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Financial Characteristics of North Dakota Farms 2004-2005

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Abstract

The performance of over 500 North Dakota farms, 2004-2005, 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. Five-year averages, 2000-2004, and farm financial trends for the 1996-2005 period are also presented.

Year-to-year changes in median net farm income within regions and farm types averaged 50 percent from 1996 to 2005. Median net farm income fell slightly in 2005 to $42,286, but 19 percent of farms had net farm income greater than $100,000. Financial performance was lowest in 1997 and 1998 when over one-half of farms could not make scheduled term debt payments. In 1999, 2000, 2003 and 2004 the rate of return on equity exceeded the rate of return on assets, which indicates that debt capital was employed profitably. The first rise in eight years of interest expense as a percent of gross revenue occurred in 2005, to 6.0.

The Red River Valley and crop farms had stronger profitability, solvency and repayment capacity from 1995 to 2004 than other regions and farm types, respectively, but were out performed by the south central region and livestock farms in 2005. Farms with sales less than $100,000 were three times as likely to have debt-to-asset higher than 70 percent than were farms with sales greater than $500,000. Farms that own some crop land, but less than 40 percent and are more likely to be crop farms, farm more acreage, have larger sales, and be more profitable. As expected, solvency and percent of crop land owned increases with farmer age.

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

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, including 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. Table 1 lists the median operator age, farm size and selected financial factors, 1996-2005. 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

About 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 1996-2005, the financial summaries of over 500 farms each year were considered usable for this study.

About 85 percent of the same farms are in the study from one year to the next. Annual turnover occurs from changes in farm management program enrollment and the level of farms completing their records by a cutoff date.

The farms in this study are larger and the age of the farm operators younger than the state average. In 2005, there were 30,300 farms in North Dakota with gross agricultural sales of at least $1,000. Only 9,900, or 33%, had gross receipts greater than $100,000, whereas 88% of the 520 farms in this study exceed that sales volume (median gross sales was $281,667). 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 45 compared to 54 for the state average.

INTERPRETATION OF RESULTS

Each financial measure was calculated for each farm. Refer to Appendix A for definitions of the financial measures. An explanation of asset valuation and accrual adjustments is also presented.

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 this study for benchmarks 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 crop land. This study 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 60%, which is worse than the median value of 54.6% (shown on table 7) for the crop 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 2005, there are only 64 farms with sales less than $100,000, 78 mixed livestock-crop enterprise farms, and 90 and 83 farms in the Red River Valley and west regions, respectively. Performance of the Red River Valley region may not be representative of the central or northern areas of the Red River Valley because nearly all valley farms in the study are from the south. Also, since 2003 there was a lack of farms in the northern portion of the west region.

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, the 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 of less than 2,000 acres, and farms with gross income greater than $500,000.

Table 1 shows the 10-year trends in financial performance and farm characteristics. Table 2 lists the farm characteristics and percentage distribution for 2005 and the breakout of these characteristics by region of North Dakota. Tables 3 through 11 display the median and quartiles of 16 financial measures by farm characteristics. Figures 1 through 16 display relationships between selected farm characteristics and financial measures. A summary of highlights by farm characteristics is also presented.

TABLE 1. MEDIAN FARM SIZE, FARM OPERATOR AGE, AND FINANCIAL FACTORS OF FARMS PARTICIPATING IN THE NORTH DAKOTA FARM BUSINESS MANAGEMENT EDUCATION PROGRAM, 1996-2005.

	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996
Number of Farms	520	522	513	513	532	553	539	535	560	551
	----------Median----------									
Age of Operator	46	46	45	44	44	44	43	42	42	41
Farm Size (acres)	1,998	2,002	1,995	2,033	1,937	1,916	1,921	1,882	1,729	1,601
Gross Cash Revenue	281,667	265,524	247,757	220,781	216,697	205,659	190,676	173,972	179,052	177,152
Total Farm Assets	684,181	652,575	612,437	575,606	543,860	549,636	520,094	499,496	485,094	469,587
Total Farm Liabilities	338,657	323,805	305,268	284,828	287,068	274,640	266,401	270,802	263,406	251,480
Current Ratio	1.2	1.3	1.4	1.3	1.2	1.4	1.4	1.2	1.2	1.2
Working Capital	27,812	35,264	39,712	29,099	21,910	36,612	29,643	12,095	11,207	19,042
Debt-to-asset (%)	54.8	54.3	54.3	53.3	55.5	53.9	55.5	59.4	58.6	55.6
Rate of Return on Farm Assets (%)	4.9	6.1	7.0	5.7	4.1	7.6	8.4	4.0	2.5	6.5
Rate of Return on Farm Equity (%)	4.3	6.7	8.4	4.4	3.2	7.7	9.0	0.0	-1.4	4.9
Operating Profit Margin (%)	12.9	15.1	17.4	14.5	12.1	20.6	21.6	11.5	8.3	17.3
Net Farm Income	42,286	44,912	49,181	38,079	27,729	45,085	42,009	19,491	14,290	31,063
Term Debt Coverage Ratio	1.3	1.5	1.6	1.3	1.0	1.6	1.5	0.9	0.7	1.2
Term Debt & Capital Repayment Margin ($)	10,110	18,752	21,012	10,628	301	17,768	17,973	-2,680	-8,995	5,024
Asset Turnover Ratio	0.39	0.40	0.42	0.37	0.38	0.42	0.38	0.36	0.34	0.39
Operating Expense Ratio (%)	71.1	69.2	66.8	68.8	70.9	63.3	61.2	71.9	73.3	66.0
Depreciation Expense Ratio (%)	6.0	6.0	5.9	5.6	5.9	5.3	5.7	5.7	6.0	5.6
Interest Expense Ratio (%)	6.0	5.6	5.6	6.6	7.6	7.8	8.4	9.6	9.9	8.9
Net Farm Income Ratio (%)	16.0	18.6	19.6	17.3	14.0	21.7	22.4	12.7	8.1	18.0

FARM CLASSIFICATION AND HIGHLIGHTS

ALL FARMS

Highlights

- Some consistent trends over the past ten years, 1996-2005, for farms enrolled in the North Dakota Farm Business Management Education Program are:
  - farms are getting larger; median gross revenue increased 59% and median farm assets and liabilities increased 46% and 35% to $684,181 and $338,657, respectively.
  - farmers are getting older; the median age increased from 41 to 46.
  - average off-farm wages and salaries per farm household nearly doubled.

- Overall financial performance in 2005 was down for the second consecutive year but median net farm income of $42,286 was the fourth highest in the past ten years. Positives were all time record high yields for corn, soybeans, sunflowers, and flax and historically high beef cattle prices. However, input costs were the highest ever and crop production problems plagued parts of the state, particularly the northeast.

- Financial performance, 1996-2005, was poorest in 1997 followed by 1998 because of low cattle prices, weather related production problems with small grains in 1997, low crop prices in 1998 and increasing production costs. Financial performance was strong in 1999 and 2000, despite very low crop prices, because of extraordinary government and crop insurance payments and higher beef prices. Also, at the time, yields and acreage of corn, soybeans and sugarbeets were at record levels.

- Profit declined in 2001 because of lower government subsidies and higher crop production costs with continued low commodity prices. Conversely, 2002 had lower production costs, high prices and a 37% increase in profit. Median net farm income reached a 10-year high in 2003 at $49,181. A good wheat and barley crop, strong crop prices and livestock profit, and disaster aid legislated in 2003, for crop losses that occurred in 2001 and 2002, all contributed. Financial performance in 2004 was strong albeit down from 2003. High costs and poor row crop yields were offset by crop insurance, very high spring wheat, canola and field pea yields and very strong beef cow-calf profit and flax prices.

- Median current ratio has been relatively stable, ranging between 1.2 to 1.4 from 1996 to 2005. The median debt-to-asset ratio was around 54.5% from 2003 through 2005 compared to 53.3 in 2002. Solvency deteriorated each year from 46.4% in 1993 to 59.4% in 1998, before improving in 1999 and 2000.

- Median rates of return on equity and assets were 4.9% and 4.3%, respectively, in 2005. In the 1996-2005 period, the years that ROE exceeded ROA, which indicated that debt capital was employed profitably, were 1999, 2000, 2003, and 2004.

- Median term debt coverage ratio dropped to 1.3 in 2005 compared to the ten year high of 1.6 in 2003. Only in 1997 and 1998 was median term debt coverage ratio below 1.0, which indicates over one-half of the farms were not able to make all scheduled term debt payments with farm and non-farm income.

- The first rise, in eight years, of interest expense as a percent of gross revenue occurred in 2005, to 6.0%, because of higher interest rates.

- Median net farm income as a percent of gross revenue was 16% in 2005 and 18.6% in 2004. In the 1996-2005 period it was the highest, 22.4%, in 1999 and lowest, 8.1%, in 1997.

TABLE 2. FARM CLASSIFICATIONS AND PERCENT DISTRIBUTION OF FARM TYPES WITHIN REGIONS, NORTH DAKOTA FARM BUSINESS MANAGEMENT EDUCATION PROGRAM, 2005.

			Farm Group Category Breakout by Region			
Farm Group Category	Number of Farms (520)	Percentage	Red River Valley	North Central	South Central	West
Region			90	188	159	83
Red River Valley	90	17.3				
North Central	188	36.2				
South Central	159	30.6				
West	83	16.0				
Farm Enterprise			----------percentage----------			
Crop	338	65.0	96.7	75.0	56.0	25.3
Livestock	104	20.0	2.2	15.4	21.4	47.0
Mixed	78	15.0	1.1	9.6	22.6	27.7
Farm Sales						
$99,999 or less	64	12.3	6.7	10.1	11.9	24.1
$100,000 - $249,999	157	30.2	18.9	36.7	26.4	34.9
$250,000 - $499,999	192	36.9	33.3	39.4	39.6	30.1
$500,000 or more	107	20.6	41.1	13.8	22.0	10.8
Farm Size						
1,999 acres or less	260	50.0	76.7	42.0	52.8	33.7
2,000 acres or more	260	50.0	23.3	58.0	47.2	66.3
Cropland Tenure						
Full tenant	98	18.8	18.0	16.6	20.3	23.8
1-20 percent owned	126	24.2	32.6	29.9	17.7	16.3
21-40 percent owned	127	24.4	34.8	23.0	20.9	25.0
41 percent or more owned	163	31.3	14.6	30.5	41.1	35.0
Farm Income						
$19,999 or less	149	28.7	28.9	40.4	17.0	24.1
$20,000 - $49,999	143	27.5	23.3	27.7	27.7	31.3
$50,000 - $99,999	130	25.0	25.6	23.4	27.0	24.1
$100,000 or more	98	18.8	22.2	8.5	28.3	20.5
Debt-to-asset Ratio						
0 - 40 percent	167	32.1	34.4	29.8	36.5	26.5
41 - 70 percent	205	39.4	46.7	38.3	36.5	39.8
71 percent or more	148	28.5	18.9	31.9	27.0	33.7
Farmer Age						
39 years or younger	143	27.5	26.7	26.6	27.7	30.1
40 - 49 years	191	36.7	41.1	39.9	31.4	34.9
50 years or older	186	35.8	32.2	33.5	40.9	34.9

REGION

Farms are classified in one of four geographic regions 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 Casselton and Wahpeton programs are not in the Red River Valley and are classified as south-central. The southern area of the "west" region is better represented than the northern area. The northern area of the Red River Valley has had little representation since 1997. Locations of North Dakota Farm Business Management programs that participated in the 2005 summaries are:

Red River Valley: Wahpeton and Casselton
North Central: Bottineau, Devils Lake, Langdon, Minot, and Rugby
South Central: Bismarck, Carrington, Jamestown, and Napoleon
West: Bismarck, Dickinson, and Glen Ullin

Highlights

- In 2005 the median farm size increased from the Red River Valley (1,373 acres, all crop land) to the west region (2,856 acres, including pasture). Median farm size was 2,316 acres (1,815 crop acres) in the north central region and 1,831 acres (1,348 crop acres) for the south central region .

