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Financial Characteristics of North Dakota Farms

1996-1998

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Abstract

The performance of over 530 North Dakota farms, 1996-1998, is summarized using 16 financial measures. Farms are categorized by geographic region, farm type, farm size, gross cash sales, farm tenure, net farm income, debt-to-asset, and age of farmer to analyze relationships between financial performance and farm characteristics.

There was severe deterioration of financial performance in 1997. Financial performance in 1998, although the second lowest in the 1991-1998 period, improved because strong crop yields and emergency federal aid helped offset low crop and livestock prices. Median farm net income was $19,491 in 1998, $14,290 in 1997 and $31,603 in 1996. One-fourth of farms had negative net farm income and 51 percent of farms were not able to make scheduled term debt payments with 1998 income.

Keywords: Farm financial management, farm management, farm income, liquidity, solvency, profitability, repayment capacity, financial efficiency, financial benchmarks, tenure, North Dakota.

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INTRODUCTION

Financial statements such as the balance sheet and income statement provide a structured format to summarize financial information so it is more manageable for decision making. It is helpful to further simplify or summarize information contained in financial statements into key measures of financial performance. However, the calculation of a financial measure can be fruitless unless there is a meaningful basis of comparison to evaluate the number. Two methods of comparison are:

❶ **Past performance**. The progress of a business can be monitored by constructing financial measures on a periodic basis and comparing present to past performance.

❷ **Industry benchmarks**. The average or median of a financial measure from several similar businesses provides a good point of reference. Currently there is no nationwide database of farm records. However, there are statewide farm record programs in some states, such as North Dakota. Each farm has its own unique aspects, so the most appropriate comparison would be farms that have similar enterprises and resources.

Whatever method of comparison is used, it is imperative that the procedures for construction of financial statements and performance measures are consistent over time and between farms to ensure an "apples-to-apples" comparison.

The Farm Financial Standards Task Force (FFSTF) was formed by the American Bankers Association in 1989 to develop standards for construction of financial statements and measures of financial performance in agriculture. In 1991, the task force provided recommendations for financial statement construction and the calculation of 16 measures of financial performance. These recommendations were adopted, in most part, by the North Dakota Farm Business Management Education Program and are the basis for the benchmarks presented in this publication.

The purpose of this study is to provide information to producers, lenders, educators, and others on the financial performance of a sample of North Dakota farms from 1996-1998. Similar studies for 1991, 1992, 1993, 1994 and 1995 are referenced on page 26 of this report. Table 1 lists the median operator age, farm size and selected financial factors, 1991-1998. The data are from financial summaries of farms participating in the North Dakota Farm Business Management Education program. In this study the median and upper and lower quartiles of 16 financial performance measures are presented for all farms in the data set and for groupings of farms by characteristic such as farm type, farm size, and age of producer. The results can be used by producers and lenders to evaluate the financial performance of a farm. Also, trends can be identified and relationships between farm characteristics and financial measures can be analyzed. However, because of the small number of farms in this study, the results should be used cautiously and only be considered guidelines.

SOURCE OF DATA

More than 700 farms are enrolled in the North Dakota Farm Business Management Education program. Instructors educate and assist producers in record keeping and review data for completeness and accuracy. Instructors use the Finpack farm financial management software program to generate financial summaries. From 1996 through 1998, the financial summaries of over 530 farms each year were considered usable for this study. Table 2 shows the distribution of farms by characteristic for 1998.

Most farms were represented in all three years (1996-1998) of this study although there is a turnover of participants in farm management education programs and the number of farms that complete their annual records by a cut off date varies from year to year.

The farms in this study are larger and the age of the farm operators younger than the state average. In 1998, there were 31,000 farms in North Dakota with gross agricultural sales of at least $1,000. Only 8,800, or 28%, had gross receipts greater than $100,000, whereas 77% of the 535 farms in this study exceed that sales volume (median gross sales was $173,972). The farms in the study are more representative of operations that provide the primary source of net family income. The average age of farm operators in this study is 43 compared

to 51 for the state average.

DEFINITION OF FINANCIAL MEASURES

Sixteen measures of financial performance were calculated for each farm in this study. The recommendations of the farm financial standards task force for calculating the ratios were followed as closely as possible.

The farm financial standards task force stated that a more meaningful comparison between farms is achieved with market valuation of assets, but due to fluctuations in market values the cost method (acquisition cost less accumulated depreciation) is superior for comparisons over time for an individual farm operation. In fact, a dual column balance sheet is recommended: one column to value assets by the cost approach and a second column for market valuation of assets.

The valuation method used for current assets of farms in this study depended on what was most relevant and reliable. For example, current market value was used for grain and market livestock inventories, but prepaid expenses and supplies were listed at purchase cost.

Non-current asset valuation was:

- Machinery was valued at cost minus accumulated depreciation. Annual depreciation was 10 percent of undepreciated value.
- Purchased breeding livestock was valued at cost. Raised replacement animals were valued at a conservative market value when they enter the breeding herd. This value remains constant until the animal leaves the herd.
- Generally, land was valued at cost. However, when a farmer enrolls in the farm business program there may be a one-time revaluing of land to a conservative market value.

Assets and liabilities not associated with the farm business are excluded from the calculation of farm financial performance measures. Accrued liabilities were included on the balance sheets but deferred tax liabilities were not.

The calculations of all financial measures, unless otherwise noted, are accrual adjusted. Examples are:

- Gross farm revenue is gross cash revenue plus the changes in crop and market livestock inventories and accounts receivable.
- Interest expense is cash interest plus the change in accrued interest.

LIQUIDITY

Current Ratio

Computation: Current assets divided by current liabilities.

Interpretation: This ratio measures the extent current assets will cover liabilities that are due during the next 12 months. The higher the ratio the more cushion the business has to meet short-run obligations without disrupting normal business operations. The current ratio's limitation as a measure of liquidity is that it does not match the timing of financial obligations with the liquidation of current assets, nor does it consider any new debt incurred or assets that may be generated during the 12 months after the balance sheet date.

Working Capital

Computation: Current assets minus current liabilities.

Interpretation: This measure shows the dollar amount that current assets can or cannot cover current liabilities. The amount of working capital necessary to provide an adequate cushion for meeting debt obligations must be related to the size of the business. Working capital as a measure of liquidity has similar limitations as the current ratio.

SOLVENCY

Debt-to-Asset

Computation: Total liabilities divided by total assets.

Interpretation: This ratio shows the proportion of assets owed to creditors. The lower the debt-to-asset ratio the higher the solvency of the business. Solvency is a measure of risk exposure.

As solvency decreases, the owner has less equity relative to debt, the ability to procure additional financing may decrease, and the business's ability to survive adverse outcomes is diminished. However, solvency should be viewed in connection with profitability. A low solvency position may be desirable if debt capital provides returns in excess of its cost.

Equity-to-Asset

Computation: Owner equity divided by total assets.

Interpretation: This ratio shows the portion of total assets represented by owner equity. It is another way of expressing solvency.

Debt-to-Equity

Computation: Total liabilities divided by owner equity.

Interpretation: This ratio shows the extent to which debt capital is combined with equity capital. It is another way of expressing solvency.

PROFITABILITY

Rate of Return on Assets (ROA)

Computation: Net farm income plus interest expense minus a charge for unpaid operator labor and management, divided by average total assets.

Interpretation: This ratio measures the pre-tax rate of return on farm assets and is used to evaluate whether assets are employed profitability in the business. Two important factors affecting this measure are valuation of assets and the charge for unpaid operator labor and management. A $20,000 charge per full time operator plus five percent of gross revenue in excess of $200,000 was used.

Rate of Return on Equity (ROE)

Computation: Net farm income minus a charge for unpaid operator labor and management, divided by average owner equity.

Interpretation: This ratio measures the pre-tax rate of return on equity capital employed in the business. Two important factors affecting this measure are valuation of assets and the charge for unpaid operator labor and management. A $20,000 charge per full time operator plus five percent of gross revenue in excess of $200,000 was used. This ratio should be evaluated carefully and used in conjunction with other ratios when analyzing a farm business. If ROE is greater than ROA, debt capital is being employed profitably—it is earning more than it costs in interest. A high ratio may indicate an undercapitalized or highly leveraged business, and a low ratio may indicate a more conservative, high equity business.

Operating Profit Margin

Computation: Net farm income plus interest expense minus a charge for unpaid operator labor and management, divided by the value of farm production. Value of farm production is gross farm revenue less purchase of market livestock and feed.

Interpretation: This ratio measures net farm income per dollar of farm production. It is a pre-tax measure of profit margin from the employment of assets. An important factor is the charge for unpaid operator labor and management. There is a relationship between operating profit margin, asset turnover rate, and ROA. Operating profit margin multiplied by asset turnover rate equals ROA.

Net Farm Income

Computation: Net farm income is total revenue earned minus the costs incurred to generate those revenues. It is cash revenue less cash expense and depreciation plus capital adjustments (gain or loss from sale of capital assets). Accrual adjustments for changes in inventories are included to properly match revenues and expenses to the time period for which net farm income is being measured.

Interpretation: Net farm income is the return to the operator for unpaid labor and management and equity capital used in the farm business. Net farm income is an absolute amount and it is difficult to assign a standard to all farms because of differences in the amount of unpaid operator labor and equity used.

