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**Financial Characteristics of
North Dakota Farms
2001-2010**

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TABLE OF CONTENTS

List of Tables	ii
List of Figures.	iii
Abstract.	iv
Introduction.	1
Source of Data.	1
Interpretation of Results..	2
Farm Classifications and Highlights.	4
All Farms.	4
Region.	6
Farm Enterprise..	7
Farm Sales..	9
Farm Size.	11
Cropland Tenure.	12
Net Farm Income.	14
Debt-to-Asset Ratio.	15
Farmer Age.	16
Appendix: Definition of Financial Measures.	27
References.	30

LIST OF TABLES

Table 1.	Median farm size, farm operator age, and financial factors of farms participating in the North Dakota Farm Business Management Education Program, 2001-2010.	3
Table 2.	Farm classifications and percent distribution of farm types within regions, North Dakota Farm Business Management Education Program, 2010	5
Table 3.	Current assets and current liabilities, quartile values for 2010, median values for 2009, and 5-year average, 200-2009, of median values, North Dakota Farm Business Management Education program participants..	18
Table 4.	Liquidity measures, quartile values for 2010, median values for 2009, and 5-year average, 2005-2009, of median values, North Dakota Farm Business Management Education Program participants..	19
Table 5.	Total assets and total liabilities, quartile values for 2010, median values for 2009 and 5-year average, 2005-2009, of median values, North Dakota Farm Business Management Education Program participants.	20
Table 6.	Solvency measures, quartile values for 2010, median values for 2009, and 5-year average, 2005-2009, of median values, North Dakota Farm Business Management Education Program participants.	21
Table 7.	Rate of return on assets and rate of return on equity profitability measures, quartile values for 2010, median values for 2009, and 5-year average, 2005-2009, of median values, North Dakota Farm Business Management Education program participants.	22
Table 8.	Operating profit margin and net farm income profitability measures, quartile values for 2010, median values for 2009, and 5-year average, 2005-2009, of median values, North Dakota Farm Business Management Education Program participants.	23
Table 9.	Repayment capacity measures, quartile values for 2010, median values for 2009, and 5-year average, 2005-2009, of median values, North Dakota Farm Business Management Education Program participants.	24
Table 10.	Asset turnover, and operating expense and depreciation expense efficiency measures (as a percentage of gross farm income), quartile values for 2010, median values for 2009, and 5-year average, 2005-2009, of median values, North Dakota Farm Business Management Education Program participants.	25
Table 11.	Interest expense and farm income efficiency measures (as a percentage of gross farm income), quartile values for 2010, median values for 2009, and 5-year average, 2005-2009, of median values, North Dakota Farm Business Management Education Program participants.	26

LIST OF FIGURES

Figure 1.	Median total farm assets and liabilities by farm type, 2010, N.D. Farm Mgt Program.	8
Figure 2.	Median net farm income by farm type, 2001-2010, N.D. Farm Mgt Program.	8
Figure 3.	Median rate of return on assets by farm type, 2001-2010, N.D. Farm Mgt Program.	8
Figure 4.	Median asset turnover ratio by farm type, 2001-2010, N.D. Farm Mgt Program.	8
Figure 5.	Median total farm assets and liabilities by farm sales, 2010, N.D. Farm Mgt Program. . . .	10
Figure 6.	Median net farm income by farm sales, 2001-2010, N.D. Farm Mgt Program.	10
Figure 7.	Median term debt coverage ratio by farm sales, 2001-2010, N.D. Farm Mgt Program. . . .	10
Figure 8.	Median interest expense as a percent of gross revenue, by farm sales, 2001-2010, N.D. Farm Mgt Program.	10
Figure 9.	Median net farm income by crop land tenure, 2001-2010, N.D. Farm Mgt Program.	13
Figure 10.	Median asset turnover ratio by crop land tenure, 2001-2010, N.D. Farm Mgt Program. . . .	13
Figure 11.	Median net farm income by debt-to-asset group, 2001-2010, N.D. Farm Mgt Program. . . .	13
Figure 12.	Median net farm income as a percent of gross revenue by debt-to-asset group, 2001-2010, N.D. Farm Mgt Program.	13
Figure 13.	Median total farm assets and liabilities by farmer age, 2010, N.D. Farm Mgt Program. . . .	17
Figure 14.	Median net farm income by farmer age, 2001-2010, N.D. Farm Mgt Program.	17
Figure 15.	Median term debt coverage ratio by farmer age, 2001-2010, N.D. Farm Mgt Program. . . .	17
Figure 16.	Median net farm income as a percent of gross revenue, by farmer age, 2001-2010, N.D. Farm Mgt Program.	17

Abstract

The performance of over 500 North Dakota farms, 2001-2010, 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, 2005-2009, are also presented. In 2010, median and average acreage per farm was 2,010 and 2,579, respectively. Median and average cash farm revenue was \$469,023 and \$631,920, respectively. Over 70% of farms were crop farms and 47 percent of farms had gross sales exceeding \$500,000. Median age of farm operators was 47.

Median net farm income in 2010 was \$174,010, up sharply from \$47,547 in 2009. Financial measures for 2010, 2008 and 2007 were much superior to those in other years for the 2001-2010 period. The Red River Valley and crop farms typically had stronger profitability, solvency, and repayment capacity from 2001 to 2010 than other regions and farm types, respectively. Exceptions were 2007 and 2009 when the north central region had the best regional performance and 2005 when the south central region and livestock farms had better performance. The 2010 median net farm income was \$239,426 for crop farms and \$48,775 for livestock farms.