- Several farm characteristics are strongly related to region. Red River Valley farms are more likely to be crop farms and typically have smaller total acreage (crop land and pasture) but much larger total farm sales, assets, and liabilities than farms in other regions.

- In 2005, the incidence of livestock and mixed enterprise farms ranged from a mere 3% in the Red River Valley to 75% in the west.

- There were unusual differences in financial performance across regions in 2005. The south central region had the strongest profitability, solvency, and repayment capacity measures where typically the Red River Valley has led in these financial measures.

- The north central and Red River regions had sharp declines in 2005 for nearly every financial measure. The south central region had its strongest year, and the west had its second best year, over the 1996-2005 period.

- Median current ratio in 2005 was 1.4 for the west and south central regions, 1.2 for the Red River Valley, and 1.1 for the north central region. The five-year average, 2000-2004, of median current ratio was 1.4 for the west and Red River Valley, and 1.3 for the central regions.

- The five-year average, 2000-2004, median rate of return on equity ranged from 11.6% in the Red River Valley to 4.7% in the south central region. However, in 2005 it was 9.1% in the south central region, 7.7% in the west, 2.7% in the Red River Valley, and 1.0% in the north central region.

- Median net farm income in 2005 ranged from $61,039 in the south central region to $29,520 in the north central region.

- The five year average, 2000-2004, median term debt coverage ratio was 1.8 for the Red River Valley, 1.3 for the west and north central regions and 1.4 for the south central region. In 2005 it was highest, 1.9, in the south central region and lowest, 0.9, in the north central region.

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

- In 2005, 65% of farms were classified as crop, 20% as livestock and 15% were mixed enterprise farms.
- Nearly one-half of the west region farms were classified as livestock in 2005, compared to 2% in the Red River Valley, and 15 and 21% in the north central and south central regions, respectively.
- In the 1996-2005 period crop farms have had more total assets and liabilities and greater gross income than livestock and mixed enterprise farms. The only year in which median net farm income of both livestock and mixed enterprise farms exceeded that of crop farms was in 2005. Profitability of livestock farms was similar to crop farms in 1997 and 2001.
- In 2005, median net farm income for crop farms decreased 24%, to $40,013, but increased 16%, to $41,190, for livestock farms and 13%, to $45,826, for mixed enterprise farms.
- The median current ratio for livestock farms of 1.7 in 2005 was the highest for any farm type over the 1996-2005 period.
- Every year, 1996-2004, crop farms had better solvency than other farm types. But, in 2005, median debt-to-asset was 52.7% for livestock farms, 54.6% for crop farms, and 58.3% for mixed enterprise farms.
- The median asset turnover ratio in 2005 was 0.45 for crop farms, 0.36 for mixed enterprise farms and 0.30 for livestock farms. A higher ratio for crop farms is typical. In 2005, the asset turnover of livestock and mixed enterprise farms was the highest for the 1996-2005 period.
- In 2004 and 2005 livestock farms had the highest median term debt coverage ratio, 1.7.
- In 2005, the median interest expense as a percent of gross revenue increased to 5.1% for crop farms, 7.5% for livestock farms, and 7.3% for mixed enterprise farms. Every year, 1996-2005, crop farms have had the best measure.
- In 2005, livestock farms had the best performance in converting gross income into net income, 28.2%, that occurred during the 1996-2005 period, because median operating expenses (all expenses except depreciation and interest) were only 55.8% of gross, compared to 75.3% for crop farms.

Figure 1. Median Total Farm Assetss and Liabilities by Farm Type, 2005, N.D. Farm Mgt Program

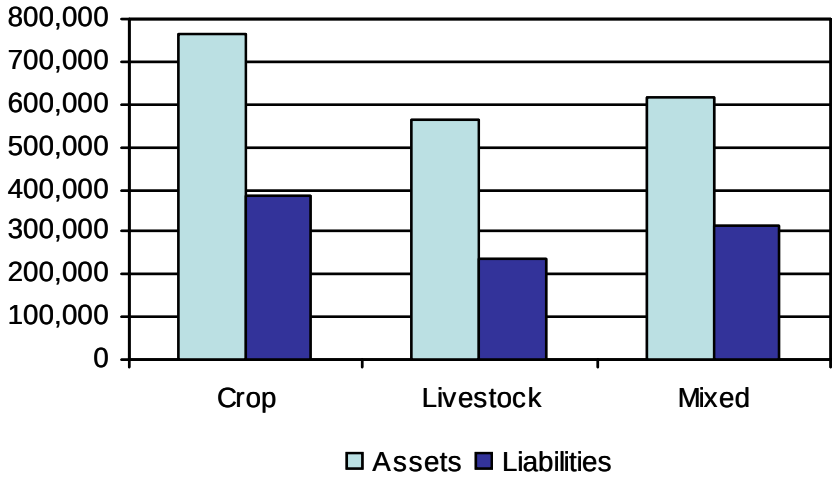


Figure 2. Median Net Farm Income by Farm Type, 1996-2005, N.D. Farm Mgt Program

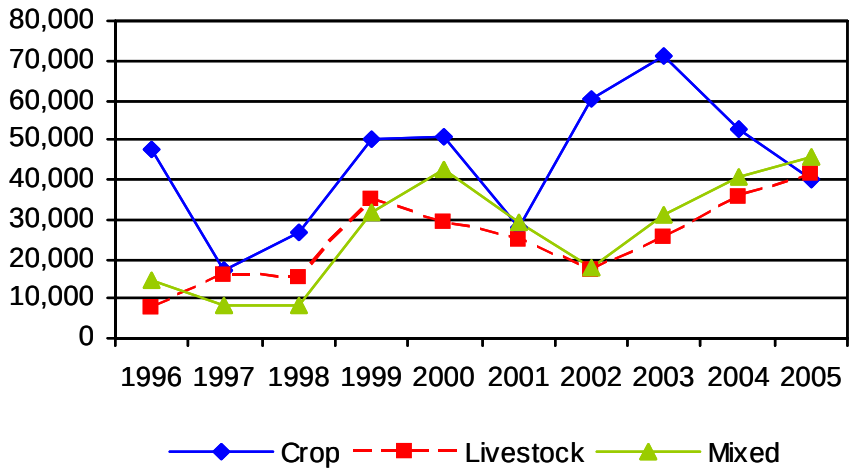


Figure 3. Median Rate of Return on Assets by Farm Type, 1996-2005, N.D. Farm Mgt Program

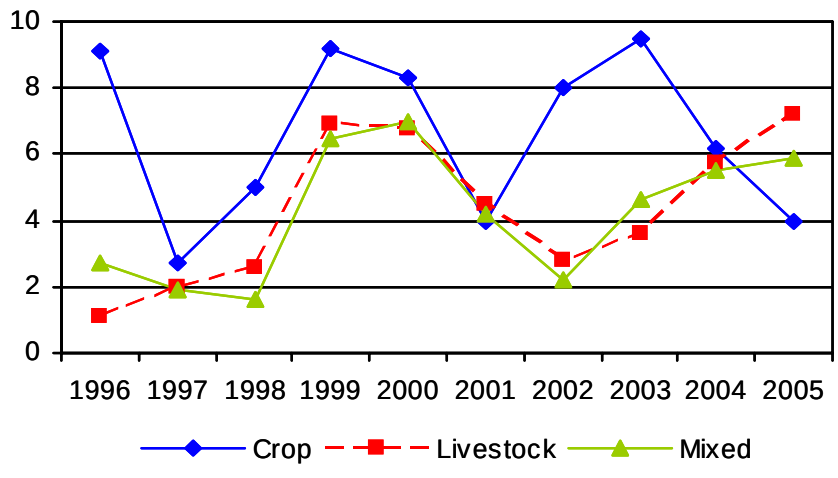
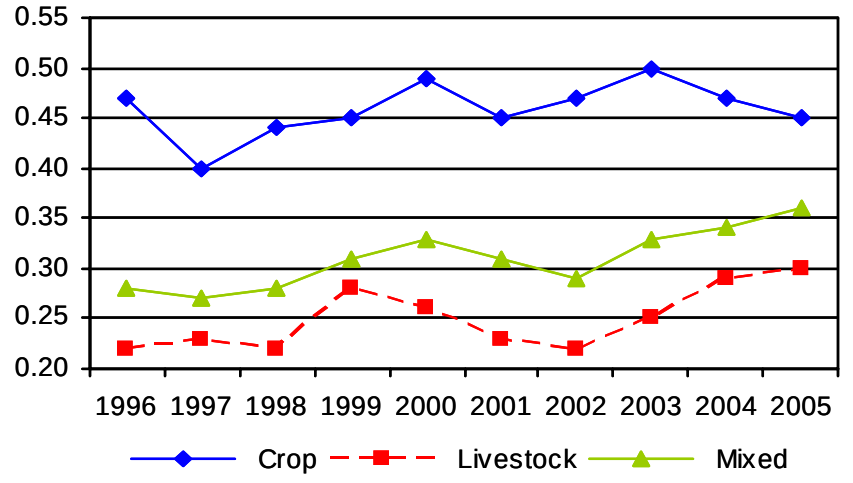


Figure 4. Median Asset Turnover Ratio by Farm Type, 1996-2005, N.D. Farm Mgt Program



FARM SALES

Farms were classified in one of four 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 to 499,999
$500,000 or more

Highlights

- Median farm sales were $281,667 in 2005. The percentage of farms with over $500,000 of sales has increased from 6% to 21% over the past 10 years.

- Gross sales are correlated to region and farm type. In 2005, 41% of Red River Valley farms had sales in excess of $500,000, compared to 11% in the west region. Also, crop farms were five times more likely to have sales in excess of $500,000 than were livestock farms.

- As expected, young farmers typically have lower sales than older farmers. However, farmers between the ages of 40 and 49 are more likely to have farm sales greater than $500,000 than farmers 50 years and older.

- A strong relationship between gross sales and financial performance is typical. Every year, 1996-2005, median rates of return on assets increased with sales volume, except in 2005 when all groups over $100,000 sales were about 5.2%.

- In 2005, the median current ratio was 1.4 for farms with sales greater than $500,000 and 1.2 for other sale categories.

- Farms with low sales typically have higher debt-to-asset. The five-year average, 2000-2004, median debt-to-asset was 61%, 57.9%, 50.7%, and 47.9% for the lowest to highest farm sale groups, respectively.