REPAYMENT CAPACITY

Term Debt Coverage Ratio

Calculation: Net farm income plus depreciation and other capital adjustments plus nonfarm income plus scheduled interest on term debt minus family living expense and income taxes, divided by scheduled term debt principal and interest payments.

Interpretation: This ratio measures the capacity of the borrower to cover all term debt payments. The more the ratio exceeds 1, the greater the margin to cover term debt payments. The business may have sufficient earnings but the timing of cashflows may not be adequate to make the payments on a timely basis. Also, the ratio does not contain any provision for replacement of capital assets.

Capital Replacement and Term Debt Repayment Margin

Calculation: Net farm income plus depreciation and other capital adjustments plus nonfarm income minus family living expense, income taxes, and scheduled term debt principal payments.

Interpretation: This is a measure of the business's ability to make payments on term debt. A positive margin indicates the amount available, after making term debt payments, for acquiring capital assets or servicing additional debt. The capital replacement and term debt repayment margin is a dollar amount, so it is impossible to establish a standard for all farm businesses.

FINANCIAL EFFICIENCY

Asset Turnover

Calculation: Value of farm production divided by average total assets. Value of farm production is gross farm revenue less purchase of market livestock and feed.

Interpretion: This is a measure of how efficiently assets are used in the business. The higher the number, the more production is created per dollar of assets. Asset turnover can vary significantly by type of farm and by asset base. For example, dairy and hog farms will typically have higher asset turnovers than cow-calf or cash grain operations. Asset turnover will probably be higher if capital assets, such as machinery and land, are rented instead of owned.

Operating Expense Ratio

Calculation: Total expense less interest and depreciation and capital adjustment divided by gross farm revenue.

Interpretation: This ratio measures how efficiently operating expenses are managed to generate gross farm revenue. The operating expense ratio will typically vary by farm type.

Depreciation Expense Ratio

Calculation: Depreciation and capital adjustments divided by gross farm revenue.

Interpretation: This ratio expresses depreciation and capital adjustment relative to gross farm revenue. It will vary by farm type and from year to year. Caution must be used when evaluating this ratio. It does not comply with the farm financial standards because the Finpack program, used to generate the farm financial summaries, calculates depreciation and capital adjustment as one number (ending inventory plus capital sales less the sum of beginning inventory and capital purchases). Therefore depreciation cannot be isolated.

Interest Expense Ratio

Calculation: Interest expense divided by gross farm revenue.

Interpretation: This ratio shows the portion of gross farm revenue necessary to cover interest expense. It is often used as a measure of financial risk.

Net Farm Income Ratio

Calculation: Net farm income divided by gross farm revenue.

Interpretation: This is a measure of how efficient the farm business is at generating net income from gross revenue. It is the portion of gross farm revenue left after operating expense, depreciation and capital adjustment, and interest expense have been removed.

INTERPRETATION OF RESULTS

Each financial measure was calculated for each farm. Farms were grouped by characteristics such as region, type of farm, and size and were sorted in

order from strongest to weakest by each of the 16 financial measures. The **median** is the midpoint value of the financial measure: one-half of the farms in the category had a higher value and one-half had a lower value than the median. The **upper quartile** is the value that was exceeded by one-fourth of the farms, and the **lower quartile** is the value that was exceeded by three-fourths of the farms. (Another definition of lower quartile is the value for which one-quarter of the farms in the category had a weaker value.)

Individual farm operators and lenders can use the tables as a measure of comparison if their financial measures are calculated similarly. For example, a farm operator 30 years of age may compare his/her profitability and financial efficiency with those of other young operators. Or a lender may compare the solvency and repayment capacity of producers who rent all their cropland. The tables also can be used to look at relationships and trends. What is the relationship between age of farmer and rate of return on equity? How has operating profit margin of livestock farms changed over time?

One ratio is not sufficient to make conclusions about the overall financial performance of a farm business. For example a crop farm may have a debt-to-asset ratio of 70%, which is worse than the median value of 58% (shown on table 6) for that farm enterprise category. However, other factors such as profitability, total assets, and age of operator should also be considered.

Also, a farm can be adversely affected by extraordinary circumstances. Profitability in the low quartile may not be reflective of management capability if the farm had localized bad weather that was not experienced by many other producers in the farm category.

Caution must be used when analyzing the tables because a small number of farms increases the possibility that results may not be representative of a farm category. In this study, for 1998, there are only 68 Red River Valley farms and 97 farms from the west region, 83 mixed livestock-crop enterprise farms, and 97 farms that rented all cropland. Performance of the Red River Valley region may be overstated in 1996 and 1997 because most of the valley farms in the study are from the south which had higher profitability than the central or northern areas of the Red River Valley.

For 1998, certain tables had fewer farms than indicated in Table 2. Twenty-five farms were omitted from the current liabilities and liquidity analysis because term debt was not separated into current and non-current portions; 37 farms were omitted from the repayment capacity analysis because of insufficient detail for scheduled term debt payments. The three farms with no cropland were omitted from cropland tenure categories.

There are some strong correlations between two or more classifications, so it is difficult to associate a financial measure with an individual farm characteristic.

For example, in 1996 and in 1998 the poor profitability of livestock, in comparison to crop farming, is reflected in farm categories that had a disproportionate number of livestock farms, such as the west region, farms with greater than 40% crop land ownership, and farms with less than $100,000 sales. Also, comparison of farms by enterprise type, farm size and gross sales, can be affected by regional performance. The Red River Valley has the highest proportion, relative to other regions, of crop farms, farms less than 1,600 acres, and farms with gross income greater than $250,000.

Financial performance in 1998 was improved relative to the extremely poor 1997 year, especially for farms in the south central region, farms with greater than $250,000 gross sales and crop farms. However 1998 was the second weakest annual financial performance in the 1991-1998 period because record yields of five crops and emergency federal farm aid was unable to offset low crop and livestock prices. One out of four farms had negative net farm income and 51 percent of all farms were unable to make scheduled term debt payments with 1998 net income.

FARM CLASSIFICATION AND HIGHLIGHTS

ALL FARMS

Highlights

- In 1998, nearly all annual measures of financial performance were their lowest in the 1991-1998 period, except for 1997.

- Financial performance was poor in 1998 but improved from 1997 because strong crop yields and emergency federal farm aid helped to offset low crop and livestock prices.

- Median total assets and liabilities have increased from 1995 to 1998.

- Median current ratio was 1.2 in 1996-1998. In 1998, one-fourth of all farms had a current ratio higher than 1.8, and one-fourth of all farms had a current ratio less than 0.9.

- Median working capital was $12,095 in 1998, and $11,207 in 1997, compared to an average of $25,115 for the median working capital of 1991-1996.

- Solvency deteriorated for the fifth consecutive year. The median debt-to-asset ratio was 59.4% in 1998, compared to 46.4% in 1993. In 1998, one-third of all farms had debt in excess of 70.0%, compared to one out of every six farms in 1993.

- One out of every four farms had negative net farm income. The median net farm income was $19,491 in 1998, up from $14,290 in 1997, but down 37% from 1996. Upper and lower quartiles were $47,768 and $-484, respectively.

- Median rates of return on assets and equity of 4.0% and 0.0%, respectively, were higher than 1997 but sharply lower than 1996.

- Fifty-one percent of all farms had a term debt coverage ratio below 1.0, indicating an inability to make all scheduled term debt payments with 1998 farm and non-farm income. Median term debt repayment margin was $-2,680.

- Median net farm income as a percent of gross revenue, a financial efficiency measure, was only 12.7%, 8.1%, 18.0% and 16.2% in 1998, 1997, 1996 and 1995 respectively, compared to a range of 21.7% to 28.0% between 1991 and 1994.

REGION

Farms were classified in one of four geographic region in North Dakota, based on the location of their Farm Business Management program. However, farms enrolled in the Bismarck program are classified as "west or "south central" according to which side of the Missouri River the farm is located. Also, some farms that are enrolled in the Kindred and Grafton programs are not in the Red River Valley and are classified as south-central and north-central, respectively. There were no farm records from Grafton in 1998 because the program was discontinued. The southern areas of both the "Red River Valley" and the "west" region are better represented than the northern areas. Locations of North Dakota Farm Business Management programs that participated in the 1998 summaries were:

Red River Valley: Grafton (1996 and 1997), Kindred and Wahpeton
North Central: Bottineau, Devils Lake, Minot, and Rugby
South Central: Bismarck, Carrington, Enderlin, Jamestown, Napoleon, Oakes, and Valley City
West: Bismarck, Dickinson, Glen Ullin, and Stanley

Highlights:

- In 1998 the median size of farm increased from the Red River Valley (1,374 acres, nearly all crop land) to the west region (2,334 acres, including pasture). Median size of farms in the north central and south central regions was about 1,900 total acres with 1,450 acres crop land.

- Several farm characteristics are strongly related to region. Red River Valley farms typically have smaller total acreage but have much larger total farm sales, assets and liabilities than farms in other regions. The incidence of livestock and mixed enterprise farms goes from a mere 3% in the Red River Valley to 68% in the west, and percent of crop land owned increases from east to west.

- The south central region had the poorest financial performance recovery in 1997 and the strongest in 1998. All 16 financial performance measures improved in the south central region in 1998 because of very strong crop yields.