Farms with sales less than \$500,000 were over twice as likely to have debt-to-asset higher than 70 percent as farms with sales greater than \$500,000. Farms that own some crop land, but less than 40 percent were 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 increased with farmer age. Median net farm income as a percent of gross revenue was the highest of the decade in 2010, 33.1 percent, and the lowest in 2009, 13.4 percent. It was 24 percent in 2008 and 30.6 percent in 2007 after ranging from 22.4 to 14 percent between 2001 and 2006

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. 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), which was formed by the American Bankers Association in 1989, has provided recommendations of standards for financial statement construction and the calculation measures of financial performance. Sixteen of these measures are the basis for the benchmarks presented in this publication. The Appendix has an explanation of the financial measures used in this study.

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, 2001-2010. 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 2001-2010, 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 2010, there were 31,900 farms in North Dakota with agricultural production of at least \$1,000. Only 3,900, or 12%, had gross receipts greater than \$500,000, whereas 47% of the 543 farms in this study exceed that sales volume (median gross sales was \$469,023). 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 57 for the state average.

INTERPRETATION OF RESULTS

Each financial measure was calculated for each farm. Refer to the Appendix for definitions of the financial measures and an explanation of asset valuation and accrual adjustments.

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 50%, which is worse than the median value of 41.8% (shown on table 6) 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 2010, there are only 66 mixed livestock-crop enterprise farms, 89 livestock farms, and 91 farms in the West region.

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. Lastly, the livestock farm type is dominated by the beef cow-calf enterprise.

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 \$250,000 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 2010 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, 2001-2010.

	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001
Number of Farms	543	537	532	531	509	520	522	513	513	532
	-----Median-----									
Age of Operator	47	47	47	47	46	46	46	45	44	44
Farm Size (acres)	2,010	1,995	2,001	2,000	1,966	1,998	2,002	1,995	2,033	1,937
Gross Cash Revenue	469,023	430,321	464,464	353,252	281,751	281,667	265,524	247,757	220,781	216,697
Total Farm Assets	1,124,263	1,019,147	995,609	810,426	688,802	684,181	652,575	612,437	575,606	543,860
Total Farm Liabilities	441,482	444,169	419,979	371,180	348,102	338,657	323,805	305,268	284,828	287,068
Current Ratio	1.9	1.4	1.8	1.7	1.2	1.2	1.3	1.4	1.3	1.2
Working Capital	151,933	72,683	128,854	103,063	20,660	27,812	35,264	39,712	29,099	21,910
Debt-to-asset (%)	46.7	51.2	48.4	50.0	57.5	54.8	54.3	54.3	53.3	55.5
Rate of Return on Farm Assets (%)	14.9	4.0	10.6	15.7	4.7	4.9	6.1	7.0	5.7	4.1
Rate of Return on Farm Equity (%)	23.6	3.0	15.8	25.3	2.4	4.3	6.7	8.4	4.4	3.2
Operating Profit Margin (%)	29.8	9.7	20.8	29.3	12.2	12.9	15.1	17.4	14.5	12.1
Net Farm Income	174,010	47,547	114,520	127,791	35,980	42,286	44,912	49,181	38,079	27,729
Term Debt Coverage Ratio	3.7	1.2	2.7	3.3	1.2	1.3	1.5	1.6	1.3	1.0
Term Debt & Capital Repayment Margin (\$)	119,428	6,360	67,276	86,825	5,378	10,110	18,752	21,012	10,628	301
Asset Turnover Ratio	.48	.40	.52	.56	.38	.39	.40	.42	.37	.38
Operating Expense Ratio (%)	57.5	75.6	66.9	58.2	72.5	71.1	69.2	66.8	68.8	70.9
Depreciation Expense Ratio (%)	4.2	5.2	4.1	4.3	5.6	6.0	6.0	5.9	5.6	5.9
Interest Expense Ratio (%)	3.7	4.9	4.4	5.2	7.2	6.0	5.6	5.6	6.6	7.6
Net Farm Income Ratio (%)	33.1	13.4	24.2	30.6	14.2	16.0	18.6	19.6	17.3	14.0