- Typically, repayment capacity is directly related to amount of sales. The five-year average, 2000-2004, median term debt coverage ratio was 1.1, 1.2, 1.6, and 2.0 for the lowest to highest farm sale categories, respectively. Only in 1997 and 2005 did farms with less than $100,000 sales have better repayment capacity than farms with sales between $100,000 and $500,000.

- From 1996-2005, farms with sales under $100,000 had the best operating expense as percent of gross revenue, but the worst interest expense ratio because of higher debt, and usually the worst depreciation expense ratio.

Figure 5. Median Total Farm Assets and Liabilities by Farm Sales, 2005, N.D. Farm Mgt Program

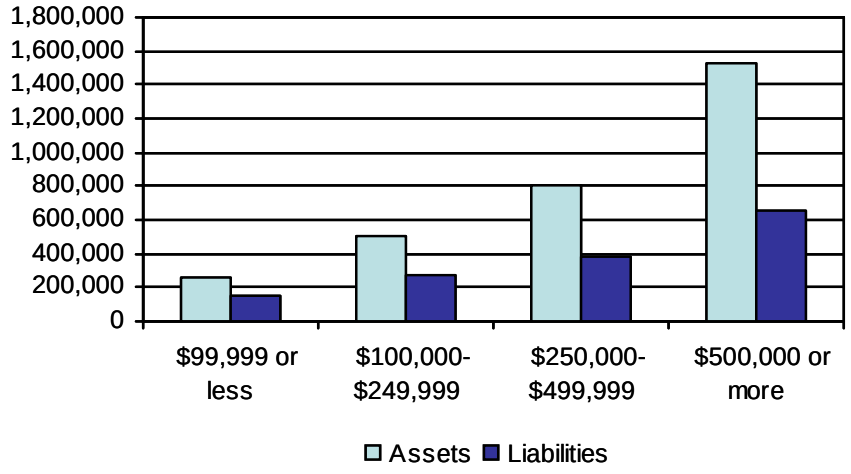


Figure 6. Median Net Farm Income by Farm Sales, 1996-2005, N.D. Farm Mgt Program

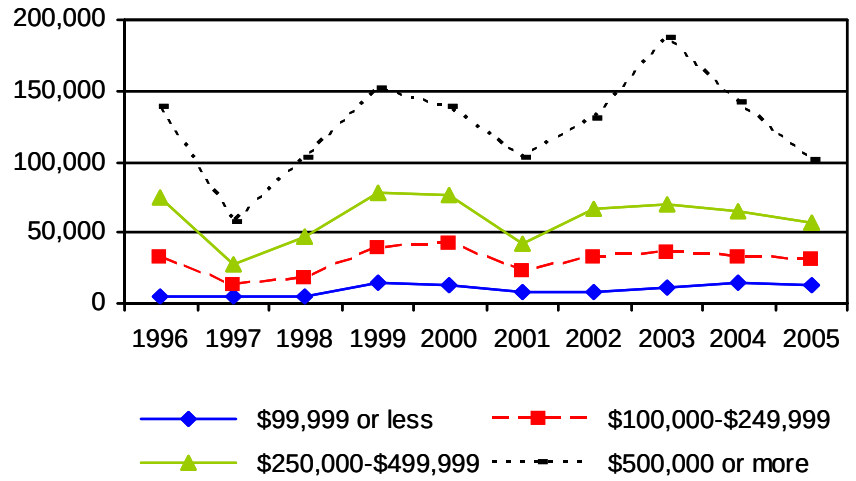


Figure 7. Median Term Debt Coverage Ratio by Farm Sales, 1996-2005, N.D. Farm Mgt Program

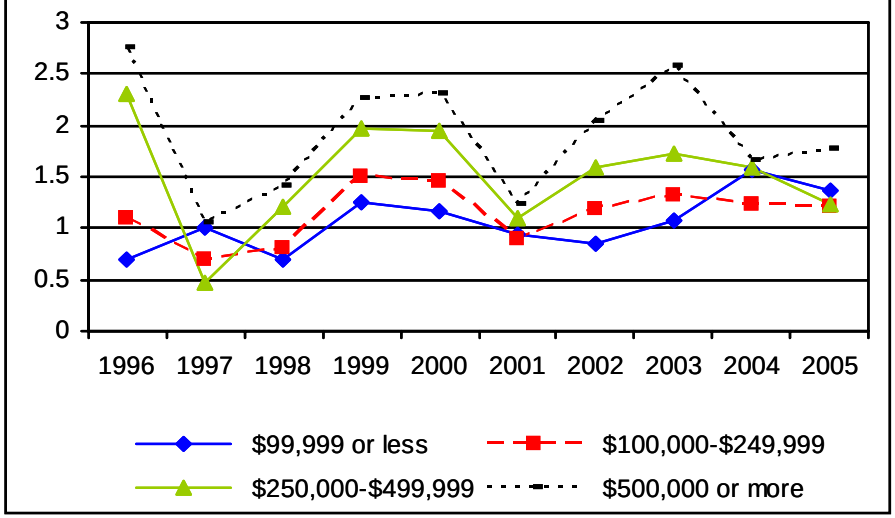
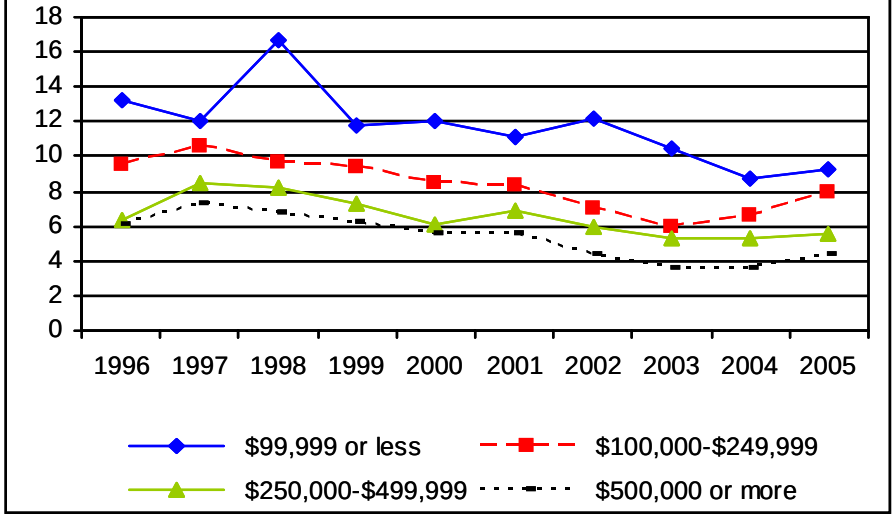


Figure 8. Median Interest Expense as a Percent of Gross Revenue, by Farm Sales, 1996-2005, N.D. Farm Mgt Program



FARM SIZE

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

Farm size categories were: 1,999 acres or less
2,000 acres or more

Highlights

- Because of less pasture land and more productive crop land only one-fourth of the Red River Valley farms were larger than 2,000 acres, compared to two-thirds of west region farms and about one-half of farms in the central regions.

- From 1999 to 2005, mixed enterprise farms were slightly more likely to be larger than 2,000 acres than were crop or livestock farms.

- In 2005, 63% of farmers under 40 years old operated less than 2,000 acres compared to 40% of farmers between 40 and 49 years old and one-half of farmers over 50 years or older.

- As expected, farms with greater than 2,000 acres have greater assets, liabilities, sales and profitability than smaller farms. Larger farms also have better solvency.

- In 2005, median net farm income was $25,619 for farms with less than 2,000 acres and $65,973 for farms with more than 2,000 acres. Historically, farms with more than 2,000 acres have about twice the net income of the small farm group.

- Farms larger than 2,000 acres had slightly higher median current ratio than smaller farms in 2005, 1.3 to 1.2, and for the five year 2000-2004 average, 1.4 to 1.3.

- In 2005, median debt-to-asset was 60.4% for farms with less than 2,000 acres and 50.4% for larger farms.

- Median term debt coverage ratio is typically better for farms with more than 2,000 acres than for smaller farms. Although smaller acreage farms generate less farm cash income, they tend to have more non-farm income than larger farms.

- Financial efficiency measures of farm size groups tend to be similar. This indicates that greater profitability of farms larger than 2,000 acres is due to larger sales volume and/or greater operator labor efficiencies not lower operating expenses per dollar of sales.

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:

- The incidence of farms renting all their crop land was similar across regions in 2005. However, high ownership of crop land is less likely in the Red River Valley. Farms west of the Red River Valley were twice as likely to own more than 40% of the crop land they operated.

- Crop land ownership increases with age. In 2005, farmers 50 years or older were over twice as likely to own more than 40% of their crop land than were younger farmers. Three of ten young farmers rented all of their crop land, compared to one of ten farmers 50 years or older.

- Operators of livestock and mixed enterprise farms own a greater portion of their crop land than crop farms. One-half of livestock farms and over one-third of mixed enterprise farms own more than 40% of the crop land that they operate, compared to one-fourth of crop farms.

- Interestingly, small farms (less than 2,000 acres) were more likely to either own no crop land or to own more than 40% of crop land than were large farms (more than 2,000 acres).

- Farms that own some land, but not a lot, are typically the most profitable. Farms in the 1 to 20% crop land ownership category, followed by farms with 20-40% crop land ownership, are also most likely to be crop farms, farm more acreage, and have larger sales.

- During 1996 to 2005 there is no clear relationship between current ratio and land tenure except that farms with greater than 40% crop land ownership tend to have a slightly better median current ratio.

- Farms with greater than 40% crop land ownership typically had better solvency, 1996-2005, than other crop land ownership groups. In 2005, farms with no crop land ownership had a median debt-to-asset ratio of 63% compared to 47.2% for farms with crop land ownership greater than 40%. One reason could be that older, more established farmers own a greater portion of their crop land.

- In 2005, median net farm income ranged from $52,796 for farms with 1 to 20% crop land ownership to $32,007 for farms that rent all crop land.

- Typically, the lower profit of farms with greater than 40% crop land ownership, compared to farms with 1 to 40% crop land ownership, is associated with the fact these farms are more likely to also be in livestock, low sales, and small size farm categories and less likely to be in the Red River Region.

- Farms with a smaller proportion of crop land ownership have fewer land assets and land interest costs and therefore have higher asset turnover ratios and lower interest expense ratios.