- All financial measures deteriorated for the Red River Valley in 1997 and 1998 and the region had the weakest liquidity and repayment capacity in 1998. (Most Red River Valley farms in this study are from the southern one-third of the region.)

- Median current ratio declined in all regions but the south central in 1998. In 1998, median working capital ranged from $4,449 in the Red River Valley to $14,125 in the west region.

- In 1998, solvency improved in the south central region for the first time since 1993. Solvency deteriorated for every other region.

- Median net farm income ranged from $15,903 in the north central region to $26,339 in the south central. It was $19,491 in the Red River Valley and $16,018 in the west region. Farms in the Red River Valley had a greater probability of being either in the highest or the lowest net farm income group than farms from other regions.

- Median rate of return on assets and equity ranged from 5.8% and 1.7%, respectively, in the south central region to 3.0% and -1.4% in the Red River Valley.

- About 56% of north central and Red River Valley farms were unable to meet scheduled term debt payments with 1998 net income.

FARM ENTERPRISE

Farms were classified as "crop" if 70% or more of total sales were from crops, and "livestock" if livestock sales accounted for 70% or more of total sales. The remaining farms were classified as "mixed."

Highlights:

- Sixty-four percent of all farms statewide were in the crop category, 21% were livestock and 15% were mixed enterprise farms.
- Ninety-seven percent of Red River Valley farms, about two-thirds of farms in the central regions, and 32% of west region farms were classified as crop.
- Forty-six percent of the west region farms were classified as livestock.
- Crop farms tend to have more total assets and liabilities and greater gross income than livestock and mixed enterprise farms.
- Profitability of livestock and mixed farms have been extremely weak, 1995-1998. However, in 1997 livestock farms and farms with less than $100,000 sales were the only farm categories to show any improvement in financial performance from 1996.
- Financial performance of crop farms in 1998 was significantly better than 1997, but still much worse than 1996.
- Median current ratio was 1.2 for livestock farms and 1.1 for crop and for mixed enterprise farms. Median working capital increased in 1998 for crop farms but decreased for other farm types.
- Mixed enterprise farms had the highest median debt-to-asset ratio in 1998, 61.3%, livestock farms had 61.2%, and crop farms had 58.4%.
- Median net farm income for crop farms was $26,398 in 1998, compared to $16,947 in 1997, and $47,669 in 1996. Median net farm income for livestock and mixed farms was $14,944 and $8,147, in 1998, respectively, which was similar to 1997.
- Repayment capacity of crop farms improved greatly from 1997, but are still much below 1996. Only 41% of mixed enterprise farms were able to meet scheduled term debt payments with net income generated in 1998.
- The median asset turnover ratio increased to 0.44 for crop farms and was 0.22 for livestock farms in 1998. A higher ratio for crop farms is typical.
- The median of net farm income as percent of gross revenue was only 7.8% for mixed enterprise farms compared to 15.3% for livestock farms and 12.9% for crop farms. Although beef cattle are the predominate livestock, strong profitability of dairy farms improved the financial efficiency of the livestock farm type in 1998.

FARM SALES

Farms were classified in one of three cash farm sales categories. Farm sales include cash receipts from crop and livestock sales, government payments, and other farm income.

The categories were: less than $100,000
$100,000 to $249,999
$250,000 or over

Highlights

- Median farm sales were $173,972 and the average was $219,358 in 1998. About 31% of farms had sales in excess of $250,000, compared to 12% in 1991.

- Six out of ten Red River Valley farms had sales in excess of $250,000, compared to 24% and 18% of north central and west region farms, respectively, and 36% of south central farms.

- Only 7% of Red River Valley farms had sales less than $100,000 compared to about one-fourth for the rest of the state.

- Crop farms are about four times more likely to have sales in excess of $250,000 than livestock or mixed farms. About 45% of livestock and 35% of mixed farms had farm sales less than $100,000, compared to 13% of crop farms.

- A strong relationship between gross sales and financial performance is typical. This relationship weakened in 1997, but farm type was a factor because crop farms have more sales than livestock farms and crop farm performance plummeted in 1997 while livestock farms improved.

- Farmers between the ages of 35 and 45 tended to have greater farm sales than farmers older than 45 years. Young farmers are most likely to have farm sales less than $100,000.

- The median current ratio for farms with less than $100,000 sales declined from 1.4 in 1997 to 1.1 in 1998, but improved for farms with greater sales.

- In 1998, solvency for all sale categories worsened, with farms under $100,000 having the greatest deterioration.

- In 1998, median net farm income improved slightly to $5,666 for farms with less than $100,000 sales but increased by 35% to $18,290 for farms with $100,000 to $250,000 sales, and by 71% to $55,344 for farms with greater than $250,000 sales.

- In 1997, farms with less than $100,000 sales had the best repayment capacity, in part because these farms have the most non-farm income. However, in 1998 these farms had the worst repayment capacity and farms with greater then $250,000 sales had the best.

- Median interest expense as a percent of gross revenue increased to 16.7 for farms with sales under $100,000 in 1998.

FARM SIZE

Both crop and pasture acres were included in determining farm size.

Farm size categories were: 1,600 acres or less
1,601 acres or more

Highlights

- In 1998, median acreage per farm (crop land and pasture) was 1,867. It ranged from 1,374 in the Red River Valley to 2,334 in the west. Median crop acres per farm was about 1,400.
- In 1998, 61% of farms were greater than 1,600 acres, compared to 50% in 1996.
- Only 37% of the farms in the Red River Valley had acreage greater than 1,600 compared to two-thirds of the farms in the north central and west.
- There was about a similar proportion of farms in the small and large size categories, regardless of farm type (crop, livestock, or mixed).
- Only 46% of the farmers less than 35 years old operate more than 1,600 acres, compared to 65% of farmers between 35 and 45 years old, and 63% of farmers over 45 years.
- As expected, farms with greater than 1,600 acres have greater assets, liabilities, and profitability than smaller farms, but financial efficiency measures were similar, 1996-1998.
- Financial performance of both farm size categories deteriorated greatly in 1997 from 1996, and generally improved in 1998.
- Each year, 1996-1998, the median current ratio for the large farm category has been slightly better than for the small farm category. Liquidity in 1998 was similar to 1997 for both farm size groups.
- Median debt-to-asset was 61.7% for farms with less than 1,600 acres and 58.8% for larger farms in 1998.
- Median net farm income increased 63% to $28,431 in 1998 for farms larger than 1,600 acres but was flat at $11,378 for smaller farms.
- Median term debt coverage ratio was 0.9 for both farm size groups in 1998. In 1996 and 1997 repayment capacity was better for farms less than 1,600 acres, as this group has more non-farm income.

CROPLAND TENURE

This is a classification of the portion of crop land that is rented. Four categories were used.

Full tenant
1-20 percent owned
21-40 percent owned
41 percent or over owned

Highlights:

- Ownership of crop land was greatest in the west and lowest in the east. Forty-nine percent of farms in the west region owned more than 40% of the crop land they operated, compared to about one-third of farmers in the central regions and 16% for the Red River Valley in 1998.

- Crop land ownership increases with age. One-half of farmers older than 45 years owned more than 40% of their crop land, compared to less than one-fifth of farmers younger than 35 years. Also, 38% of farmers less than 35 years rented all of their crop land, compared to 18% of farmers 35-45 years and 8% of farmers older than 45 years in 1998.

- Operators of livestock and mixed enterprise farms own a greater portion of their crop land than crop farms. About one-half of livestock and mixed enterprise farms are in the highest percent crop land ownership category, compared to one-fourth of crop farms.

- Farms smaller than 1,600 acres were three times more likely to rent all crop land than were larger farms. However, smaller farms were also more likely to own more than 40% of crop land.

- Farms in the 1 to 20% crop land ownership category had the greatest decline in financial performance in 1997 and the greatest improvement in 1998, and they are more likely to be crop farms, be larger farms, and have larger sales and better profitability than other farms.

- In 1998, median current ratio was similar between farms, regardless of percent crop land ownership.

- Farms with greater than 40 percent crop land ownership had slightly better solvency in the 1996-1998 period than other crop land ownership groups.

- Median term debt coverage ratio increased from 0.6 to 1.1 in 1998 for farms with 1 to 20% crop land ownership.

- In 1998 net farm income increased for all crop land tenure groups except for farms that rented all crop land. Median net farm income ranged from $12,119 for farms with no crop land ownership, to $32,953 for farms with 1-20% crop land ownership.

- Farms with a greater proportion of crop land ownership have more land assets and land interest costs and therefore have lower asset turnover ratios and higher interest expense ratios, but lower operating expense ratios.

NET FARM INCOME

Four levels of net farm income were used to group farms.

Negative
$0 - $24,999
$25,000 - $49,999
$50,000 or more

Highlights

- Median net farm income has been extremely low two of the past three years, $19,491 in 1998 and $14,290 in 1997.

- One out of every four farms had negative net farm income in 1998, and nearly one out of four farms had net farm income greater than $50,000.

- The strong associations that existed in 1996 and 1998 between net farm income and farm type, farm sales, and farm size were greatly reduced in 1997.

- In 1998, over 30% of all crop farms had net farm income greater than $50,000 compared to only 14% of livestock farms and 10% of mixed enterprise farms.