FARM CLASSIFICATION AND HIGHLIGHTS

ALL FARMS

Highlights

- Some general trends over the past ten years, 2001-2010, for farms enrolled in the North Dakota Farm Business Management Education Program are:
 - farms are getting larger as measured by median gross revenue which more than doubled, and by median farm assets and liabilities, which increased 107% and 54%, to \$1,124,263 and \$441,482, respectively.
 - farmers are getting older; the median age increased from 44 to 47.
- Median net farm income was \$174,010 in 2010, \$47,547 in 2009, \$114,520 in 2008, and \$127,791 in 2007. Several factors allowed 2010 to surpass the outstanding financial performance of 2007 and 2008. Corn and sugarbeets were record yields and barley, canola, and spring wheat were second highest in history. Grain and livestock prices increased to very high levels and costs were flat to down. Federal disaster payments for the 2008 crop year were determined and paid in 2010.
- In 2009, lower crop prices, continued high costs and low livestock profit resulted in sharply lower financial performance despite record yields for spring wheat, durum, barley, canola, and field peas. Crop prices set record highs during the 2007-2008 period. Financial performance in 2006 was the second lowest in the 2001-2010 period because of higher input costs and severe drought in the west and portions of central North Dakota. Profit declined in 2005 from 2004 despite record corn, soybean, sunflower, and flax yields and high cattle prices. Portions of the state, particularly the northeast, had production problems.
- Financial performance in 2004 was strong albeit down from 2003. Poor row crop yields were offset by crop insurance, high spring wheat, canola and field pea yields and strong beef cow-calf profit and flax prices. Median net farm income in 2003, \$49,181, was the fourth highest in the 2001-2010 period. 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. Profit increased 37% in 2002 from higher prices and lower production costs. Profit in 2001 was lowest in 2001-2010 period because of lower government subsidies and higher crop production costs with continued low commodity prices.
- Median current ratio was 1.9 in 2010, 1.8 in 2008, and 1.7 in 2007. It was 1.4 in 2009, similar to the 1.2 to 1.4 range from 2001-2006. Median debt-to-asset improved to 46.7% in 2010, the best in the 2001-2010 period, from 51.2% in 2009. It was 48.4% in 2008, 50% in 2007, and 57.5% in 2006 which was the worst during the past 10 years.
- In 2010, median rates of return on assets and equity increased to 14.9% and 23.6%, respectively, from 4.0% and 3.0%, respectively, in 2009. In the 2001-2010 period, the years that ROE exceeded ROA, which indicated that debt capital was employed profitably, were 2003, 2004, 2007, 2008, and 2010.
- In 2010, median term debt coverage ratio and term debt and capital repayment margin were ten year highs at 3.9 and \$119,428, respectively, up from 1.2 and \$6,360, respectively, in 2009. Prior to 2007, the ten year highs were 1.6 and \$21,012, respectively, in 2003.
- Interest expense as a percent of gross revenue improved in 2007, to 5.2%, in 2008, to 4.4%, and in 2010, to 3.7% because of much stronger gross revenue. It had increased in 2005 and 2006 because of higher debt and interest rates. Median net farm income as a percent of gross revenue was the highest of the decade in 2010, 33.1%, and lowest in 2009, 13.4%. It was 24.2% in 2008 and 30.6% in 2007 after ranging from 22.4% and 14.0% between 2001 and 2006.

TABLE 2. FARM CLASSIFICATIONS AND PERCENT DISTRIBUTION OF FARM TYPES WITHIN REGIONS, NORTH DAKOTA FARM BUSINESS MANAGEMENT EDUCATION PROGRAM, 2010.

Farm Group Category	Number of Farms (543)	Percentage	Farm Group Category Breakout by Region			
			Red River Valley	North Central	South Central	West
Region			109	180	163	91
Red River Valley	109	20				
North Central	180	33				
South Central	163	30				
West	91	17				
Farm Enterprise			-----percentage-----			
Crop	388	71	99	78	65	37
Livestock	89	16	1	13	18	39
Mixed	66	12	0	9	17	24
Farm Sales						
\$249,999 or less	145	27	16	22	28	47
\$250,000 - \$499,999	141	26	21	30	27	22
\$500,000 - \$999,999	162	30	38	33	27	19
\$1,000,000 or more	95	17	26	14	18	12
Farm Size						
1,999 acres or less	268	49	77	41	52	29
2,000 acres or more	275	51	23	59	48	71
Cropland Tenure						
Full tenant	129	24	25	22	25	26
1-20 percent owned	115	21	31	25	12	20
21-40 percent owned	132	24	28	23	31	14
41 percent or more owned	155	29	17	30	32	39
Farm Income						
\$49,999 or less	101	19	10	15	18	37
\$50,000 - \$99,999	82	15	9	16	17	16
\$100,000 - \$199,999	119	22	24	22	21	20
\$200,000 or more	241	44	57	47	44	26
Debt-to-asset Ratio						
0 - 40 percent	221	41	48	44	40	26
41 - 70 percent	222	41	40	41	40	42
71 percent or more	100	18	12	14	20	32
Farmer Age						
39 years or younger	179	33	33	34	32	32
40 - 49 years	133	24	20	27	24	25
50 years or older	231	43	47	38	44	43

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 little representation. Locations of North Dakota Farm Business Management programs that participated in the 2010 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, Glen Ullin and Williston

Highlights

- In 2010 the median farm size increased from the Red River Valley (1,329 acres, all crop land) to the west region (3,005 acres, including pasture). Median farm size was 2,181 acres (1,887 crop acres) in the north central region and 1,880 acres (1,341 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 larger total farm sales, assets, and liabilities than farms in other regions.
- In 2010, the incidence of livestock and mixed enterprise farms ranged from only 1% in the Red River Valley to 63% in the west.
- The median net farm income for the Red River Valley went from its lowest in the decade, \$41,555, in 2009 because of lower crop prices, maturity problems with corn, and low quality wheat, to the highest, \$240,087, in 2010. Median net farm income in the north central and south central regions increased to \$177,275 and \$166,880, respectively, in 2010 from \$73,452 and \$37,422, in 2009.
- The median net farm income of the west region was \$85,945 compared to \$27,807 in 2009. In 2006, it had the lowest median net farm income, \$689, of any region over the past 10 years. The west had drought in 2006 and 2008 and livestock profit was low in 2006-2009.
- The median current ratio in 2010 ranged from 2.1 in the Red River Valley to 1.7 in the west region. The five year average, 2005-2009, median current ratio was 1.5 in all regions.
- In 2010, median debt-to-asset improved to 42% for the Red River Valley and about 46% in the central regions. The five year average, 2005-2009, median debt-to-asset ranged from 49.6% in the Red River Valley to 56.7% in the west region.
- The five year average, 2005-2009, median term debt coverage ratio ranged from 2.3 in the Red River Valley to 1.3 in the west region. The median term det coverage ratio increased sharply in 2010. It ranged from 4.3 in the Red River Valley to 3.0 in the west region.
- Only in 2010 and 2007 have any regions achieved median operating expense (all expenses except depreciation and interest) as a percent of gross revenue less than 60%. The only regions during the past decade with over 80% was 2009 in the Red River Valley and the west 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”. The “livestock” farm type is dominated by the beef cow-calf enterprise.