Figure 9. Median Net Farm Income by Crop Land Tenure, 1996-2005, N.D. Farm Mgt Program

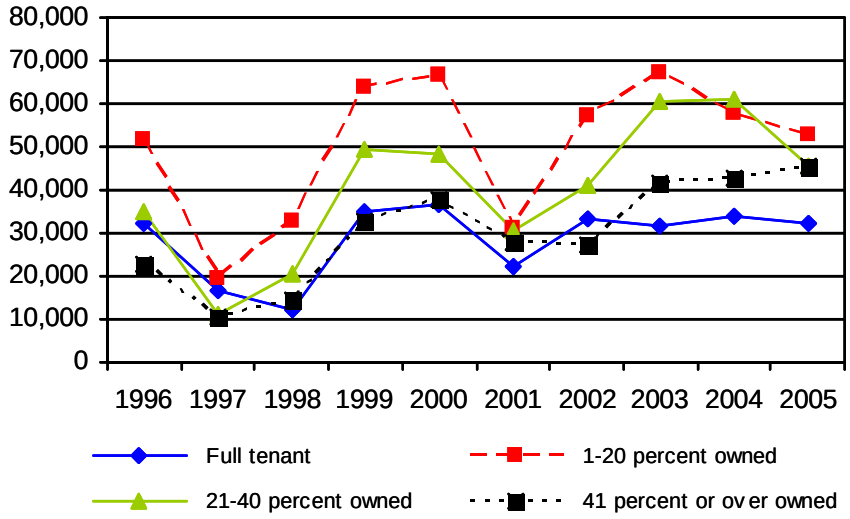


Figure 10. Median Asset Turnover Ratio by Crop Land Tenure, 1996-2005, N.D. Farm Mgt Progam

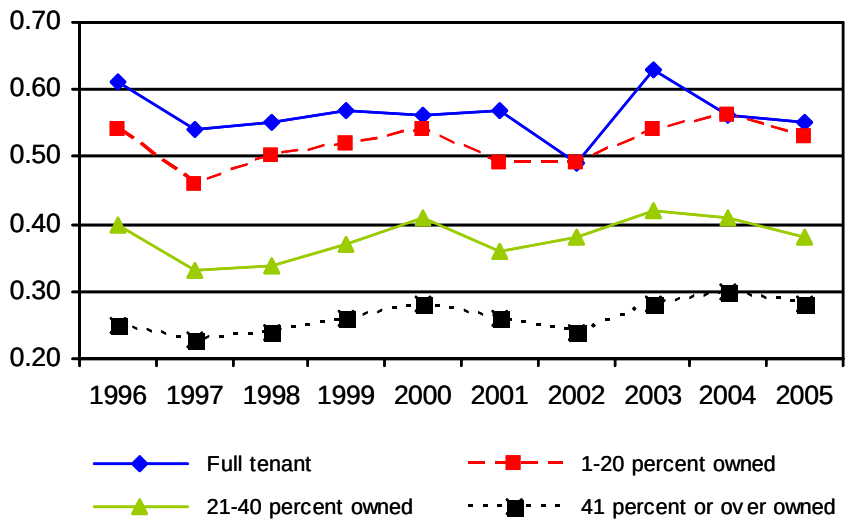


Figure 11. Median Net Farm Income by Debt-to-Asset Group, 1996-2005, N.D. Farm Mgt Program

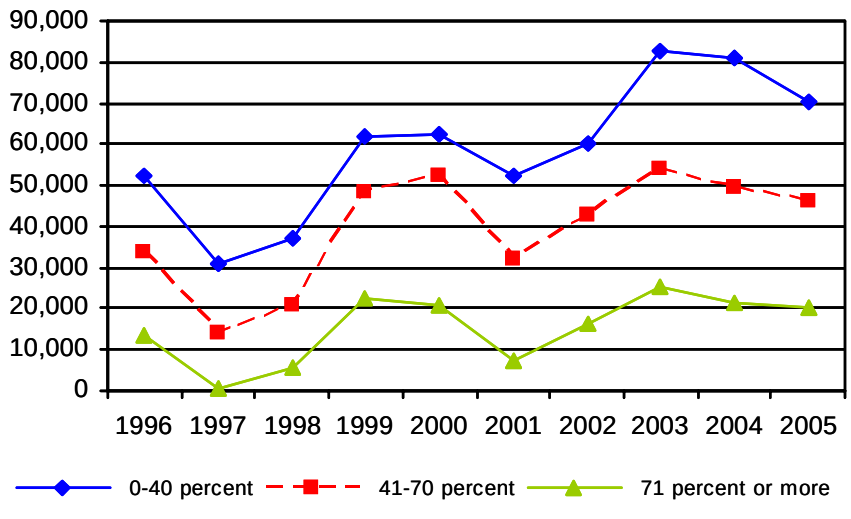
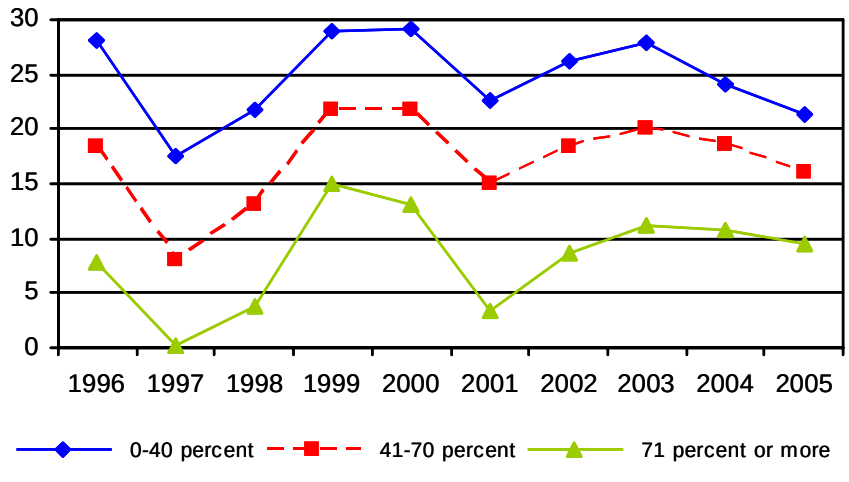


Figure 12. Median Net Farm Income as a Percent of Gross Revenue by Dept-to-Asset Group, 1996-2005, N.D. Farm Mgt Program



NET FARM INCOME

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

$19,999 or less
$20,000 - $49,999
$50,000 - $99,999
$100,000 or more

Highlights

- Farm profit is volatile. Year-to-year changes in median net farm income within regions and farm types averaged 50% over the past 10 years. However, statewide, the median net farm income was $42,286 in 2005, down 6% and 14% from the previous two years, respectively.

- The highest median net farm income in the 1996-2005 period was $49,181 in 2003 and the lowest was $14,290 in 1997 and $19,491 in 1998.

- The Red River Valley region had the highest median net farm income every year from 1996 to 2005, except for 1998 and 2005.

- In 2005, median net farm income was $45,826 for mixed enterprise farms, $41,190 for livestock farms and $40,013 for crop farms. However, 22% of crop farms had net farm income greater than $100,000 compared to 8% for mixed enterprise farms and 16% for livestock farms. Typically, crop farms have been more profitable than other farm types over the past 10 years.

- The typical strong associations between net farm income and farm sales and farm size were greatly reduced in 1997.

- In 2005, 62% of farms with sales greater than $250,000 had net farm income greater than $50,000, and 18% had net farm income less than $20,000. About two-thirds of farms with sales less than $100,000 had net farm income less than $20,000.

- In 2005, 62% of farms larger than 2,000 acres had net farm income greater than $50,000, compared to 26% of smaller farms.

- From 1999 to 2005, farmers 40 to 49 years old had higher median net farm income than farmers that were younger or older. However, from 1996 to 1998, farmers less than 40 years old had the highest median net farm income.

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

- In 2001, low-debt farms (less than 40% debt-to-asset) were five times more likely to have net farm income in excess of $50,000 than high-debt farms (greater than 70% debt). In other years, 1996-2005, low-debt farms were three to four times as likely to have net farm income greater than $50,000.

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

- Median debt-to-asset of 54.8% in 2005 was slightly worse than 54.3% in 2003 and 2004 but better than 55.5% in 2001. Solvency had declined each year from 1994 to 1998 prior to improving in 1999 and 2000.

- Red River Valley farms, crop farms, large farms (greater than 2,000 acres) and farms with high sales (greater than $500,000 sales) had lower median debt-to-asset than other regions, farm types, farm size and farm sales groups, respectively, during the years 1996-2005.

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

- In 2005, farms in the low-debt category had median current ratio of 2.6, term debt coverage ratio of 2.2, interest as a percent of gross revenue of 3.1, and net farm income as percent of gross revenue of 21.4.

- Farms with sales less than $100,000 are over three times as likely to be in the high debt group compared to farms with sales greater than $500,000.

- As expected, percent debt-to-asset tended to decrease as age of farmer increased.

- Median net farm income for the low, medium, and high debt-to-asset categories in 2005 was $70,525, $46,319 and $20,475, respectively.

- In 2005, one-third of farms with low debt had net farm income greater than $100,000 compared to only one out of 25 high-debt farms.

FARMER AGE

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

39 years or less
40 - 49 years
50 years or older

Highlights

- In 2005, 27% of farm operators were under 40 years old and 37% were 40 to 49 years old. The percent of farmers 50 and older has steadily increased from 19% in 1996 to 36% in 2005.

- Prior to 1999, the age of farmers tended to increase slightly from east to west, but from 1999 to 2005 the age distribution of farm operators has been similar for all regions.

- Farmers in the middle age group have typically had more total farm assets and liabilities, higher gross sales, larger farms and been more profitable than the younger or older age groups.

- Median total assets were lowest, 1996-2005, for farm operators less than 40 years old and were most often the greatest for farmers between 40 and 49 years old. However, median total assets of the older age group of farmers (50 years and older) is close to the asset level of the middle age group.

- As expected, as the age of the farm operator increases there is a higher percent of crop land owned, and the percent of farm debt tends to decrease. In 2005, median debt-to-asset was 67.1% for farmers less than 40 years old, 55.1% for farmers in the 40 to 49 age group and 42.5% for farmers 50 or older.

- The five-year average, 2000-2004, median current ratio was 1.3 for the older farmers and 1.4 for the other age groups.

- In 2005, median net farm income decreased to $47,234 for farmers 40-49 years old, and $39,288 for farmers less than 40 years old but increased to $44,279 for farmers 50 and older.

- In each year, 1996-2005, the young age group of farmers employed assets more efficiently than farmers 50 and older. The young group had better median measures of ROA, ROE, asset turnover and net farm income as percent of gross revenue despite having much fewer total assets and higher debt-to-asset.

