased participation in farm programs	26	14.1	24	13.2	21	10.9	19	9.6
Cut back on yield-increasing expenditures, such as fertilizer and chemicals	46	25.1	48	26.4	58	30.2	54	27.1
Reduced tillage operations ^b	84	45.7	103	56.6	99	51.6	86	43.2
Number and percent of farmers in each category	184	24.3	182	24.0	192	25.4	199	26.3

^aN < 5.

^bSignificant at the 1 percent (.01) level.

Note: N = 759.

APPENDIX TABLE 17. PERCENT OF NORTH DAKOTA FARMERS MAKING SPECIFIC MANAGEMENT CHANGES BY REGION, 1985

Specific Change	Number and Percent of Those Who Made the Specific Change by Region									
	Region 1 N %	Region 2 N %	Region 3 N %	Region 4 N %	Region 5 N %	Region 6 N %	Region 7 N %	Region 8 N %	Total N %	
Renegotiated a loan to reduce interest	10 26.3	16 14.2	12 15.2	11 16.2	12 11.8	23 16.9	28 20.1	20 23.8	132 17.4	
Renegotiated a land rental agreement to reduce land rents	a 2.6	8 7.1	12 15.2	6 8.8	8 7.8	23 16.9	13 9.4	12 14.3	83 10.9	
Switched from cash to share rent	0 0.0	a 1.8	6 7.6	a 1.5	a 2.0	5 3.7	a 2.9	a 4.8	24 3.2	
Changed lending institutions	5 13.2	7 6.2	9 11.4	6 8.9	6 5.9	8 5.9	5 3.6	5 6.0	51 6.7	
Began to use contracting or hedging as marketing tools	a 5.3	13 11.5	11 13.9	8 11.8	16 15.7	12 8.8	8 5.8	8 9.5	78 10.3	
Began to use crop insurance	10 26.3	10 8.9	12 15.2	7 10.3	11 10.8	16 11.8	9 6.5	7 8.3	82 10.8	
Obtained professional financial advice	5 13.2	11 9.7	12 15.2	7 10.3	14 13.7	17 12.5	17 12.2	12 14.3	95 12.5	
Leased machinery rather than purchased	5 13.2	12 10.6	9 11.4	6 8.8	10 9.8	15 11.0	12 8.6	8 9.5	77 10.1	
Reduced family living expenses	22 57.9	68 60.2	33 41.8	29 42.7	40 39.2	62 45.6	70 50.4	32 38.1	356 46.9	
Postponed capital purchases	25 65.8	76 67.3	53 67.1	44 64.7	51 50.0	95 69.9	85 61.2	44 52.4	473 62.3	
Started participating in government farm programs	a 7.9	12 10.6	9 11.4	7 10.3	12 11.8	11 8.1	17 12.2	5 6.0	76 10.0	
Increased participation in farm programs	a 7.9	17 15.0	7 8.9	8 11.8	13 12.8	12 8.8	16 11.5	14 16.7	90 11.9	
Cut back on yield-increasing expenditures, such as fertilizer and chemicals ^b	17 44.7	46 40.7	20 25.3	13 19.1	8 7.8	40 29.6	35 25.2	27 32.1	206 27.2	
Reduced tillage operations ^b	26 68.4	81 71.7	34 43.0	36 52.9	33 32.4	65 47.8	61 43.9	37 44.1	373 49.1	
Total farms in region	38 5.0	113 14.9	79 10.4	68 9.0	102 13.4	136 17.9	139 18.3	84 11.1	759 100.0	

^aN < 5.

^bSignificant at the 1 percent (.01) level.

APPENDIX TABLE 18. PERCENT OF NORTH DAKOTA FARM OPERATORS WHO AGREE WITH SELECTED STATEMENTS ABOUT FARMERS AND FARMING, BY DEBT-TO-ASSET RATIO, 1985

Statement	Debt-to-Asset Ratio			
	No Debt	.01 - .40	.41 - .70	.71 or More
-----percent ^a -----				
Most farms today are too large	41.4	31.1	26.6	19.7
Farmers should organize to bargain for the prices of farm products	72.1	75.2	74.9	73.2
The proportion of farmers who are now in financial trouble is much greater than at most times in the past	91.4	92.3	91.7	96.7
Agriculture is our nation's most basic industry	97.7	97.0	98.2	95.1
Farming is strictly a business	79.7	73.3	69.6	66.4
The family farm is rapidly going out of existence	67.7	69.9	74.0	82.1
Agriculture plays a vital role in the nation's economy	95.5	99.3	98.8	98.4
American farmers will always be able to produce enough food to feed America	81.3	79.9	83.1	81.2
Today, large corporations, not farmers, control agriculture	53.3	54.2	58.9	69.8
Farmers are primarily to blame for high food prices	1.5	2.3	0.6	1.6

^aPercent of farmers who agree or strongly agree.

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