Highlights

- In 2009 and 2010, 71% of farms were classified as crop.
- In the west region 63% of farms were classified as livestock or mixed enterprise in 2010, compared to 1% in the Red River Valley, 22% in the north central and 35% in the south central regions.
- In every year, 2001-2010, crop farms were larger than livestock and mixed enterprise farms as measured by median total assets, total liabilities, and gross income. 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 2001.
- The best performance, by farm type, for every financial measure over the 2001-2010 period was achieved by crop farms, either in 2010 or 2007. For example, median rate of return on equity was 37% in 2007, 29.0% in 2010, and 21.7% in 2008. These far exceeded the fourth highest during the past 10 years of 12% which occurred in 2003 for crop farms.
- Livestock farms had their best financial performance in 2005. It is the only year in the 2001-2010 period where livestock farms had better solvency and rates of return on assets and equity than crop farms.
- In 2010, median net farm income increased to 10 year highs of \$239,426 for crop farms, \$48,775 for livestock farms, and \$76,648 for mixed enterprise farms. The largest percentage increase was for livestock farms, which had the largest year-to-year beef farm profit increase in two decades.
- A higher asset turnover ratio for crop farms is typical. In 2010, the median was .57, .30, and .34 for crop, livestock and mixed enterprise farms, respectively. The five year average, 2005-2009, median asset turnover was .53 for crop farms, .24 for livestock farms (predominantly beef cow-calf farms) and .32 for mixed enterprise farms.
- Crop farms had the highest median term debt coverage ratio, 4.21 in 2010, compared to 2.55 for mixed enterprise farms, and 2.29 for livestock farms. Livestock farms had the highest in 2005, 2004 and 2001 over the 2001-2010 period, compared to other farm types.
- In 2010, the median interest expense as a percent of gross revenue was 3.2% for crop farms, 5.9% for livestock farms, and 6.5% for mixed enterprise farms. Every year, 2001-2010, crop farms had the best measure.
- In 2010, crop farms had the best performance in converting gross income into net income, 35.6%, compared to other farm types. In 2009, livestock farms, at 4.0%, had the lowest of any farm type over the past 10 years. Livestock farms had the best ratio in 2001, 2004 and 2005.

Figure 1. Median Total Farm Assets and Liabilities by Farm Type, 2010, N.D. Farm Mgt Program

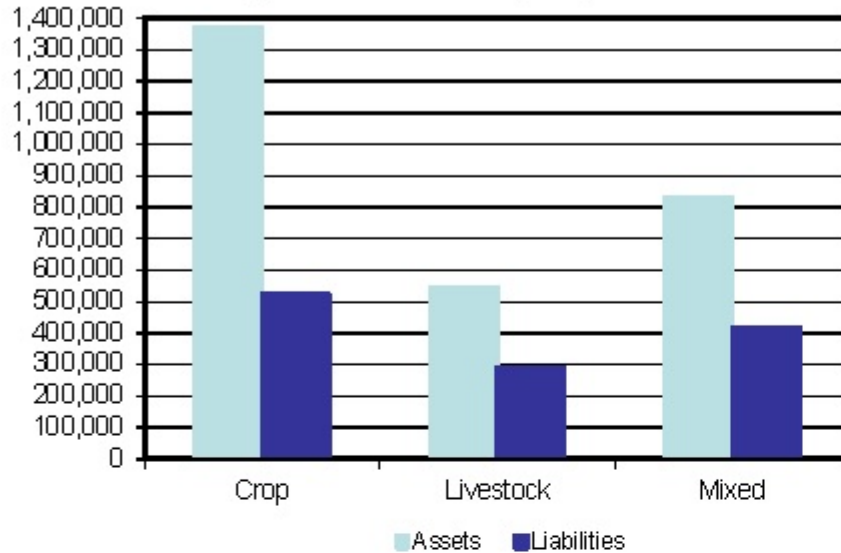


Figure 2. Median Net Farm Income by Farm Type, 2001-2010, N.D. Farm Mgt Program

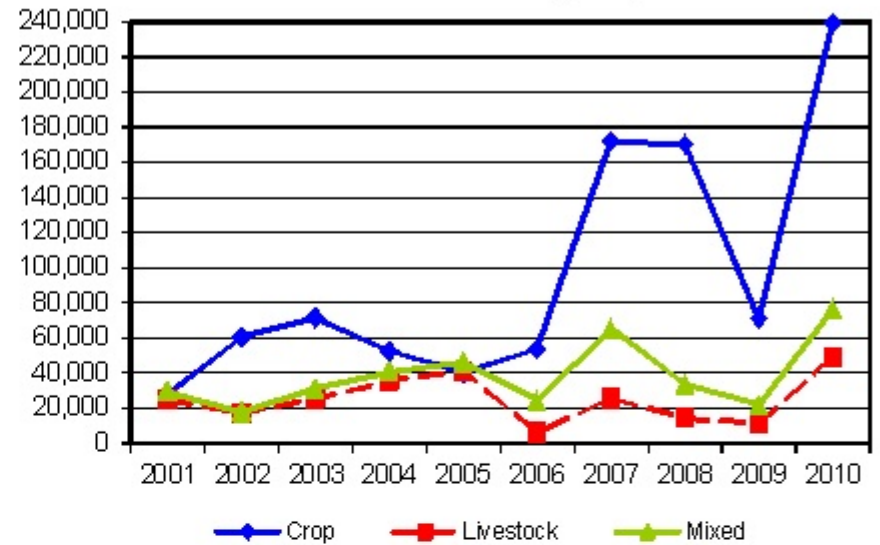


Figure 3. Median Rate of Return on Assets by Farm Type, 2001-2010, N.D. Farm Mgt Program