Figure 13. Median Total Farm Assets and Liabilities by Farmer Age, 2005, N.D. Farm Mgt Program

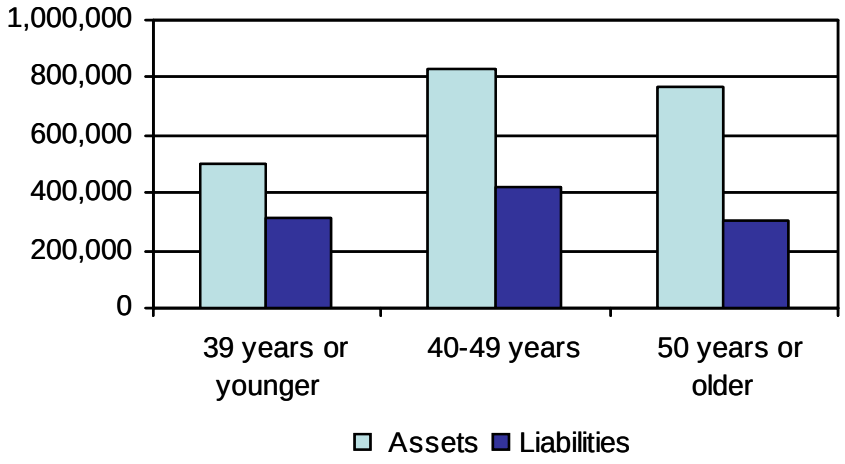


Figure 14. Median Net Farm Income by Farmer Age, 1996-2005, N.D. Farm Mgt Program

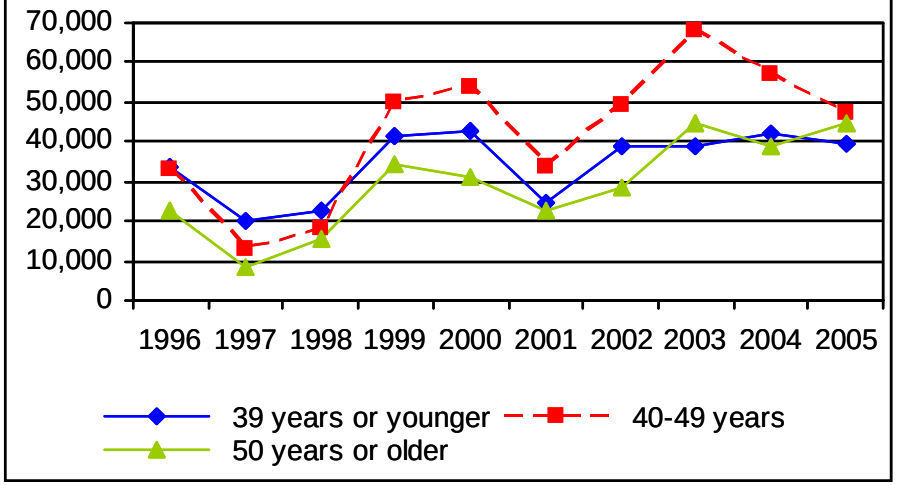


Figure 15. Median Term Debt Coverage by Farmer Age, 1996-2005, N.D. Farm Mgt Program

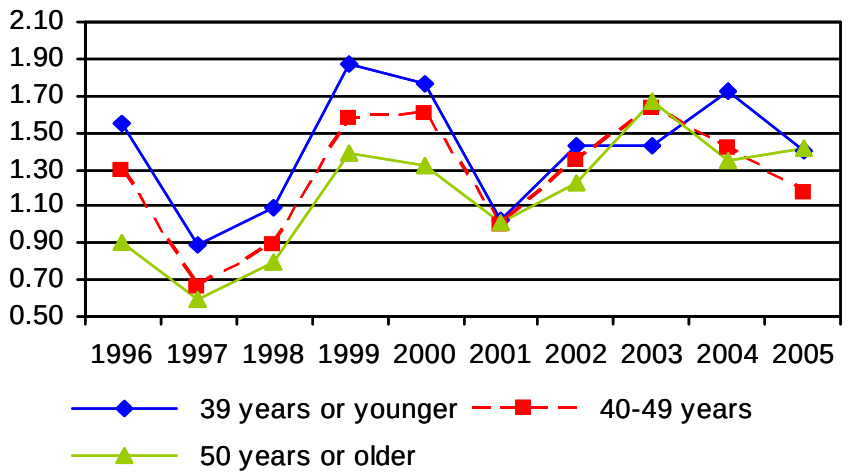


Figure 16. Median Net Farm Income as a Percent of Gross Revenue by Farmer Age, 1996-2005, N.D. Farm Mgt Program

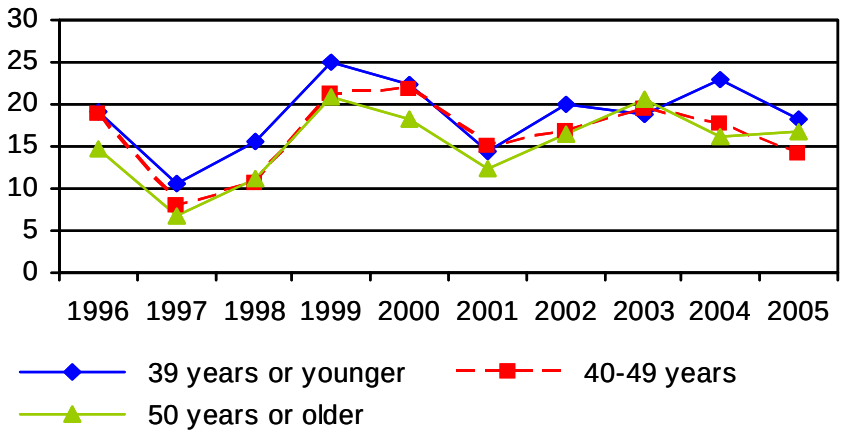


TABLE 3. CURRENT ASSETS AND CURRENT LIABILITIES, QUARTILE VALUES FOR 2005, MEDIAN VALUES FOR 2004, AND 5-YEAR AVERAGE, 2000-2004, OF MEDIAN VALUES, NORTH DAKOTA FARM BUSINESS MANAGEMENT EDUCATION PROGRAM PARTICIPANTS

Farm Group	2005 Upper Quartile	2005 Lower Quartile	2005 Median	2004 Median	Average of 2000-2004 Medians	2005 Upper Quartile	2005 Lower Quartile	2005 Median	2004 Median	Average of 2000-2004 Medians
	Current Farm Assets ($)					Current Farm Liabilities ($)				
All Farms	313,519	98,793	184,339	177,357	152,495	59,448	220,667	126,498	118,309	100,219
Region										
Red River Valley	414,291	136,258	226,498	275,330	250,910	70,852	279,267	144,090	142,245	142,516
North Central	264,035	92,216	158,090	174,968	143,871	74,234	209,295	134,520	121,769	95,057
South Central	357,240	114,530	195,536	167,778	141,585	59,301	217,737	118,121	102,841	96,563
West	287,678	66,261	181,631	150,739	133,741	34,394	195,614	91,972	92,695	77,298
Farm Enterprise										
Crop	367,973	112,320	208,396	212,985	175,023	78,710	244,647	151,529	135,279	114,101
Livestock	231,262	64,776	119,507	110,112	100,324	27,231	133,705	61,479	64,639	63,196
Mixed	266,542	97,465	163,506	164,190	138,687	59,464	187,386	117,139	113,401	95,337
Farm Sales										
$99,999 or less	75,542	29,895	53,951	40,688	43,236	18,857	60,746	36,796	26,885	32,184
$100,000-$249,999	164,904	82,776	115,450	106,962	116,658	56,970	134,036	97,078	92,723	84,392
$250,00-$499,999	299,734	163,021	227,528	235,535	215,824	83,675	228,141	168,163	158,961	139,117
$500,000 or more	638,820	331,315	472,670	480,147	463,364	165,647	475,038	280,222	263,862	260,716
Farm Size										
1,999 acres or less	202,795	67,370	116,262	106,013	98,132	43,835	145,059	91,945	84,079	71,861
2,000 acres or more	425,303	169,938	267,849	245,215	214,746	92,066	308,502	180,689	162,807	132,997
Cropland Tenure										
Full tenant	208,770	64,732	114,977	125,161	116,646	37,508	158,808	81,338	85,428	76,960
1-20 percent owned	388,602	156,156	224,925	236,022	194,812	108,270	288,463	182,137	162,126	135,978
21-40 percent owned	367,949	139,592	237,484	218,475	184,396	85,932	242,933	152,134	133,403	114,412
41 percent or more owned	280,474	88,822	161,759	167,740	133,423	48,960	178,509	96,378	94,885	77,375
Net Farm Income										
$19,999 or less	179,848	57,571	99,135	85,981	79,597	52,253	200,962	104,926	86,248	75,933
$20,000-$49,999	204,081	84,857	144,421	133,891	122,050	50,659	156,069	103,658	105,481	81,603
$50,000-$99,999	301,181	164,668	221,993	216,822	197,625	83,452	224,214	146,267	127,250	113,475
$100,000 or more	536,859	288,985	410,907	394,138	372,885	73,070	338,785	194,137	168,689	144,602
Debt-to-Asset Ratio										
0-40 percent	411,452	155,498	269,210	261,701	209,975	36,535	160,157	91,918	91,235	63,486
41-70 percent	292,313	90,225	181,914	181,736	161,234	67,308	286,247	141,721	134,623	116,041
71 percent or more	215,968	69,180	119,902	114,082	106,041	86,849	230,159	138,012	123,491	119,413
Farmer Age										
39 years or younger	240,836	70,715	138,182	138,820	127,924	49,545	183,773	103,861	91,584	81,096
40-49 years	405,936	119,796	228,887	235,535	195,382	92,219	299,889	159,785	144,271	120,910
50 years or older	291,867	104,857	186,071	177,302	141,539	50,923	195,982	111,086	106,662	85,349

TABLE 4. LIQUIDITY MEASURES, QUARTILE VALUES FOR 2005, MEDIAN VALUES FOR 2004, AND 5-YEAR AVERAGE, 2000-2004, OF MEDIAN VALUES, NORTH DAKOTA FARM BUSINESS MANAGEMENT EDUCATION PROGRAM PARTICIPANTS.

Farm Group	2005 Upper Quartile	2005 Lower Quartile	2005 Median	2004 Median	Average of 2000-2004 Medians	2005 Upper Quartile	2005 Lower Quartile	2005 Median	2004 Median	Average of 2000-2004 Medians
	Current Ratio					Working Capital($)				
All Farms	2.1	0.9	1.2	1.3	1.3	104,949	-11,908	27,812	35,264	32,519
Region										
Red River Valley	2.2	0.9	1.2	1.4	1.4	140,860	-10,085	27,649	77,059	67,051
North Central	1.7	0.8	1.1	1.3	1.3	72,200	-27,436	14,323	34,050	29,196
South Central	2.3	1.1	1.4	1.3	1.3	129,199	8,501	49,331	29,079	25,261
West	2.4	1.0	1.4	1.4	1.4	104,900	2,604	30,157	25,418	32,058
Farm Enterprise										
Crop	2.0	0.8	1.1	1.3	1.3	114,850	-22,801	19,974	38,468	35,880
Livestock	2.5	1.2	1.7	1.5	1.4	101,862	11,521	45,509	33,325	28,686
Mixed	1.7	1.1	1.3	1.3	1.3	81,027	10,393	34,010	28,703	31,517
Farm Sales										
$99,999 or less	1.7	1.0	1.2	1.4	1.3	22,698	-1,934	11,510	10,606	9,594
$100,000-$249,999	2.0	0.8	1.2	1.3	1.3	64,775	-18,409	23,091	23,848	26,460
$250,000-$499,999	2.2	0.9	1.2	1.3	1.4	119,938	-13,030	43,680	64,272	59,298
$500,000 or more	2.9	1.0	1.4	1.6	1.5	326,688	6,468	116,298	160,633	137,875
Farm Size										
1,999 acres or less	1.8	0.8	1.2	1.4	1.3	64,505	-12,350	16,951	23,312	19,068
2,000 acres or more	2.3	1.0	1.3	1.3	1.4	144,484	-8,587	58,001	59,581	58,428
Cropland Tenure										
Full tenant	2.3	0.8	1.2	1.3	1.3	75,307	-11,922	17,317	17,000	21,522
1-20 percent owned	1.7	0.9	1.1	1.2	1.3	100,539	-17,107	27,705	37,901	40,952
21-40 percent owned	1.9	0.9	1.3	1.4	1.3	145,841	-11,581	43,558	43,142	37,793
41 percent or more owned	2.3	1.0	1.4	1.5	1.4	110,314	-3,973	41,898	45,033	34,700
Net Farm Income										
$19,999 or less	1.2	0.7	0.9	1.0	1.0	19,875	-44,461	-10,516	-174	-944
$20,000-$49,999	1.8	1.0	1.3	1.2	1.3	71,340	-4,023	24,442	24,534	24,505
$50,000-$99,999	2.1	1.0	1.3	1.5	1.5	109,001	8,230	53,630	69,892	63,870
$100,000 or more	4.2	1.3	2.4	2.1	2.1	324,575	78,095	189,125	175,844	173,266
Debt-to-Asset Ratio										
0-40 percent	6.3	1.7	2.6	2.7	3.1	275,640	72,820	146,932	155,578	127,172
41-70 percent	1.5	0.9	1.2	1.3	1.3	66,279	-11,200	21,084	36,491	33,055
71 percent or more	1.1	0.7	0.9	1.0	1.0	17,293	-44,426	-10,336	1,490	-4,103
Farmer Age										
39 years or younger	1.8	1.0	1.2	1.4	1.4	62,178	-3,606	20,103	26,497	27,496
40-49 years	2.0	0.9	1.2	1.3	1.4	129,793	-22,696	26,541	47,979	41,907
50 years or older	2.5	1.0	1.4	1.4	1.3	133,709	-3,176	49,460	40,943	30,368