- Over one-half of the farms with sales greater than $250,000 had net farm income greater than $50,000, and 16% had negative net farm income. Only 14% of farms with sales less than $100,000 exceeded $25,000 net farm income, and 40% had negative net farm income in 1998.

- In 1998, the south central region had the highest median net farm income, $26,336, but farms in the Red River Valley were more likely to have either negative net farm income, or high net income (greater than $50,000) than farms in other regions.

- In 1998, farms larger than 1,600 acres were nearly three times as likely to have net farm income greater than $50,000 than smaller farms, but 22% of large farms had negative net farm income.

- Farmers between the ages of 35 to 45 years old generally were more profitable than farmers that were younger or older. Thirty-two percent of farmers older than 45 years had negative net farm income.

- Solvency, liquidity, repayment capacity, and financial efficiency were strongly correlated with net farm income.

- In 1998, two-thirds of low debt farms (less than 40% debt-to-asset) had net farm income in excess of $25,000, compared to 46% of farms with 40-70% debt, and 27% of high debt farms (greater than 70% debt). Four out of ten high debt farms had negative net farm income.

DEBT-TO-ASSET RATIO

Three ranges of debt-to-asset ratio were used to group farms.

0 - 40 percent
41 - 70 percent
71 percent or more

Highlights:

- Solvency has deteriorated. In 1998, 24% of farms were in the low debt category, down from 39% of farms in 1993. In 1993, only 17% of farms were in the high debt group compared to 34% in 1998.

- There is a strong inverse relationship between level of debt and liquidity, repayment capacity, profitability and financial efficiency measures. As debt increases, these measures deteriorate.

- As expected, farms in the low debt category have the best median current ratio, 2.8, and median interest percent ratio, 4.6%, of any farm category in 1998.

- Median net farm income for the low, medium, and high debt categories in 1998 was $37,196, $20,927 and $5,708 respectively.

- Over 40% of farms with high debt had negative net farm income in 1998.

- Red River Valley farms, crop farms, large farms (greater than 1,600 acres), and farms with high sales (greater than $250,000 sales) had lower median debt-to-asset than other regions, farm types, farm size, and farm sales groups, respectively, 1996-1998.

- About 44% of farms with sales less than $100,000 were in the high debt group, compared to 26% of farms that had sales greater than $250,000.

- Percent debt-to-asset tended to decrease as age of farmer increased.

FARMER AGE

Three groups were used to classify farms by age of operator:

34 years or less
35 - 44 years
45 years or older

Highlights:

- In 1998, 19% of farm operators were less than 35 years old, 42% were between 35 and 45 years old, and 40% were older than 45. The percent of farmers in the oldest age category has been steadily increasing.

- Age of farmers tended to increase slightly from east to west. About 32% of farmers in the Red River Valley were older than 45 compared to 44% of farmers in the west in 1998.

- Crop, livestock and mixed enterprise farm types had similar proportions of farm operators in the young, middle and older age groups.

- Farmers in the middle age group typically had more gross sales and larger farms than the younger or older age groups.

- As expected, as the age of the farm operator increases there is a higher percent of the crop land in the farm that is owned, and the percent of farm debt decreases.

- Younger farmers had the best median current ratio, 1.3, in 1997 and 1998.

- In 1998, median net farm income increased to $20,835 for farmers less than 35 years, $25,539 for farmers between 35 and 45 years old, and $13,978 for farmers older than 45 years. The largest increase was in the middle and oldest age farmer groups.

- In each year, 1996-1998, the young age group of farmers employed assets more efficiently than farmers older than 45 years. The young group had better median measures of repayment capacity, profitability and financial efficiency despite having much fewer total assets and higher debt-to-asset.

TABLE 1. MEDIAN FARM SIZE, FARM OPERATOR AGE, AND FINANCIAL FACTORS OF FARMS PARTICIPATING IN THE NORTH DAKOTA FARM BUSINESS MANAGEMENT EDUCATION PROGRAM, 1991-1998.

	1998	1997	1996	1995	1994	1993	1992	1991
Number of Farms	535	560	551	596	536	539	516	507
	---------- Median ----------							
Age of Operator	42	42	41	41	40	39	39	39
Farm Size (acres)	1882	1729	1601	1576	1517	1429	1388	1387
Gross Cash Revenue	173,972	179,052	177,152	165,134	162,427	161,426	142,262	132,736
Total Farm Assets	499,496	485,094	469,587	438,289	439,749	409,839	374,013	343,201
Total Farm Liabilities	270,802	263,406	251,480	225,793	201,037	178,509	163,132	166,223
Current Ratio	1.2	1.2	1.2	1.3	1.4	1.5	1.6	1.6
Working Capital	12,095	11,207	19,042	18,984	27,598	33,387	29,527	22,154
Debt-to-asset (%)	59.4	58.6	55.6	51.5	49.8	46.4	48.4	50.0
Rate of Return on Farm Assets (%)	4.0	2.5	6.5	4.7	6.4	8.6	6.8	5.5
Rate of Return on Farm Equity (%)	0.0	-1.4	4.9	2.2	5.8	10.1	6.0	2.1
Operating Profit Margin (%)	11.5	8.3	17.3	14.5	17.9	23.7	16.4	14.3
Net Farm Income	19,491	14,290	31,063	23,463	32,523	42,484	40,998	31,711
Term Debt Coverage Ratio	0.9	0.7	1.2	1.1	1.3	1.9	1.4	1.2
Term Debt & Capital Repayment Margin ($)	-2,680	-8,995	5,024	1,652	7,069	17,634	8,767	3,891
Asset Turnover Ratio	0.36	0.34	0.39	0.36	0.4	0.4	0.4	0.4
Operating Expense Ratio (%)	71.9	73.3	66.0	67.4	64.9	60.9	58.4	60.0
Depreciation Expense Ratio (%)	5.7	6.0	5.6	5.7	4.7	4.6	4.5	5.2
Interest Expense Ratio (%)	9.6	9.9	8.9	8.8	7.6	6.9	7.8	9.2
Net Farm Income Ratio (%)	12.7	8.1	18.0	16.2	21.7	26.6	28.0	24.8

Table 2. Farm Classifications, North Dakota Farm Business Management Education Program, 1998.

Farm Group Category	Number of Farms (535)	Percentage	Farm Group Category Breakout by Region			
			Red River Valley	North Central	South Central	West
Region			68	193	177	97
Red River Valley	68	12.7				
North Central	193	36.1				
South Central	177	33.1				
West	97	18.1				
Farm Enterprise			---------- percentage ----------			
Crop	342	63.9	97.0	68.4	63.8	32.0
Livestock	110	20.6	1.5	21.2	13.0	46.4
Mixed	83	15.5	1.5	10.4	23.2	21.6
Farm Sales						
$99,999 or less	124	23.2	7.4	27.5	20.9	29.9
$100,000 - $249,999	244	45.6	33.8	48.2	43.5	52.6
$250,000 or over	167	31.2	58.8	24.3	35.6	17.5
Farm Size						
1,600 acres or less	210	39.3	63.2	31.6	42.4	32.0
1,600 acres or over	325	60.7	36.8	68.4	57.6	68.0
Cropland Tenure						
Full tenant	97	18.2	22.1	17.7	18.8	15.6
1-20 percent owned	139	26.1	42.6	25.5	27.8	12.5
21-40 percent owned	116	21.8	19.1	22.9	21.0	22.9
41 percent or over owned	180	33.8	16.2	33.9	32.4	49.0
Farm Income						
Negative	137	25.6	32.4	29.5	20.9	21.6
$0 - $24,999	159	29.7	20.6	31.1	27.7	37.2
$25,000 - $49,999	109	20.4	10.3	20.2	26.0	17.5
$50,000 or more	130	24.3	36.7	19.2	25.4	23.7
Debt-to-asset Ratio						
0 - 40 percent	130	24.3	20.6	25.9	23.7	24.7
41 - 70 percent	224	41.9	45.6	39.4	42.4	43.3
71 percent or more	181	33.8	33.8	34.7	33.9	32.0
Farmer Age						
34 years or younger	99	18.5	11.8	17.1	22.6	18.6
35 - 44 years	224	41.9	55.8	43.5	37.3	37.1
45 years or older	212	39.6	32.4	39.4	40.1	44.3

TABLE 3. CURRENT ASSETS AND CURRENT LIABILITIES, QUARTILE VALUES FOR 1998, MEDIAN VALUES FOR 1996 AND 1997, NORTH DAKOTA FARM BUSINESS MANAGEMENT EDUCATION PROGRAM PARTICIPANTS