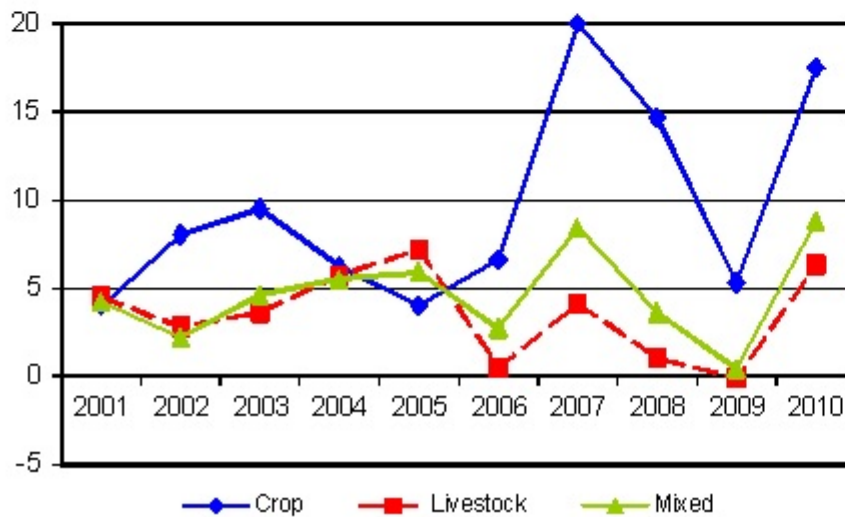
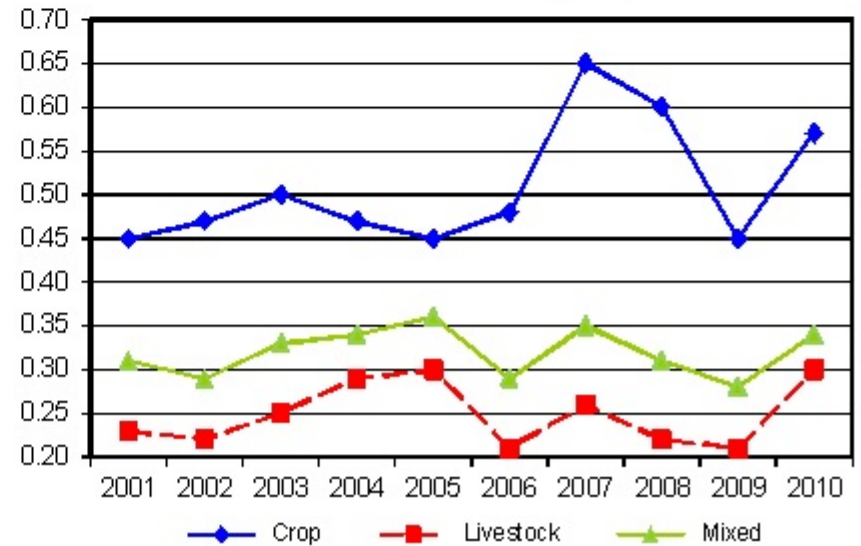


Figure 4. Median Asset Turnover Ratio by Farm Type, 2001-2010, N.D. Farm Mgt Program



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 \$249,000
 \$250,000 to \$499,999
 \$500,000 to 999,999
 \$1,000,000 or more

Highlights

- Median and average farm sales in 2010 of \$469,023 and \$631,920, respectively, were the highest over the past decade. In 2010, 47% of farms had sales greater than \$500,000.
- Gross sales are correlated to region and farm type. In 2010, 66% of Red River Valley farms had sales in excess of \$500,000, compared to 31% in the west region. Also, crop farms were over four times more likely to have sales in excess of \$500,000 than were livestock farms.
- 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 direct relationship between the level of gross sales and financial performance is typical.
- In 2010, median net farm income increased 270%, to \$43,503, for farms with less than \$250,000 sales, 187%, to \$140,892, for farms with sales \$250,000 to \$499,999, 220%, to \$274,954, for farms with sales \$500,000 to \$999,999, and 163%, to \$565,841, for farms with sales greater than \$1,000,000.
- Farms with low sales typically have worse solvency. The median debt-to-asset was 57.5%, 48.5%, 40.9%, and 39.2% for the lowest to highest farm sale groups, respectively, in 2010.
- Typically, repayment capacity is directly related to amount of sales. The five-year average, 2005-2009, median term debt coverage ratio was 1.2, 2.0, 2.5, and 2.9 for the lowest to highest farm sale categories, respectively. In 2010, farms had extremely high median term debt coverage ratios ranging from 2.6 for farms with less than \$250,000 sales to 4.6 for farms with sales greater than \$1,000,000
- Farms with greater sales use a smaller portion of gross revenue for interest expense. In 2010, the interest expense as a percent of gross revenue was 6.0%, 4.0%, 3.4%, and 2.7% for the lowest to highest farm sale groups, respectively.
- Debt capital is employed profitably if rate of return on equity exceeds the rate of return on assets. The five-year average, 2005-2009, median rates of return on equity and assets were 15.9% and 11.1%, respectively, for farms with greater than \$1,000,000 sales and only 2.8% and 3.7%, respectively, for farms with less than \$250,000 sales.