TABLE 5. TOTAL ASSETS AND TOTAL LIABILITIES, QUARTILE VALUES FOR 2005, MEDIAN VALUES FOR 2004, AND 5-YEAR AVERAGE, 2000-2004, OF MEDIAN VALUES, NORTH DAKOTA FARM BUSINESS MANAGEMENT EDUCATION PROGRAM PARTICIPANTS

Farm Group	2005 Upper Quartile	2005 Lower Quartile	2005 Median	2004 Median	Average of 2000-2004 Medians	2005 Upper Quartile	2005 Lower Quartile	2005 Median	2004 Median	Average of 2000-2004 Medians
	Total Farm Assets($)					Total Farm Liabilities($)				
All Farms	1,154,629	440,825	684,181	652,575	586,823	197,387	546,426	338,657	323,805	295,122
Region										
Red River Valley	1,528,812	507,996	928,659	1,001,878	846,777	220,235	648,646	400,423	400,351	377,578
North Central	1,029,711	460,916	661,748	665,756	565,550	215,756	528,048	351,886	329,805	289,993
South Central	1,090,652	439,453	665,104	577,232	539,159	182,345	516,934	314,473	294,691	281,105
West	955,710	355,140	603,130	529,125	535,806	171,885	501,962	287,610	275,839	261,507
Farm Enterprise										
Crop	1,301,832	476,509	766,396	738,893	640,438	220,235	567,466	382,249	348,652	306,714
Livestock	804,242	372,238	561,814	513,080	490,028	145,732	442,336	237,024	252,414	257,534
Mixed	863,399	413,221	615,174	583,884	545,353	193,523	549,990	315,896	318,174	283,095
Farm Sales										
$99,999 or less	386,220	160,448	255,559	247,960	279,458	71,918	215,147	144,612	137,347	150,691
$100,000-$249,999	677,725	386,648	498,149	476,655	472,329	196,193	393,003	273,118	263,300	254,452
$250,000-$499,999	1,099,699	582,568	805,400	816,581	780,419	232,408	555,628	377,075	371,708	359,486
$500,000 or more	2,021,218	1,241,699	1,531,852	1,532,271	1,384,036	405,071	929,422	650,003	627,219	631,711
Farm Size										
1,999 acres or less	739,563	320,909	479,742	471,864	437,774	140,964	408,860	254,198	235,569	222,420
2,000 acres or more	1,426,072	654,168	945,647	875,078	776,064	279,651	680,774	438,961	416,709	374,341
Cropland Tenure										
Full tenant	597,639	204,324	366,277	375,081	326,237	91,466	344,386	203,358	197,649	197,745
1-20 percent owned	1,190,958	524,257	717,107	728,596	619,892	257,971	589,469	416,824	385,945	339,046
21-40 percent owned	1,474,692	557,176	880,973	800,627	693,381	256,273	682,781	395,917	381,296	346,797
41 percent or more owned	1,174,635	473,533	743,357	710,725	671,376	196,351	532,066	320,873	314,816	295,521
Net Farm Income										
$19,999 or less	758,395	309,927	482,303	408,260	402,730	196,508	491,385	314,489	233,190	246,479
$20,000-$49,999	825,597	394,559	554,673	491,973	478,305	166,180	447,189	294,587	303,295	262,513
$50,000-$99,999	1,116,385	569,434	771,040	730,785	691,115	224,721	555,659	369,041	352,217	307,718
$100,000 or more	1,825,671	1,022,658	1,388,036	1,336,899	1,195,473	265,414	781,101	438,336	456,424	408,644
Debt-to-Asset Ratio										
0-40 percent	1,499,300	627,205	987,321	932,883	781,969	109,296	345,556	211,448	196,608	160,112
41-70 percent	1,167,016	438,967	686,905	696,904	630,023	235,734	610,350	395,496	379,135	336,302
71 percent or more	738,248	324,072	518,629	446,116	425,101	311,913	600,610	447,134	366,698	373,368
Farmer Age										
39 years or younger	745,521	255,559	500,962	477,404	444,197	170,393	482,975	312,894	270,305	245,559
40-49 years	1,398,087	501,211	828,742	793,366	680,773	246,114	704,270	416,329	388,772	349,493
50 years or older	1,233,107	494,458	763,736	701,486	626,531	174,218	470,109	303,249	298,568	268,416

TABLE 6. SOLVENCY MEASURES, QUARTILE VALUES FOR 2005, MEDIAN VALUES FOR 2004, AND 5-YEAR AVERAGE, 2000-2004, OF MEDIAN VALUES, NORTH DAKOTA FARM BUSINESS MANAGEMENT EDUCATION PROGRAM PARTICIPANTS.

Farm Group	2005 Upper Quartile	2005 Lower Quartile	2005 Median	2004 Median	Average of 2000-2004 Medians	2005 Upper Quartile	2005 Lower Quartile	2005 Median	2004 Median	Average of 2000-2004 Medians	2005 Upper Quartile	2005 Lower Quartile	2005 Median	2004 Median	Average of 2000-2004 Medians
	Debt-to-Asset (%)					Equity-to-Asset (%)					Debt-to-Equity				
All Farms	34.3	73.2	54.8	54.3	54.3	65.7	26.8	45.2	45.7	45.7	0.5	2.7	1.2	1.2	1.2
Region															
Red River Valley	34.5	64.2	52.3	49.0	48.3	65.5	35.8	47.7	51.0	51.7	0.5	1.8	1.1	1.0	0.9
North Central	35.4	75.6	56.6	54.9	55.7	64.6	24.4	43.4	45.1	44.3	0.5	3.1	1.3	1.2	1.3
South Central	29.3	71.7	52.9	54.2	54.1	70.7	28.3	47.1	45.8	45.9	0.4	2.5	1.1	1.2	1.2
West	38.3	76.6	58.4	59.9	57.9	61.7	23.4	41.6	40.1	42.1	0.6	3.3	1.4	1.5	1.4
Farm Enterprise															
Crop	33.8	73.2	54.6	51.8	52.0	66.2	26.8	45.4	48.2	48.0	0.5	2.7	1.2	1.1	1.1
Livestock	33.8	69.6	52.7	58.0	58.0	66.2	30.4	47.3	42.0	42.0	0.5	2.3	1.1	1.4	1.4
Mixed	38.8	76.0	58.3	58.8	57.8	61.2	24.0	41.7	41.2	42.2	0.6	3.2	1.4	1.4	1.4
Farm Sales															
$99,999 or less	44.0	79.2	66.2	57.0	61.0	56.0	20.8	33.8	43.0	39.0	0.8	3.8	2.0	1.3	1.6
$100,000-$249,999	42.4	80.0	60.4	61.7	57.9	57.6	20.0	39.6	38.3	42.1	0.7	4.0	1.5	1.6	1.4
$250,000-$499,999	30.3	71.7	51.0	51.0	50.7	69.7	28.3	49.0	49.0	49.3	0.4	2.5	1.0	1.0	1.0
$500,000 or more	29.9	61.1	47.8	42.6	47.9	70.1	38.9	52.2	57.4	52.1	0.4	1.6	0.9	0.7	0.9
Farm Size															
1,999 acres or less	39.2	77.6	60.4	57.0	58.2	60.8	22.4	39.6	43.0	41.8	0.6	3.5	1.5	1.3	1.4
2,000 acres or more	32.5	67.2	50.4	50.9	51.2	67.5	32.8	49.6	49.1	48.8	0.5	2.0	1.0	1.0	1.0
Cropland Tenure															
Full tenant	37.8	80.3	63.0	58.0	60.7	62.2	19.7	37.0	42.0	39.3	0.6	4.1	1.7	1.4	1.5
1-20 percent owned	35.8	75.4	58.2	55.7	55.9	64.2	24.6	41.8	44.3	44.1	0.6	3.1	1.4	1.3	1.3
21-40 percent owned	33.2	70.5	56.2	55.3	53.3	66.8	29.5	43.8	44.7	46.7	0.5	2.4	1.3	1.2	1.1
41 percent or more owned	29.8	68.6	47.2	49.4	49.8	70.2	31.4	52.8	50.6	50.2	0.4	2.2	0.9	1.0	1.0
Net Farm Income															
$19,999 or less	50.1	86.1	69.0	71.2	69.7	49.9	13.9	31.0	28.8	30.3	1.0	6.2	2.2	2.5	2.3
$20,000-$49,999	36.2	74.1	57.8	58.6	58.6	63.8	25.9	42.2	41.4	41.4	0.6	2.9	1.4	1.4	1.4
$50,000-$99,999	30.8	66.1	50.2	50.7	48.4	69.2	33.9	49.8	49.3	51.6	0.4	1.9	1.0	1.0	0.9
$100,000 or more	22.2	53.1	36.0	37.6	38.8	77.8	46.9	64.0	62.4	61.2	0.3	1.1	0.6	0.6	0.6
Debt-to-Asset Ratio															
0-40 percent	14.7	33.6	24.1	26.2	24.8	85.3	66.4	75.9	73.8	75.2	0.2	0.5	0.3	0.4	0.3
41-70 percent	48.7	62.5	56.1	55.3	55.1	51.3	37.5	43.9	44.7	44.9	0.9	1.7	1.3	1.2	1.2
71 percent or more	76.5	90.8	82.8	82.7	84.2	23.5	9.2	17.2	17.3	15.8	3.3	9.9	4.8	4.8	5.3
Farmer Age															
39 years or younger	48.3	79.1	67.1	65.5	61.6	51.7	20.9	32.9	34.5	38.4	0.9	3.8	2.0	1.9	1.6
40-49 years	36.6	74.1	55.1	52.5	53.5	63.4	25.9	44.9	47.5	46.5	0.6	2.9	1.2	1.1	1.1
50 years or older	23.3	63.0	42.5	47.7	48.7	76.7	37.0	57.5	52.3	51.3	0.3	1.7	0.7	0.9	0.9

TABLE 7. RATE OF RETURN ON ASSETS AND RATE OF RETURN ON EQUITY PROFITABILITY MEASURES, QUARTILE VALUES FOR 2005, MEDIAN VALUES FOR 2004, AND 5-YEAR AVERAGE, 2000-2004, OF MEDIAN VALUES NORTH DAKOTA FARM BUSINESS MANAGEMENT EDUCATION PROGRAM PARTICIPANTS.