Farm Group	1998 Upper Quartile	1998 Lower Quartile	1998 Median	1997 Median	1996 Median	1998 Upper Quartile	1998 Lower Quartile	1998 Median	1997 Median	1996 Median
	Current Farm Assets ($)					Current Farm Liabilities ($)				
All Farms	195,645	69,025	113,529	112,072	119,884	43,988	157,361	92,507	84,069	79,024
Region										
Red River Valley	298,321	111,248	169,197	184,794	186,113	72,532	233,233	130,937	145,246	132,267
North Central	171,685	50,708	102,533	98,292	88,904	37,328	137,424	84,425	66,999	54,469
South Central	213,199	72,223	124,716	111,552	124,068	48,804	178,949	98,547	98,014	89,837
West	183,370	60,776	101,762	99,590	102,022	35,896	126,600	80,403	65,887	56,390
Farm Enterprise										
Crop	223,981	80,013	140,908	130,722	142,852	49,864	177,148	111,391	106,734	93,355
Livestock	128,100	39,745	84,553	75,902	60,115	29,241	105,961	52,944	48,451	42,365
Mixed	147,493	70,224	98,066	86,545	91,127	40,096	140,648	84,827	70,701	74,770
Farm Sales										
$99,999 or less	86,217	26,996	47,936	45,879	49,820	24,120	68,445	42,017	28,508	38,171
$100,000-$249,999	154,079	73,904	106,169	103,363	115,824	46,165	136460	90,831	84,436	81,418
$250,000 or over	327,261	163,721	238,082	228,253	243,929	104,379	254,564	167,088	180,677	155,114
Farm Size										
1,600 acres or less	109,688	36,391	71,173	76,873	81,134	27,669	102,495	55,429	58,783	55,514
1,601 acres or over	238,848	103,236	156,483	144,844	151,366	70,887	198,396	122,791	106,023	103,944
Cropland Tenure										
Full tenant	146,606	39,064	86,733	112,188	110,072	28,921	145,462	80,403	64,212	62,949
1-20 percent owned	238,480	87,506	156,041	136,831	132,159	62,187	180,653	115,787	120,815	95,841
21-40 percent owned	238,848	91,446	147,264	132,836	145,991	69,633	187,308	107,887	103,179	109,148
41 percent or over owned	163,721	50,947	95,540	87,415	95,591	34,259	127,541	75,584	60,333	60,446
Net Farm Income										
Negative	157,218	50,510	96,288	90,102	63,531	50,023	177,148	109,192	97,150	67,448
$0-$24,999	138,107	40,736	86,733	87,415	63,487	30,160	119,989	79,900	69,603	54,827
$25,000-$49,999	183,370	85,579	113,529	113,646	107,525	40,011	140,648	87,660	65,887	76,274
$50,000 or more	309,495	138,229	210,733	238,438	200,813	61,468	204,705	114,668	110,427	113,945
Debt-to-Asset Ratio										
0-40 percent	248,026	82,936	143,610	125,654	150,985	19,048	84,785	41,061	41,933	38,815
41-70 percent	192,970	71,454	120,816	112,696	129,574	49,659	168,560	104,401	117,806	95,966
71 percent or more	171,796	55,378	99,095	90,767	74,910	73,867	197,553	119,329	110,192	86,499
Farmer Age										
34 years or younger	156,041	40,595	90,270	90,600	86,949	34,200	119,989	64,990	57,575	42,831
35-44 years	235,483	75,376	142,300	131,837	137,022	49,659	175,677	104,379	99,990	83,907
45 years or older	179,503	72,223	109,895	106,138	110,072	46,896	147,653	92,507	81,130	81,023

TABLE 4. LIQUIDITY MEASURES, QUARTILE VALUES FOR 1998, MEDIAN VALUES FOR 1996 AND 1997, NORTH DAKOTA FARM BUSINESS MANAGEMENT EDUCATION PROGRAM PARTICIPANTS.

Farm Group	1998 Upper Quartile	1998 Lower Quartile	1998 Median	1997 Median	1996 Median	1998 Upper Quartile	1998 Lower Quartile	1998 Median	1997 Median	1996 Median
	Current Ratio					Working Capital($)				
All Farms	1.8	0.9	1.2	1.2	1.2	53,819	-15,033	12,095	11,207	19,042
Region										
Red River Valley	2.0	0.8	1.0	1.1	1.3	83,018	-29,913	4,449	18,045	42,944
North Central	1.8	0.8	1.1	1.3	1.3	36,284	-18,930	9,115	18,623	18,330
South Central	1.7	0.9	1.2	1.0	1.1	57,989	-11,432	13,535	-1,674	8,555
West	1.8	0.8	1.2	1.3	1.4	64,893	-9,336	14,125	20,045	26,429
Farm Enterprise										
Crop	1.8	0.8	1.1	1.1	1.3	55,845	-20,796	12,198	8,324	25,595
Livestock	2.0	1.0	1.2	1.4	1.2	53,819	-2,378	16,807	20,403	12,424
Mixed	1.5	0.8	1.1	1.1	1.1	31,187	-16,884	7,840	11,536	11,046
Farm Sales										
$99,999 or less	1.5	0.8	1.1	1.4	1.2	19,595	-10,373	5,352	11,122	6,643
$100,000-$249,999	1.9	0.8	1.2	1.1	1.2	52,239	-16,117	13,578	9,840	14,944
$250,000 or over	1.7	0.9	1.2	1.1	1.4	91,481	-29,234	24,075	22,212	66,493
Farm Size										
1,600 acres or less	2.0	0.8	1.1	1.1	1.2	31,273	-13,296	5,753	5,479	10,487
1,601 acres or over	1.7	0.9	1.2	1.2	1.3	66,509	-18,930	18,173	19,627	27,479
Cropland Tenure										
Full tenant	1.8	0.8	1.2	1.2	1.2	39,116	-18,696	7,009	12,412	14,580
1-20 percent owned	1.8	0.9	1.2	1.0	1.3	58,463	-7,991	15,333	4,111	36,292
21-40 percent owned	1.7	0.8	1.1	1.1	1.2	65,802	-20,756	11,689	6,936	17,582
41 percent or over owned	1.8	0.9	1.2	1.3	1.3	48,472	-13,946	13,578	18,623	18,330
Net Farm Income										
Negative	1.1	0.7	0.8	0.8	1.0	5,753	-47,667	-13,946	-13,185	-709
$0-$24,999	1.6	0.9	1.1	1.1	1.1	28,122	-10,798	7,871	8,038	3,841
$25,000-$49,999	2.2	1.0	1.3	1.5	1.4	66,684	-684	30,586	42,150	22,081
$50,000 or more	2.5	1.1	1.5	1.8	1.7	130,390	12,208	53,028	92,951	80,136
Debt-to-Asset Ratio										
0-40 percent	6.0	1.6	2.8	2.9	3.0	166,526	36,284	71,762	75,458	88,741
41-70 percent	1.5	1.0	1.2	1.1	1.2	42,785	-7,393	13,627	9,877	19,710
71 percent or more	1.1	0.7	0.9	0.9	0.9	8,248	-41,379	-12,553	-16,907	-6,892
Farmer Age										
34 years or younger	2.0	1.0	1.3	1.3	1.2	52,224	-791	12,198	12,429	10,968
35-44 years	1.8	0.9	1.1	1.1	1.3	62,668	-15,792	12,208	12,412	27,479
45 years or older	1.7	0.8	1.1	1.1	1.2	52,840	-20,282	9,789	8,038	14,580

TABLE 5. TOTAL ASSETS AND TOTAL LIABILITIES, QUARTILE VALUES FOR 1998, MEDIAN VALUES FOR 1996 AND 1997, NORTH DAKOTA FARM BUSINESS MANAGEMENT EDUCATION PROGRAM PARTICIPANTS

Farm Group	1998 Upper Quartile	1998 Lower Quartile	1998 Median	1997 Median	1996 Median	1998 Upper Quartile	1998 Lower Quartile	1998 Median	1997 Median	1996 Median
	Total Farm Assets($)					Total Farm Liabilities($)				
All Farms	747,281	319,988	499,496	485,094	469,587	155,751	428,076	270,802	263,406	251,480
Region										
Red River Valley	1,084,248	464,553	727,513	692,602	643,234	212,784	562,036	386,642	350,540	306,868
North Central	671,770	311,122	466,665	441,556	427,093	147,323	378,517	249,562	232,560	215,467
South Central	738,541	285,467	486,735	468,594	449,492	134,883	434,881	280,786	261,072	260,452
West	715,095	333,393	488,397	477,352	454,088	154,435	436,116	248,889	270,792	253,564
Farm Enterprise										
Crop	820,110	353,335	571,140	540,740	527,542	166,729	455,895	298,097	272,241	257,737
Livestock	595,248	287,193	401,846	425,141	391,146	151,804	345,452	236,613	223,776	215,607
Mixed	545,651	285,976	419,503	428,485	399,949	148,178	391,015	259,032	270,877	246,586
Farm Sales										
$99,999 or less	365,584	177,338	280,424	235,651	255,278	95,957	245,355	169,548	139,819	167,162
$100,000-$249,999	606,640	341,322	459,525	448,886	441,609	149,696	393,949	259,032	252,456	252,381
$250,000 or over	1,050,987	638,382	833,314	809,167	793,929	278,470	612,609	439,360	410,056	343,214
Farm Size										
1,600 acres or less	503,191	210,108	318,264	359,580	354,828	104,346	287,517	187,165	204,076	193,448
1,601 acres or over	853,636	435,984	613,782	625,067	603,664	202,272	494,157	349,273	318,994	294,726
Cropland Tenure										
Full tenant	428,557	112,536	249,634	328,540	324,847	69,922	259,916	166,729	154,803	167,181
1-20 percent owned	718,394	357,289	509,818	485,094	476,100	173,043	461,030	305,521	312,810	238,058
21-40 percent owned	903,089	422,436	597,457	528,608	536,000	189,457	494,157	336,016	317,124	281,344
41 percent or over owned	776,210	349,111	545,329	538,207	500,916	176,310	421,874	279,988	260,340	257,737
Net Farm Income										
Negative	682,148	300,892	439,854	441,396	357,673	187,122	455,759	317,732	315,202	251,052
$0-$24,999	569,205	247,704	374,743	419,986	354,137	122,557	356,546	231,070	237,015	227,626
$25,000-$49,999	685,777	334,584	488,397	474,595	449,492	134,883	415,995	240,607	232,351	225,337
$50,000 or more	1,050,987	540,202	727,646	742,106	695,295	173,043	488,259	335,570	292,822	277,820
Debt-to-Asset Ratio										
0-40 percent	880,465	421,198	615,207	594,606	626,271	60,950	192,370	124,074	118,430	103,627
41-70 percent	788,013	332,197	524,450	528,608	513,004	180,479	452,165	295,249	303,130	277,467
71 percent or more	593,739	278,617	414,400	406,243	354,137	240,607	479,529	378,517	344,781	307,237
Farmer Age										
34 years or younger	488,460	180,023	319,988	339,262	321,256	103,305	336,016	203,060	207,232	175,584
35-44 years	807,379	353,335	527,339	519,947	492,193	166,729	451,797	301,616	303,319	261,705
45 years or older	774,105	376,420	551,566	525,013	504,206	176,310	436,116	279,988	269,776	260,452