Figure 5. Median Total Farm Assets and Liabilities by Farm Sales, 2010, N.D. Farm Mgt Program

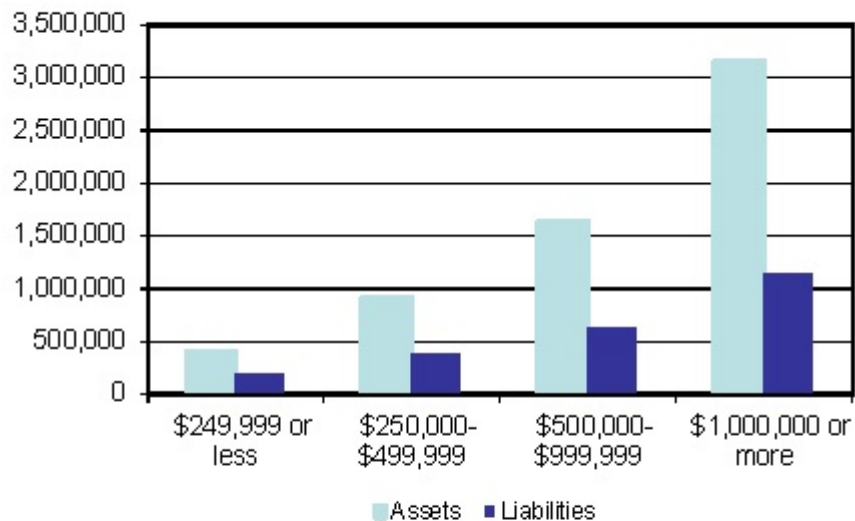


Figure 6. Median Net Farm Income by Farm Sales, 2001-2010, N.D. Farm Mgt Program

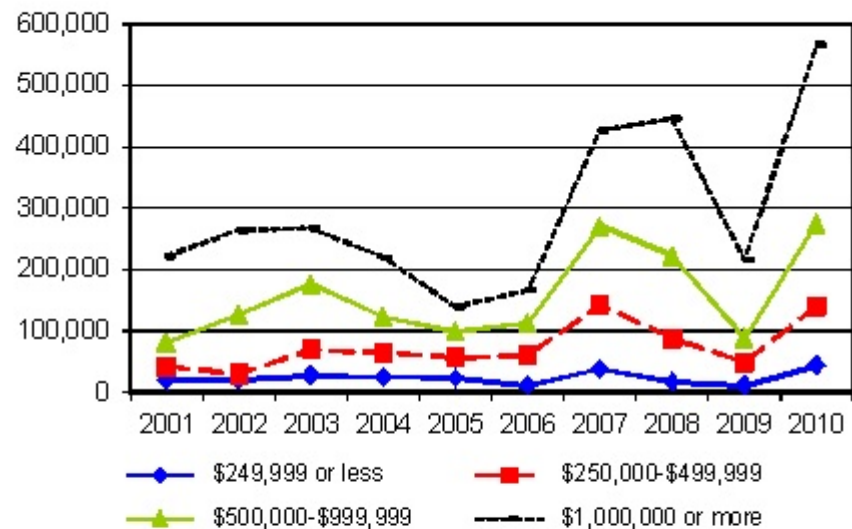


Figure 7. Median Term Debt Coverage Ratio by Farm Sales, 2001-2010, N.D. Farm Mgt Program

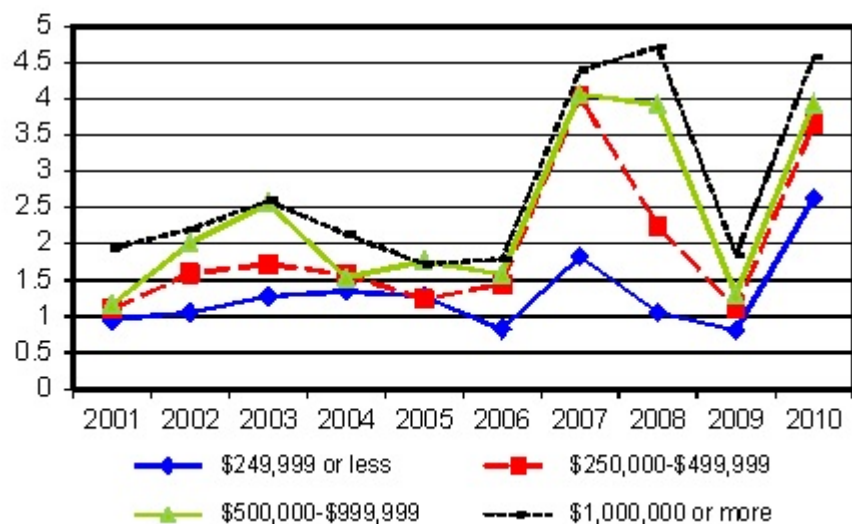
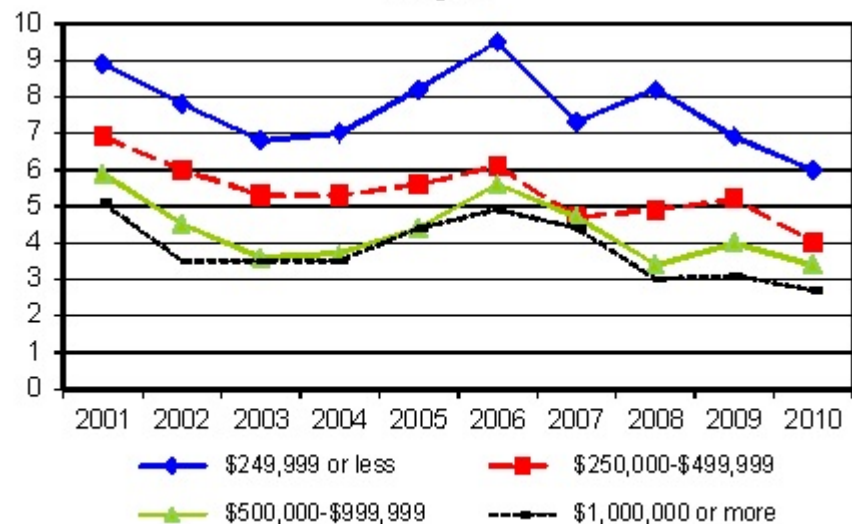