Farm Group	2005 Upper Quartile	2005 Lower Quartile	2005 Median	2004 Median	Average of 2000-2004 Medians	2005 Upper Quartile	2005 Lower Quartile	2005 Median	2004 Median	Average of 2000-2004 Medians
	Return on Farm Assets(%)					Return on Equity(%)				
All Farms	9.2	1.2	4.9	6.1	6.1	13.7	-1.9	4.3	6.7	6.1
Region										
Red River Valley	6.5	1.3	3.9	7.2	8.7	7.7	-4.1	2.3	9.2	11.6
North Central	7.3	-0.8	3.0	5.1	6.1	9.3	-6.4	1.0	5.0	6.1
South Central	12.3	4.0	7.1	5.2	5.2	21.3	1.3	9.1	5.6	4.7
West	10.1	1.6	6.8	6.5	5.1	16.7	0.0	7.7	9.4	4.8
Farm Enterprise										
Crop	8.0	-0.1	4.0	6.2	7.2	10.9	-4.3	2.3	7.1	7.9
Livestock	11.9	4.5	7.2	5.7	4.7	19.9	2.5	9.7	5.8	3.4
Mixed	9.3	2.7	5.9	5.5	4.7	12.9	0.0	7.2	6.7	3.8
Farm Sales										
$99,999 or less	7.5	-0.4	3.0	3.3	2.1	16.8	-7.3	2.1	1.7	-1.7
$100,000-$249,999	8.7	0.7	5.3	5.1	5.4	11.6	-2.5	3.5	5.1	5.1
$250,000-$499,999	10.1	1.8	5.1	6.5	7.4	15.2	-0.2	5.0	7.4	8.1
$500,000 or more	10.4	1.4	5.1	7.0	8.8	15.5	-1.3	4.9	8.5	11.8
Farm Size										
1,999 acres or less	7.6	0.2	4.0	5.0	5.2	11.7	-4.5	2.3	5.2	4.6
2,000 acres or more	10.3	2.3	6.2	6.5	7.0	16.4	0.0	6.8	7.7	7.5
Cropland Tenure										
Full tenant	12.1	0.0	6.0	5.9	6.6	22.6	-2.4	5.5	7.2	6.6
1-20 percent owned	9.6	0.8	5.0	6.3	7.6	17.7	-3.2	4.8	8.8	9.3
21-40 percent owned	7.6	1.6	4.1	6.1	6.5	11.0	-2.2	2.6	6.5	6.2
41 percent or more owned	8.0	1.6	5.3	6.1	5.1	12.2	-0.1	5.0	6.4	4.5
Net Farm Income										
$19,999 or less	1.2	-5.5	-1.5	-0.7	-0.7	-0.6	-30.8	-10.7	-7.7	-9.3
$20,000-$49,999	6.5	2.1	4.4	4.5	5.4	7.9	-0.2	3.0	3.2	4.4
$50,000-$99,999	11.5	4.8	7.9	7.9	9.1	19.6	4.7	9.5	10.8	11.6
$100,000 or more	15.3	7.5	11.4	10.5	12.6	25.9	8.7	16.1	14.3	17.7
Debt-to-Asset Ratio										
0-40 percent	9.5	1.6	5.2	6.8	7.1	10.9	0.5	5.6	7.1	7.4
41-70 percent	10.0	1.7	5.2	6.3	6.7	17.0	-2.5	4.9	7.9	7.4
71 percent or more	7.7	-1.1	3.7	3.7	3.6	16.6	-18.3	0.0	0.0	-0.7
Farmer Age										
39 years or younger	12.2	2.9	7.4	7.4	7.3	24.7	0.0	9.4	12.4	9.1
40-49 years	8.6	0.3	4.3	6.2	6.7	10.8	-4.3	2.8	7.7	7.5
50 years or older	7.7	0.8	4.5	4.3	4.5	9.9	-1.4	3.6	3.2	3.0

TABLE 8. OPERATING PROFIT MARGIN AND NET FARM INCOME PROFITABILITY MEASURES, QUARTILE VALUES FOR 2005, MEDIAN VALUES FOR 2004, AND 5-YEAR AVERAGE, 2000-2004, OF MEDIAN VALUES, NORTH DAKOTA FARM BUSINESS MANAGEMENT PROGRAM PARTICIPANTS.

Farm Group	2005 Upper Quartile	2005 Lower Quartile	2005 Median	2004 Median	Average of 2000-2004 Medians	2005 Upper Quartile	2005 Lower Quartile	2005 Median	2004 Median	Average of 2000-2004 Medians
	Operating Profit Margin(%)					Net Farm Income($)				
All Farms	22.5	2.9	12.9	15.1	15.9	84,203	15,702	42,286	44,912	40,997
Region										
Red River Valley	15.9	3.2	8.6	16.2	18.0	88,882	12,555	49,088	85,376	75,718
North Central	16.9	-2.3	7.3	14.5	16.2	60,985	3,681	29,520	42,479	41,006
South Central	26.6	11.0	18.2	12.9	14.1	111,933	25,871	61,039	38,218	34,391
West	27.5	5.1	17.4	17.2	15.2	88,042	20,417	43,987	48,605	34,527
Farm Enterprise										
Crop	16.4	-0.3	8.7	13.1	15.4	90,431	9,696	40,013	52,414	52,601
Livestock	36.2	16.0	24.5	19.9	17.3	87,005	20,583	41,190	35,376	26,383
Mixed	25.2	8.5	18.3	14.9	14.9	76,051	22,451	45,826	40,710	32,202
Farm Sales										
$99,999 or less	25.0	-1.0	14.7	14.2	9.1	23,390	2,288	13,209	14,359	11,292
$100,000-$249,999	23.4	1.6	13.0	14.1	15.6	51,685	9,851	31,267	32,405	33,470
$250,000-$499,999	22.3	4.3	12.3	15.7	17.4	89,296	26,614	56,585	64,692	63,915
$500,000 or more	21.1	3.7	12.9	16.8	18.3	168,697	43,029	101,555	140,901	139,783
Farm Size										
1,999 acres or less	20.9	0.8	9.7	14.2	14.3	51,957	7,566	25,619	27,136	29,291
2,000 acres or more	24.7	6.0	15.1	15.7	17.7	108,141	34,805	65,973	62,452	57,343
Cropland Tenure										
Full tenant	22.3	0.1	9.9	11.1	12.1	61,909	8,414	32,007	33,996	31,600
1-20 percent owned	18.6	1.6	10.4	12.6	14.7	92,241	16,826	52,796	57,557	55,796
21-40 percent owned	19.4	4.3	11.3	14.6	16.2	92,950	22,153	45,614	60,924	48,225
41 percent or more owned	28.0	6.4	18.2	19.6	18.8	85,672	17,646	45,320	42,590	35,488
Net Farm Income										
$19,999 or less	2.8	-15.2	-3.2	-1.6	-2.0	11,006	-16,897	479	3,514	2,152
$20,000-$49,999	17.4	5.2	10.3	11.7	14.7	41,277	26,049	33,563	33,560	33,793
$50,000-$99,999	26.2	12.1	17.8	19.0	21.6	84,158	61,349	71,295	69,289	68,710
$100,000 or more	34.3	17.7	23.6	25.5	27.2	192,309	120,480	147,153	146,530	145,540
Debt-to-Asset Ratio										
0-40 percent	26.3	4.6	15.1	17.8	19.9	123,239	32,630	70,525	81,203	67,732
41-70 percent	23.4	4.5	13.5	16.3	17.2	81,199	18,949	46,319	49,598	46,115
71 percent or more	17.4	-1.7	8.4	8.2	8.2	42,928	-114	20,475	21,121	18,087
Farmer Age										
39 years or younger	25.7	6.3	14.6	17.6	16.8	68,002	16,876	39,288	41,952	37,366
40-49 years	21.1	0.7	10.9	14.1	15.9	91,370	13,281	47,234	57,181	52,472
50 years or older	22.6	2.7	12.9	14.0	14.9	88,044	17,638	44,435	38,842	33,240

TABLE 9. REPAYMENT CAPACITY MEASURES, QUARTILE VALUES FOR 2005, MEDIAN VALUES FOR 2004, AND 5-YEAR AVERAGE, 2000-2004, OF MEDIAN VALUES, NORTH DAKOTA FARM BUSINESS MANAGEMENT EDUCATION PROGRAM PARTICIPANTS.

Farm Group	2005 Upper Quartile	2005 Lower Quartile	2005 Median	2004 Median	Average of 2000-2004 Medians	2005 Upper Quartile	2005 Lower Quartile	2005 Median	2004 Median	Average of 2000-2004 Medians
	Term Debt Coverage Ratio					Term Debt and Capital Repayment Margin($)				
All Farms	2.28	0.61	1.33	1.52	1.40	45,715	-19,297	10,110	18,752	13,692
Region										
Red River Valley	2.13	0.39	1.33	1.55	1.79	43,121	-28,954	826	31,364	38,671
North Central	1.75	0.16	0.91	1.32	1.27	22,544	-36,040	-3,769	10,573	7,850
South Central	3.31	1.20	1.87	1.48	1.40	78,220	5,899	26,677	21,406	13,432
West	2.17	0.92	1.55	1.65	1.32	46,174	-3,828	19,893	21,530	10,930
Farm Enterprise										
Crop	2.19	0.34	1.10	1.44	1.51	44,193	-29,073	2,744	16,055	18,898
Livestock	2.65	1.16	1.66	1.70	1.28	49,404	5,469	16,788	24,441	7,675
Mixed	2.23	0.92	1.52	1.42	1.29	43,527	-5,548	14,142	15,843	9,425
Farm Sales										
$99,999 or less	2.15	0.61	1.37	1.56	1.12	14,640	-4,471	6,503	8,237	1,668
$100,000-$249,999	1.96	0.54	1.21	1.23	1.22	24,564	-18,399	7,517	8,418	7,608
$250,000-$499,999	2.41	0.61	1.23	1.59	1.59	54,319	-19,844	11,930	29,194	26,724
$500,000 or more	2.98	0.61	1.76	1.65	1.96	118,998	-36,437	44,244	51,537	68,874
Farm Size										
1,999 acres or less	2.09	0.47	1.20	1.44	1.30	24,592	-22,115	5,279	10,586	7,780
2,000 acres or more	2.56	0.71	1.48	1.61	1.53	66,335	-16,260	23,741	30,292	23,084
Cropland Tenure										
Full tenant	3.25	0.63	1.45	1.58	1.42	35,943	-15,618	9,915	9,470	7,895
1-20 percent owned	2.14	0.56	1.27	1.20	1.42	49,646	-25,060	10,859	9,618	16,247
21-40 percent owned	2.11	0.61	1.27	1.42	1.46	51,168	-22,103	8,921	20,890	18,385
41 percent or more owned	2.20	0.60	1.32	1.66	1.36	47,212	-18,956	12,610	25,676	13,351
Net Farm Income										
$19,999 or less	1.17	-0.36	0.49	0.50	0.54	2,816	-46,140	-22,197	-13,040	-12,984
$20,000-$49,999	1.73	0.61	1.09	1.17	1.22	20,194	-18,535	2,461	5,612	6,833
$50,000-$99,999	2.53	1.13	1.54	1.64	1.79	49,979	7,840	26,068	30,711	32,140
$100,000 or more	5.11	1.94	2.84	2.56	2.81	153,613	58,125	105,372	79,059	94,514
Debt-to-Asset Ratio										
0-40 percent	4.49	1.11	2.24	2.82	2.71	83,321	3,639	39,814	51,384	41,141
41-70 percent	1.98	0.53	1.21	1.41	1.36	40,289	-21,315	8,062	16,499	14,020
71 percent or more	1.49	0.37	0.87	0.92	0.82	15,769	-28,953	-6,160	-2,855	-7,295
Farmer Age										
39 years or younger	2.54	0.82	1.40	1.73	1.48	39,488	-8,803	10,513	23,846	14,118
40-49 years	1.94	0.53	1.17	1.41	1.40	44,141	-25,581	6,232	20,220	16,683
50 years or older	2.59	0.55	1.41	1.35	1.32	52,437	-22,373	14,428	10,582	10,470

TABLE 10. ASSET TURNOVER AND OPERATING EXPENSE AND DEPRECIATION EXPENSE EFFICIENCY MEASURES (AS A PERCENTAGE OF GROSS FARM INCOME), QUARTILE VALUES FOR 2005, MEDIAN VALUES FOR 2004, AND 5-YEAR AVERAGE, 2000-2004, OF MEDIAN VALUES, FARM BUSINESS MANAGEMENT EDUCATION PROGRAM PARTICIPANTS.