TABLE 6. SOLVENCY MEASURES, QUARTILE VALUES FOR 1998, MEDIAN VALUES FOR 1996 AND 1997, NORTH DAKOTA FARM BUSINESS MANAGEMENT EDUCATION PROGRAM PARTICIPANTS.

Farm Group	1998 Upper Quartile	1998 Lower Quartile	1998 Median	1997 Median	1996 Median	1998 Upper Quartile	1998 Lower Quartile	1998 Median	1997 Median	1996 Median	1998 Upper Quartile	1998 Lower Quartile	1998 Median	1997 Median	1996 Median
	Debt-to-Asset (%)					Equity-to-Asset (%)					Debt-to-Equity				
All Farms	42.0	76.8	59.4	58.6	55.6	58.0	23.2	40.6	41.4	44.4	0.7	3.3	1.5	1.4	1.3
Region															
Red River Valley	43.7	73.5	56.9	55.3	52.8	56.3	26.5	43.1	44.7	47.2	0.8	2.8	1.3	1.2	1.1
North Central	39.0	77.4	59.2	56.0	53.1	61.0	22.6	40.8	44.0	46.9	0.6	3.4	1.5	1.3	1.1
South Central	42.0	77.6	60.0	63.5	57.6	58.0	22.4	40.0	36.5	42.4	0.7	3.5	1.5	1.7	1.4
West	39.2	75.8	60.7	58.6	56.0	60.8	24.2	39.3	41.4	44.0	0.6	3.1	1.5	1.4	1.3
Farm Enterprise															
Crop	38.8	75.6	58.4	56.7	51.3	61.2	24.4	41.6	43.3	48.7	0.6	3.1	1.4	1.3	1.1
Livestock	44.7	75.3	61.2	59.2	67.7	55.3	24.7	38.8	40.8	32.3	0.8	3.0	1.6	1.5	2.1
Mixed	48.5	86.5	61.3	64.2	63.2	51.5	13.5	38.7	35.8	36.8	0.9	6.4	1.6	1.8	1.7
Farm Sales															
$99,999 or less	47.4	85.1	66.5	64.4	66.4	52.6	14.9	33.5	35.6	33.6	0.9	5.7	2.0	1.8	2.0
$100,000-$249,999	38.4	78.2	58.8	58.5	55.8	61.6	21.8	41.2	41.5	44.2	0.6	3.6	1.4	1.4	1.3
$250,000 or over	38.0	70.7	55.7	55.1	47.1	62.0	29.3	44.3	44.9	52.9	0.6	2.4	1.3	1.2	0.9
Farm Size															
1,600 acres or less	42.2	83.2	61.7	61.7	57.8	57.8	16.8	38.3	38.3	42.2	0.7	5.0	1.6	1.6	1.4
1,601 acres or over	41.0	74.0	58.8	57.4	53.2	59.0	26.0	41.2	42.6	46.8	0.7	2.8	1.4	1.3	1.1
Cropland Tenure															
Full tenant	49.4	88.0	68.9	56.8	57.9	50.6	12.0	31.1	43.2	42.1	1.0	7.3	2.2	1.3	1.4
1-20 percent owned	43.9	77.2	60.8	62.5	52.6	56.1	22.8	39.2	37.5	47.4	0.8	3.4	1.6	1.7	1.1
21-40 percent owned	38.0	73.1	58.4	60.6	58.5	62.0	26.9	41.6	39.4	41.5	0.6	2.7	1.4	1.5	1.4
41 percent or over owned	36.7	73.5	56.5	55.3	53.5	63.3	26.5	43.5	44.7	46.5	0.6	2.8	1.3	1.2	1.2
Net Farm Income	51.8	93.2	72.9	73.2	74.2	48.2	6.8	27.1	26.8	25.8	1.1	13.7	2.7	2.7	2.9
Negative	50.2	76.4	63.3	60.1	64.1	49.8	23.6	36.7	39.9	35.9	1.0	3.2	1.7	1.5	1.8
$0-$24,999	29.7	75.1	56.0	48.1	52.6	70.3	24.9	44.0	51.9	47.4	0.4	3.0	1.3	0.9	1.1
$25,000-$49,999	30.6	59.0	47.5	40.9	44.7	69.4	41.0	52.5	59.1	55.3	0.4	1.4	0.9	0.7	0.8
$50,000 or more															
Debt-to-Asset Ratio	12.0	32.4	25.1	26.0	22.8	88.0	67.6	74.9	74.0	77.2	0.1	0.5	0.3	0.4	0.3
0-40 percent	50.4	63.4	57.1	57.8	55.5	49.6	36.6	42.9	42.2	44.5	1.0	1.7	1.3	1.4	1.2
41-70 percent	76.4	95.9	84.5	84.0	84.5	23.6	4.1	15.5	16.0	15.5	3.2	23.4	5.5	5.3	5.5
71 percent															
Farmer Age	54.4	84.4	66.9	65.5	61.5	45.6	15.6	33.1	34.5	38.5	1.2	5.4	2.0	1.9	1.6
34 years or younger	42.3	77.6	58.3	57.8	53.1	57.7	22.4	41.7	42.2	46.9	0.7	3.5	1.4	1.4	1.1
35-44 years	36.1	72.6	57.3	57.0	55.4	63.9	27.4	42.7	43.0	44.6	0.6	2.6	1.3	1.3	1.2
45 years or older															

TABLE 7. RATE OF RETURN ON ASSETS AND RATE OF RETURN ON EQUITY PROFITABILITY MEASURES, QUARTILE VALUES FOR 1998, MEDIAN VALUES FOR 1996 AND 1997, NORTH DAKOTA FARM BUSINESS MANAGEMENT EDUCATION PROGRAM PARTICIPANTS.

Farm Group	1998 Upper Quartile	1998 Lower Quartile	1998 Median	1997 Median	1996 Median	1998 Upper Quartile	1998 Lower Quartile	1998 Median	1997 Median	1996 Median
	Return on Farm Assets(%)					Return on Equity(%)				
All Farms	8.7	-1.0	4.0	2.5	6.5	9.9	-9.7	0.0	-1.4	4.9
Region										
Red River Valley	8.0	-0.7	3.0	5.0	12.5	7.9	-12.7	-1.4	1.9	18.9
North Central	7.9	-1.8	3.5	3.1	4.9	8.8	-13.7	0.0	-0.2	1.4
South Central	10.6	0.0	5.8	1.1	7.1	14.1	-6.7	1.7	-4.4	6.3
West	7.2	-2.0	3.3	2.3	3.6	7.6	-9.3	0.0	-1.9	0.0
Farm Enterprise										
Crop	9.9	0.3	5.0	2.7	9.1	10.8	-7.3	1.5	-0.7	9.9
Livestock	6.8	-1.3	2.6	2.0	1.1	7.7	-14.9	-1.1	-2.4	-6.0
Mixed	5.8	-3.4	1.6	1.9	2.7	4.2	-15.9	-3.9	-3.0	0.0
Farm Sales										
$99,999 or less	4.8	-5.3	-0.6	-0.4	-0.6	0.6	-21.7	-7.2	-6.1	-8.7
$100,000-$249,999	8.3	-0.4	3.8	2.1	6.5	9.6	-8.4	0.0	-1.9	5.5
$250,000 or over	11.0	2.8	6.7	4.8	12.1	14.9	-3.1	5.5	1.1	15.9
Farm Size										
1,600 acres or less	7.3	-3.5	2.6	1.7	6.0	6.2	-13.0	-0.6	-2.9	3.4
1,601 acres or over	9.3	0.7	5.0	3.2	7.0	10.8	-6.7	1.8	-0.7	5.9
Cropland Tenure										
Full tenant	11.5	-3.4	3.8	1.3	9.8	15.8	-15.9	0.0	0.0	10.3
1-20 percent owned	11.6	1.6	6.6	4.1	10.6	15.0	-4.3	4.9	-0.5	12.7
21-40 percent owned	7.6	-0.4	3.8	3.0	8.3	7.1	-9.5	0.0	-1.9	8.7
41 percent or over owned	6.5	-1.8	2.6	2.0	3.7	5.8	-11.4	-1.1	-2.4	0.3
Net Farm Income										
Negative	-1.3	-7.6	-4.0	-4.4	-5.8	-8.4	-49.3	-17.9	-23.9	-19.2
$0-$24,999	4.4	0.5	2.6	1.9	2.5	-0.3	-8.4	-3.5	-4.8	-3.6
$25,000-$49,999	9.0	4.9	6.8	6.7	7.2	11.9	3.0	5.9	5.9	7.4
$50,000 or more	15.5	8.7	11.4	10.5	13.7	25.8	9.3	14.9	13.2	19.4
Debt-to-Asset Ratio										
0-40 percent	9.8	0.7	5.5	4.1	8.1	10.6	-0.7	4.3	2.8	8.5
41-70 percent	9.0	0.1	4.4	2.7	7.0	10.3	-7.8	0.6	-3.3	6.5
71 percent or more	7.3	-3.8	2.3	0.6	3.8	4.2	-39.9	-4.2	-12.1	0.0
Farmer Age										
34 years or younger	10.8	-0.2	5.1	4.5	7.2	16.3	-17.0	3.0	-0.2	6.9
35-44 years	9.4	0.3	5.2	3.3	8.7	10.7	-8.2	0.9	0.0	10.0
45 years or older	6.4	-1.7	2.5	1.4	4.2	5.4	-10.5	-1.3	-3.4	1.0