Figure 8. Median Interest Expense as a Percent of Gross Revenue, by Farm Sales, 2001-2010, N.D. Farm Mgt Program



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:

- Substantial ownership of crop land is less likely in the Red River Valley. In 2010, less than one out of five Red River Valley farms owned more than 40% of the crop land they operated, compared to one-third of farms in other regions.
- Crop land ownership increases with age. In 2010, farmers 50 years or older were three times more likely to own more than 40% of their crop land than young farmers. Four 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. Between one-third and one-half of livestock farms and mixed enterprise farms own more than 40% of the crop land that they operate, compared to about one-fourth of crop farms.
- In 2010, small farms (less than 2,000 acres) were much more likely than large farms (more than 2,000 acres) to own no crop land. However, both farm size groups were as likely to own over 40% of their crop land. Large farms were more likely to own 1 to 40% of crop land than smaller farms.
- In 2009 and 2010, farms that owned greater than 40% crop land had a slightly higher current ratio.
- Farms with greater crop land ownership typically have better solvency. The five year average, 2005-2009, median debt-to-asset ratio was 58.1% for farms with no crop land ownership, 53.8% for farms with 1-20% crop land ownership, 51.6% for farms with 21-40% crop land ownership, and 47.9% 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.
- 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.
- In 2010, median net farm income ranged from \$291,026 for farms with 1 to 20% crop land ownership to \$98,030 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 as a percent of gross revenue.

Figure 9. Median Net Farm Income by Crop Land Tenure, 2001-2010, N.D. Farm Mgt Program

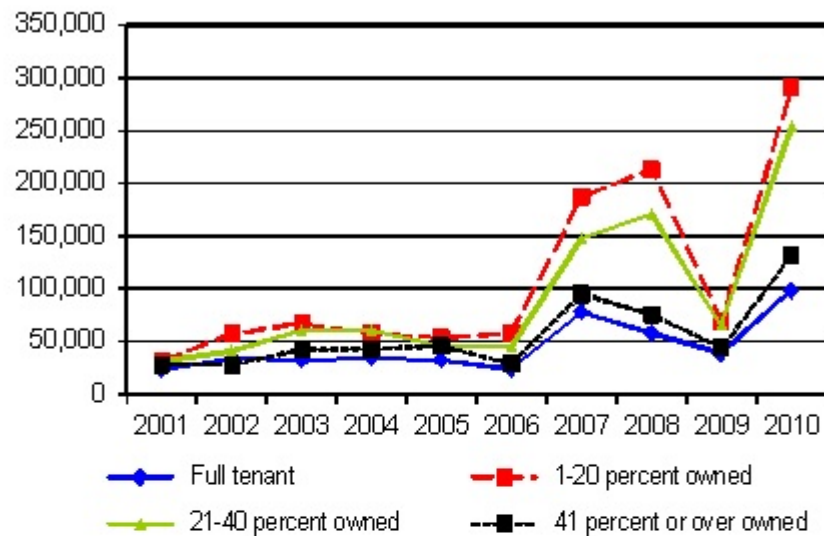


Figure 10. Median Asset Turnover Ratio by Crop Land Tenure, 2001-2010, N.D. Farm Mgt Program

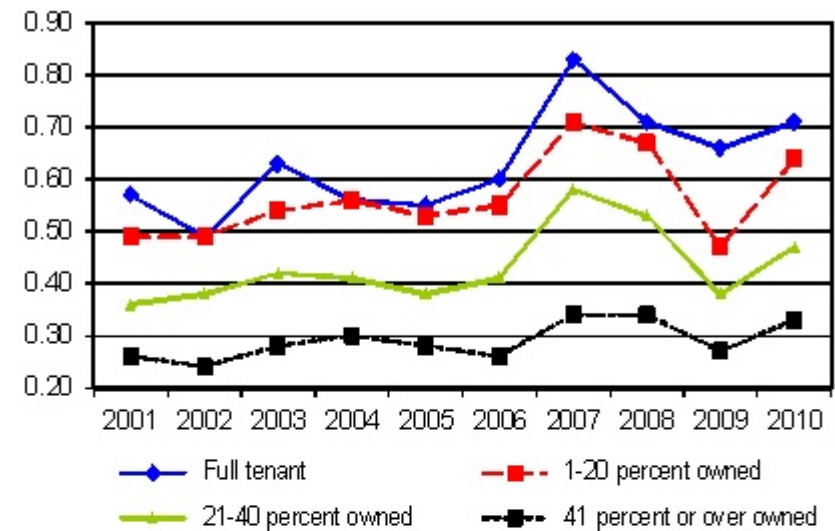


Figure 11. Median Net Farm Income by Debt-to-Asset Group, 2001-2010 N.D. Farm Mgt Program