	2005				Average of	2005				Average of	2005				Average of
Farm Group	Upper Quartile	Lower Quartile	Median	2004 Median	2000-2004 Medians	Upper Quartile	Lower Quartile	Median	2004 Median	2000-2004 Medians	Upper Quartile	Lower Quartile	Median	2004 Median	2000-2004 Medians
	Asset Turnover					Operating Expense(%)					Depreciation Expense (%)				
All Farms	.55	.30	.39	.40	.40	60.6	80.5	71.1	69.2	67.8	3.5	9.3	6.0	6.0	5.7
Region															
Red River Valley	.58	.34	.41	.48	.49	69.5	83.3	76.2	71.2	68.7	3.7	7.5	5.4	5.3	5.2
North Central	.53	.30	.39	.39	.39	67.8	86.3	76.2	69.6	67.3	2.9	8.8	5.8	5.6	5.0
South Central	.60	.30	.42	.39	.39	57.7	73.8	65.7	69.2	68.9	3.7	10.1	6.4	7.4	6.9
West	.45	.28	.34	.37	.32	54.9	70.5	62.3	64.0	66.3	4.0	12.4	7.1	7.6	6.8
Farm Enterprise															
Crop	.62	.34	.45	.47	.48	67.8	84.6	75.3	71.7	68.5	3.6	8.4	5.8	5.9	5.6
Livestock	.38	.22	.30	.29	.25	48.6	66.9	55.8	59.3	64.0	3.2	12.3	6.7	7.8	6.3
Mixed	.43	.29	.36	.34	.32	58.1	69.9	65.1	69.2	68.1	2.9	11.4	6.1	6.4	6.3
Farm Sales															
$99,999 or less	.40	.19	.29	.27	.24	50.9	74.2	60.5	58.0	62.8	1.9	12.4	6.5	7.1	6.6
$100,000-$249,999	.47	.28	.36	.37	.37	58.9	80.7	69.0	69.1	67.2	3.1	9.9	5.9	5.5	5.5
$250,000-$499,999	.61	.33	.44	.43	.45	64.0	80.1	73.0	70.2	68.4	3.5	9.1	5.9	6.4	5.9
$500,000 or more	.59	.36	.45	.46	.51	66.7	81.0	73.4	71.6	71.1	4.2	8.6	6.2	6.1	5.5
Farm Size															
1,999 acres or less	.53	.28	.38	.40	.38	61.5	81.9	72.4	69.4	67.3	3.0	9.6	5.9	5.8	5.8
2,000 acres or more	.56	.31	.40	.41	.41	59.8	79.4	70.3	69.1	68.1	3.9	8.9	6.0	6.3	5.7
Cropland Tenure															
Full tenant	.89	.38	.55	.56	.56	59.0	81.7	72.9	72.3	70.2	2.8	10.0	5.2	6.1	5.6
1-20 percent owned	.65	.42	.53	.56	.52	66.4	83.7	74.6	73.4	71.2	3.6	7.6	5.2	5.3	5.3
21-40 percent owned	.47	.33	.38	.41	.40	64.8	78.4	72.6	71.1	68.3	4.1	8.9	6.3	6.0	5.6
41 percent or more owned	.36	.24	.28	.30	.27	55.9	76.1	64.4	61.7	63.0	3.2	10.3	6.6	6.5	6.2
Net Farm Income															
$19,999 or less	.52	.27	.36	.36	.31	75.1	94.1	86.7	81.7	80.4	3.7	10.7	6.6	7.1	7.4
$20,000-$49,999	.49	.30	.38	.39	.39	61.3	77.3	71.3	71.7	67.7	3.1	10.3	5.9	5.6	5.3
$50,000-$99,999	.57	.30	.41	.43	.45	57.9	73.8	68.0	65.9	63.7	2.5	8.8	5.4	5.4	5.2
$100,000 or more	.59	.35	.45	.43	.47	55.6	68.0	63.3	63.1	60.7	4.1	8.0	5.7	6.1	5.1
Debt-to-Asset Ratio															
0-40 percent	.45	.28	.36	.36	.35	57.4	76.2	67.8	64.9	63.0	4.2	10.1	7.1	6.8	6.5
41-70 percent	.57	.30	.39	.41	.41	59.2	79.3	70.6	68.7	66.9	3.3	8.4	5.6	5.5	5.2
71 percent or more	.65	.34	.47	.46	.45	66.0	85.3	75.1	75.9	75.0	3.0	9.4	5.0	5.8	5.4
Farmer Age															
39 years or younger	.63	.34	.44	.47	.46	58.0	77.7	69.5	65.9	67.2	2.5	7.3	4.9	5.2	5.1
40-49 years	.57	.33	.41	.42	.43	66.4	83.1	73.8	71.1	68.9	3.6	9.7	6.0	6.1	5.8
50 years or older	.45	.25	.34	.33	.31	59.6	79.9	69.9	69.7	66.4	4.1	10.2	7.0	6.4	6.4

TABLE 11. INTEREST EXPENSE AND FARM INCOME EFFICIENCY MEASURES (AS A PERCENTAGE OF GROSS FARM INCOME), QUARTILE VALUES FOR 2005, MEDIAN VALUES FOR 2004, AND 5-YEAR AVERAGE, 2000-2004, OF MEDIAN VALUES, NORTH DAKOTA FARM BUSINESS MANAGEMENT EDUCATION PROGRAM PARTICIPANTS.

	2005				Average of	2005				Average of
Farm Group	Upper Quartile	Lower Quartile	Median	2004 Median	2000-2004 Medians	Upper Quartile	Lower Quartile	Median	2004 Median	2000-2004 Medians
	Interest Expense(%)					Net Farm Income (%)				
All Farms	3.6	9.0	6.0	5.6	6.6	25.5	6.8	16.0	18.6	18.2
Region										
Red River Valley	2.8	7.4	4.9	4.0	4.8	18.9	4.2	11.7	18.9	20.1
North Central	4.0	9.3	6.5	5.8	7.0	22.0	1.8	12.5	19.0	20.2
South Central	2.9	8.6	5.2	5.4	6.4	30.1	13.7	20.1	16.6	16.0
West	4.6	9.4	7.4	6.8	8.1	31.1	12.9	20.0	19.9	17.1
Farm Enterprise										
Crop	3.1	7.9	5.1	4.7	5.7	20.0	4.2	13.2	17.5	18.9
Livestock	5.1	11.4	7.7	7.5	9.5	38.4	16.8	28.2	21.0	17.8
Mixed	4.5	10.1	7.3	6.5	8.2	27.7	12.7	20.0	17.8	17.4
Farm Sales										
$99,999 or less	4.2	14.0	9.3	8.7	10.9	34.1	4.6	20.6	21.1	16.9
$100,000-$249,999	4.5	10.8	7.9	6.6	7.3	27.7	6.1	17.1	17.6	18.7
$250,000-$499,999	3.3	7.7	5.6	5.3	5.9	24.3	8.1	15.0	19.0	18.5
$500,000 or more	2.7	6.4	4.4	3.6	4.5	21.6	6.4	15.5	17.5	18.0
Farm Size										
1,999 acres or less	3.5	9.8	6.4	5.8	7.0	23.8	4.8	14.9	18.1	18.1
2,000 acres or more	3.7	8.2	5.7	5.4	6.4	26.4	8.5	17.2	18.7	18.4
Cropland Tenure										
Full tenant	2.2	6.6	4.0	4.2	5.1	30.1	5.8	16.8	17.3	17.9
1-20 percent owned	3.6	7.5	5.1	4.4	5.5	21.6	5.7	14.2	16.2	16.9
21-40 percent owned	4.0	8.9	6.5	6.4	7.2	21.3	7.7	14.9	17.3	17.9
41 percent or more owned	4.6	11.0	7.7	7.5	9.1	29.9	9.8	21.0	21.4	20.0
Net Farm Income										
$19,999 or less	5.1	12.0	7.8	8.3	10.0	6.4	-8.7	0.4	2.3	1.6
$20,000-$49,999	3.7	9.3	6.3	5.9	7.2	22.2	10.3	15.4	15.2	17.7
$50,000-$99,999	3.7	8.7	6.0	4.8	5.7	30.2	15.1	21.8	22.5	24.6
$100,000 or more	2.5	5.5	4.0	3.7	4.1	36.4	20.1	26.3	27.1	30.0
Debt-to-Asset Ratio										
0-40 percent	1.6	4.5	3.1	2.9	3.4	32.2	12.3	21.4	24.0	26.0
41-70 percent	4.8	8.9	6.8	6.3	7.5	25.5	8.2	16.1	18.6	18.8
71 percent or more	6.5	12.1	8.7	8.0	9.4	18.3	0.0	9.5	10.8	9.4
Farmer Age										
39 years or younger	3.8	9.3	6.1	5.7	6.5	29.9	11.0	18.3	22.9	19.7
40-49 years	3.7	8.5	6.0	5.5	6.3	21.1	4.8	14.0	17.7	18.2
50 years or older	3.1	9.2	5.9	5.8	7.7	26.7	8.0	16.8	16.1	16.8

APPENDIX

DEFINITION OF FINANCIAL MEASURES

Sixteen measures of financial performance were calculated for each farm in this study. The recommendations of the farm financial standards council for calculating the ratios were followed as closely as possible, from the Finpack data.

The farm financial standards council 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 un-depreciated 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. Five percent of gross revenue plus a charge per full time operator ($15,000 in the 2001-2004 analysis and $18,000 in 2005) 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. Five percent of gross revenue plus a charge per full time operator ($15,000 in the 2001-2004 analysis and $18,000 in 2005) 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 non-farm 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 non-farm 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.

Interpretation: 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.

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