TABLE 8. OPERATING PROFIT MARGIN AND NET FARM INCOME PROFITABILITY MEASURES, QUARTILE VALUES FOR 1998, MEDIAN VALUES FOR 1996 AND 1997, NORTH DAKOTA FARM BUSINESS MANAGEMENT PROGRAM PARTICIPANTS.

Farm Group	1998 Upper Quartile	1998 Lower Quartile	1998 Median	1997 Median	1996 Median	1998 Upper Quartile	1998 Lower Quartile	1998 Median	1997 Median	1996 Median
	Operating Profit Margin(%)					Net Farm Income($)				
All Farms	21.7	-2.7	11.5	8.3	17.3	47,768	-484	19,491	14,290	31,063
Region										
Red River Valley	16.4	-2.3	7.7	11.6	23.3	67,056	-3,765	19,491	28,199	64,696
North Central	20.7	-5.5	10.4	10.3	14.6	37,606	-3,240	15,903	16,051	24,376
South Central	21.9	0.0	12.7	2.4	17.4	52,112	4,367	26,339	6,453	31,253
West	24.1	-9.1	12.1	9.8	13.3	47,614	1,867	16,018	13,007	20,882
Farm Enterprise										
Crop	21.0	0.9	12.0	8.1	20.2	59,360	1,585	26,398	16,947	47,669
Livestock	24.3	-6.6	12.3	11.9	5.8	34,634	-328	14,944	15,569	7,904
Mixed	17.3	-12.9	7.2	7.1	11.6	26,100	-7,915	8,147	8,393	14,437
Farm Sales										
$99,999 or less	13.8	-22.1	-1.5	-0.6	-2.6	15,191	-7,915	5,666	4,890	5,035
$100,000-$249,999	21.7	-1.6	12.1	7.3	17.5	39,748	285	18,290	13,528	32,460
$250,000 or over	23.3	6.5	15.3	11.3	24.1	93,249	16,103	55,344	32,361	80,050
Farm Size										
1,600 acres or less	18.4	-10.2	6.8	4.9	13.8	29,390	-2,935	11,378	11,511	25,914
1,601 acres or over	22.7	2.1	12.9	9.8	18.9	60,633	2,706	28,431	17,403	40,364
Cropland Tenure										
Full tenant	17.1	-6.7	7.4	3.6	15.8	36,593	-881	12,119	16,510	31,977
1-20 percent owned	21.7	3.4	13.1	8.2	19.3	63,134	10,651	32,953	19,292	51,916
21-40 percent owned	20.7	-1.5	10.9	8.4	18.2	47,555	-186	20,642	11,078	35,274
41 percent or over owned	23.0	-7.1	12.2	9.2	15.1	36,990	-5,139	14,412	10,279	22,528
Net Farm Income										
Negative	-4.1	-36.0	-15.0	-16.7	-20.3	-5,959	-27,499	-12,528	-16,890	-11,742
$0-$24,999	12.4	1.4	7.7	5.8	7.9	18,109	6,607	11,995	10,136	13,847
$25,000-$49,999	22.7	12.0	16.5	19.1	19.4	41,379	29,385	34,601	36,036	33,663
$50,000 or more	30.7	19.4	24.8	23.0	28.4	107,549	59,127	77,791	70,199	83,050
Debt-to-Asset Ratio										
0-40 percent	25.3	2.4	15.9	12.4	23.2	78,262	16,899	37,196	31,201	52,330
41-70 percent	21.9	0.3	12.2	9.3	18.7	52,128	4,055	20,927	13,995	33,515
71 percent or more	16.2	-8.4	6.4	1.3	9.3	25,635	-12,362	5,708	725	13,605
Farmer Age										
34 years or younger	22.4	0.0	12.3	10.9	14.1	41,379	6,029	20,835	19,537	27,395
35-44 years	22.6	0.9	12.5	9.6	20.0	58,876	1,534	25,539	19,036	45,611
45 years or older	19.2	-6.6	10.0	4.9	14.0	37,844	-4,087	13,978	9,262	24,210

TABLE 9. REPAYMENT CAPACITY MEASURES, QUARTILE VALUES FOR 1998, MEDIAN VALUES FOR 1996 AND 1997, NORTH DAKOTA FARM BUSINESS MANAGEMENT EDUCATION PROGRAM PARTICIPANTS.

Farm Group	1998 Upper Quartile	1998 Lower Quartile	1998 Median	1997 Median	1996 Median	1998 Upper Quartile	1998 Lower Quartile	1998 Median	1997 Median	1996 Median
	Term Debt Coverage Ratio					Term Debt and Capital Repayment Margin($)				
All Farms	1.7	0.3	0.9	0.7	1.2	21,237	-25,695	-2,680	-8,995	5,024
Region										
Red River Valley	1.4	0.1	0.7	0.8	1.8	26,390	-36,990	-7,661	-7,719	30,510
North Central	1.7	0.2	0.7	0.8	0.9	14,146	-28,760	-6,245	-8,192	-4,618
South Central	2.0	0.5	1.2	0.5	1.3	30,360	-14,718	4,351	-15,347	9,127
West	1.5	0.4	1.0	0.9	0.9	9,788	-24,104	-778	-1,968	-1,852
Farm Enterprise										
Crop	1.9	0.3	1.0	0.5	1.6	25,730	-27,397	-1,867	-14,621	15,319
Livestock	1.6	0.5	1.0	1.2	0.7	14,446	-13,798	-778	3,954	-7,367
Mixed	1.2	0.0	0.6	0.8	0.9	8,709	-30,300	-5,819	-7,071	-1,793
Farm Sales										
$99,999 or less	1.4	0.4	0.7	1.0	0.7	5,978	-16,337	-5,021	707	-6,607
$100,000-$249,999	1.7	0.2	0.8	0.7	1.1	19,255	-28,760	-5,327	-12,105	2,895
$250,000 or over	1.9	0.4	1.2	0.6	2.1	43,782	-29,629	5,929	-15,042	43,388
Farm Size										
1,600 acres or less	1.8	0.4	0.9	0.8	1.3	12,836	-17,606	-1,867	-6,213	5,407
1,601 acres or over	1.7	0.3	0.9	0.7	1.1	24,191	-32,089	-4,290	-13,349	3,727
Cropland Tenure										
Full tenant	2.3	0.3	0.8	0.6	1.6	21,761	-23,154	-2,641	-7,783	6,197
1-20 percent owned	1.8	0.3	1.1	0.6	1.4	25,748	-25,695	1,710	-18,305	11,599
21-40 percent owned	1.5	0.3	0.8	0.6	1.2	22,890	-28,516	-5,021	-16,533	7,916
41 percent or over owned	1.5	0.4	0.9	0.9	0.9	15,801	-23,068	-2,923	-1,687	-1,713
Net Farm Income										
Negative	0.5	-0.8	0.0	-0.1	0.1	-16,337	-65,604	-32,359	-37,474	-26,823
$0-$24,999	1.3	0.4	0.7	0.6	0.9	7,309	-22,345	-5,488	-11,882	-4,272
$25,000-$49,999	2.1	0.8	1.3	1.3	1.3	24,133	-6,730	9,948	8,667	6,209
$50,000 or more	3.3	1.2	1.8	2.1	2.5	60,164	11,281	28,297	31,242	47,539
Debt-to-Asset Ratio										
0-40 percent	4.0	0.8	1.8	1.6	2.8	51,026	-3,973	19,255	8,682	26,160
41-70 percent	1.6	0.4	1.0	0.7	1.1	19,198	-18,434	1,025	-11,358	3,489
71 percent or more	1.1	0.0	0.5	0.4	0.8	2,850	-39,427	-16,470	-22,496	-5,427
Farmer Age										
34 years or younger	2.1	0.5	1.1	1.1	1.2	23,699	-11,502	3,662	4,590	3,577
35-44 years	1.7	0.3	0.9	0.8	1.3	23,845	-28,118	-3,152	-7,071	11,759
45 years or older	1.5	0.2	0.8	0.6	0.9	14,257	-30,966	-6,245	-16,786	-1,091

TABLE 10. ASSET TURNOVER AND OPERATING EXPENSE AND DEPRECIATION EXPENSE EFFICIENCY MEASURES (AS A PERCENTAGE OF GROSS FARM INCOME), QUARTILE VALUES FOR 1998, MEDIAN VALUES FOR 1996 AND 1997, FARM BUSINESS MANAGEMENT EDUCATION PROGRAM PARTICIPANTS.

Farm Group	1998 Upper Quartile	1998 Lower Quartile	1998 Median	1997 Median	1996 Median	1998 Upper Quartile	1998 Lower Quartile	1998 Median	1997 Median	1996 Median	1998 Upper Quartile	1998 Lower Quartile	1998 Median	1997 Median	1996 Median
	Asset Turnover					**Operating Expense(%)**					**Depreciation Expense (%)**				
All Farms	.51	.24	.36	.34	.39	61.7	81.3	71.9	73.3	66.0	2.4	10.0	5.7	6.0	5.6
Region															
Red River Valley	.53	.31	.43	.47	.54	69.0	85.1	76.2	75.5	64.9	3.5	8.6	5.8	4.5	4.4
North Central	.51	.23	.33	.33	.34	60.9	82.9	72.4	71.3	66.2	1.3	9.3	4.8	4.6	4.5
South Central	.60	.28	.43	.34	.42	61.8	77.6	70.9	76.6	65.9	3.1	10.8	6.9	7.9	7.6
West	.37	.21	.27	.27	.29	57.5	81.9	70.1	67.8	66.7	1.7	11.2	5.6	8.8	6.9
Farm Enterprise															
Crop	.60	.31	.44	.40	.47	64.2	81.3	72.6	76.5	65.0	2.6	8.8	5.3	5.4	5.0
Livestock	.31	.17	.22	.23	.22	56.8	77.6	66.7	63.9	68.9	0.7	14.5	6.7	9.6	9.2
Mixed	.39	.20	.28	.27	.28	62.5	83.4	73.9	69.4	69.1	1.7	12.9	6.7	6.2	6.4
Farm Sales															
$99,999 or less	.39	.16	.23	.24	.22	56.8	83.8	69.7	66.3	71.1	0.9	13.7	6.4	7.5	7.8
$100,000-$249,999	.47	.25	.35	.33	.40	61.1	79.5	71.4	72.4	65.8	2.2	10.8	5.8	6.2	5.0
$250,000 or over	.60	.32	.45	.42	.50	64.9	80.0	72.8	76.9	65.6	2.6	8.2	5.3	5.4	5.2
Farm Size															
1,600 acres or less	.51	.24	.34	.33	.40	61.4	82.6	71.8	73.4	65.9	2.8	11.4	6.2	5.8	5.4
1,601 acres or over	.52	.25	.37	.34	.38	61.7	80.4	72.1	73.2	66.0	2.0	9.2	5.5	6.1	5.9
Cropland Tenure															
Full tenant	.89	.39	.55	.54	.61	64.8	84.9	74.4	79.2	71.3	1.3	8.2	4.0	4.5	4.5
1-20 percent owned	.63	.36	.50	.46	.54	64.7	78.7	72.3	77.3	67.9	2.0	8.3	4.7	4.5	3.7
21-40 percent owned	.43	.26	.34	.33	.40	64.5	82.0	73.2	76.1	66.4	2.5	9.7	5.6	6.3	5.6
41 percent or over owned	.32	.18	.24	.23	.25	56.6	78.8	68.1	65.9	63.6	3.6	13.3	7.8	8.7	7.6
Net Farm Income															
Negative	.40	.17	.27	.28	.19	78.8	97.9	88.0	89.5	86.6	5.1	15.6	8.6	9.0	10.4
$0-$24,999	.45	.23	.31	.30	.33	62.5	79.1	72.9	73.3	69.1	1.7	10.0	5.6	5.5	6.3
$25,000-$49,999	.60	.29	.39	.38	.40	58.2	72.9	68.1	67.0	64.3	2.0	9.3	4.7	4.7	4.9
$50,000 or more	.63	.34	.46	.42	.49	57.9	70.2	63.7	66.0	59.6	2.0	7.5	4.4	4.7	4.3
Debt-to-Asset Ratio															
0-40 percent	.48	.24	.32	.30	.35	57.8	75.4	66.7	69.0	59.9	3.1	11.4	6.5	6.8	6.3
41-70 percent	.51	.23	.36	.34	.40	61.8	79.0	71.2	71.6	65.6	2.2	10.3	5.6	5.5	5.6
71 percent or more	.59	.27	.40	.41	.40	66.7	87.8	75.7	79.6	74.5	2.1	8.9	5.4	5.8	5.2
Farmer Age															
34 years or younger	.78	.28	.44	.45	.49	61.1	82.9	72.2	72.4	67.2	1.1	6.7	3.5	4.7	3.4
35-44 years	.55	.29	.40	.38	.44	62.0	78.5	71.5	73.3	65.6	2.6	9.6	5.6	5.7	5.2
45 years or older	.42	.21	.29	.28	.29	61.7	82.0	72.1	73.4	66.7	3.0	12.3	7.0	7.7	7.0

TABLE 11. INTEREST EXPENSE AND FARM INCOME EFFICIENCY MEASURES (AS A PERCENTAGE OF GROSS FARM INCOME), QUARTILE VALUES FOR 1998, MEDIAN VALUES FOR 1996 AND 1997, NORTH DAKOTA FARM BUSINESS MANAGEMENT EDUCATION PROGRAM PARTICIPANTS.

	1998					1998				
Farm Group	**Upper Quartile**	**Lower Quartile**	**Median**	**1997 Median**	**1996 Median**	**Upper Quartile**	**Lower Quartile**	**Median**	**1997 Median**	**1996 Median**
	Interest Expense(%)					**Net Farm Income (%)**				
All Farms	5.8	14.9	9.6	9.9	8.9	22.4	-0.4	12.7	8.1	18.0
Region										
Red River Valley	5.3	12.8	8.9	7.8	6.4	18.1	-2.2	5.9	11.1	22.2
North Central	6.1	16.8	9.8	10.2	9.5	22.6	-1.4	12.7	11.5	19.3
South Central	5.4	14.2	8.7	10.9	8.2	22.0	3.5	13.2	3.7	17.3
West	6.2	16.5	11.6	10.6	11.7	23.4	1.5	13.3	10.3	14.3
Farm Enterprise										
Crop	5.3	13.5	8.6	9.1	7.2	22.0	1.2	13.3	8.0	20.3
Livestock	7.0	18.3	12.4	10.5	12.9	25.2	0.0	15.3	12.9	9.4
Mixed	8.5	17.5	12.3	11.4	11.5	18.8	-7.4	7.8	6.7	12.2
Farm Sales										
$99,999 or less	7.2	21.2	16.7	12.0	13.3	22.4	-7.3	7.9	7.0	7.6
$100,000-$249,999	6.1	14.4	9.7	10.6	9.5	22.4	0.1	12.7	8.1	17.6
$250,000 or over	5.3	10.7	7.8	8.4	6.2	20.7	4.5	13.8	8.6	21.1
Farm Size										
1,600 acres or less	5.3	16.8	9.5	9.6	8.6	22.4	-2.8	11.3	8.6	18.0
1,601 acres or over	6.1	14.4	9.6	9.9	9.1	22.0	1.2	13.5	7.8	18.0
Cropland Tenure										
Full tenant	3.8	11.8	7.0	6.5	5.9	21.8	-0.9	12.9	7.9	17.3
1-20 percent owned	5.3	10.1	7.7	8.9	6.6	22.9	5.2	15.3	8.3	20.5
21-40 percent owned	6.6	15.0	10.6	11.7	9.3	18.2	-0.1	10.0	8.1	17.3
41 percent or over owned	8.5	17.8	13.2	12.5	12.0	22.6	-4.9	10.8	8.4	16.3
Net Farm Income										
Negative	9.6	20.4	15.0	13.3	14.6	-3.3	-24.7	-10.7	-12.1	-13.2
$0-$24,999	7.1	16.8	11.6	11.4	11.4	15.9	4.7	9.1	7.3	11.0
$25,000-$49,999	4.7	11.5	7.8	7.8	8.1	24.1	13.6	18.6	20.2	19.6
$50,000 or more	4.1	9.2	6.7	5.8	5.9	31.4	18.7	24.6	24.3	28.2
Debt-to-Asset Ratio										
0-40 percent	2.3	7.6	4.6	4.7	4.0	32.0	10.8	21.8	17.5	28.2
41-70 percent	7.1	16.0	9.9	10.9	9.9	21.9	2.5	13.0	8.1	18.4
71 percent or more	9.1	18.0	13.5	13.2	11.3	16.3	-7.5	3.7	0.3	7.9
Farmer Age										
34 years or younger	5.4	14.4	8.1	8.7	7.8	23.7	4.3	16.2	12.3	17.5
35-44 years	5.7	14.0	9.1	9.0	7.9	22.9	0.9	13.6	8.6	20.1
45 years or older	6.2	16.5	11.0	11.7	10.0	19.1	-3.6	9.1	6.7	15.2

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