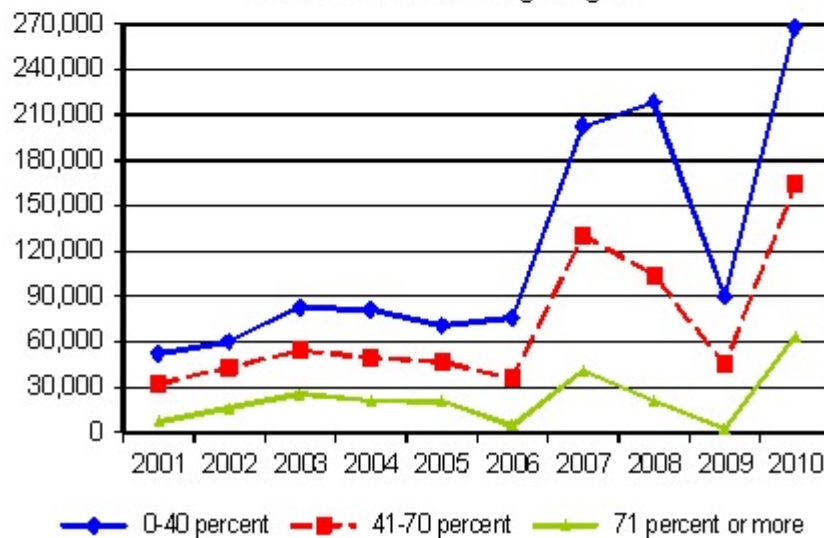
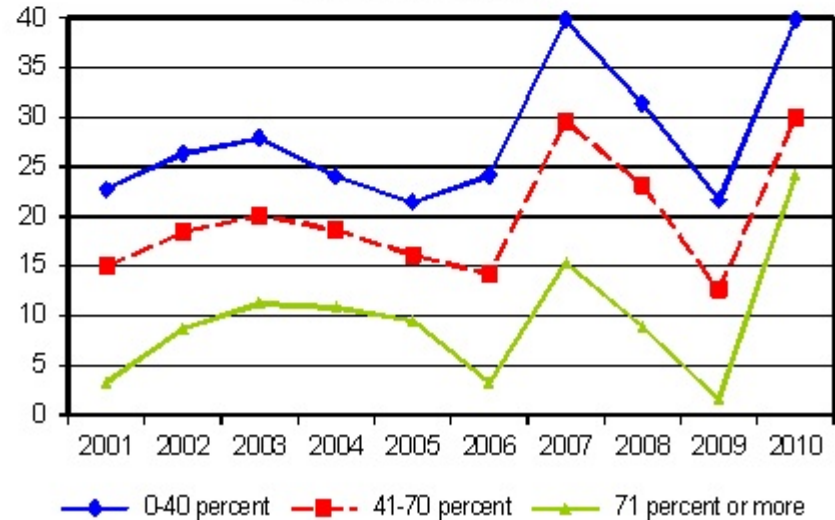


Figure 12. Median Net Farm Income as a Percent of Gross Revenue by Debt-to-Asset Group, 2001-2010, N.D. Farm Mgt Program



NET FARM INCOME

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

\$49,999 or less
\$50,000 - \$99,999
\$100,000 - \$199,999
\$200,000 or more

Highlights

- Farm profit is volatile. Year-to-year changes in median net farm income within regions and farm types averaged about 70% the past 10 years. The largest change occurred in 2010. Statewide, median net farm income increased 266% in 2010, but decreased 58% in 2009 and 10% in 2008, after increasing 255% in 2007.
- The four highest median net farm income in the 2001-2010 period were \$174,010 in 2010, \$127,791 in 2007, \$114,520 in 2008 and \$49,181 in 2003. The lowest was \$27,729 in 2001.
- The Red River Valley region had the highest median net farm income every year from 2001 to 2010, except for 2005, 2007 and 2009. The west region farms had the lowest median net farm income seven of the ten years.
- Typically, crop farms have been more profitable than livestock farms. The five year average, 2005-2009, median net farm income was \$101,317 for crop farms and \$19,721 for livestock farms.
- In 2010, 81% of crop farms had net farm income greater than \$100,000 compared to 22% of livestock farms. One-half of livestock farms earned less than \$50,000.
- As expected, net farm income is strongly associated with farm sales and farm size. In 2010, 94% of farms with sales greater than \$500,000 had net farm income greater than \$100,000, compared to 41% of farms with less than \$500,000 sales. About 80% of farms larger than 2,000 acres had net farm income greater than \$100,000, compared to 52% of smaller farms.
- In all but two years of the 2001 to 2010 period farmers 40 to 49 years old had higher median net farm income than farmers that were younger or older. The exceptions were older farmers in 2006 and 2009.
- Solvency, liquidity, repayment capacity, and financial efficiency were strongly correlated with net farm income.
- Low-debt farms (less than 40% debt-to-asset) are typically three to four times more likely to have net farm income in excess of \$100,000 than high-debt farms (greater than 70% debt).

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 all farms improved to 46.7% in 2010 from 51.2% in 2009. It was 48.4% in 2008 and 50.0% in 2007, after ranging from 53.3% to 57.5% between the years 2001 to 2006.
- The median debt-to-asset of farms in the north central region was the best in 2007 through 2009 compared to other regions. However, the Red River Valley had the best solvency in 2010 and from 2001 to 2006.
- Crop farms had the best solvency (lowest debt-to-asset) among farm types during the past ten years, except for livestock farms in 2005.
- Large farms (greater than 2,000 acres) and farms with sales greater than \$500,000 always had lower median debt-to-asset than other farm size and farm sales groups, respectively, during the 2001-2010 period.
- 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 2010, farms in the low, medium and high debt-to-asset categories had median current ratios of 4.3, 1.5 and 1.2; term debt coverage ratios of 6.29, 3.03, and 1.85; interest expense as a percent of gross revenue of 2.0, 4.9 and 6.8; and net farm income as percent of gross revenue of 39.8, 30.0 and 24.2, respectively.
- In 2010, farms with sales less than \$250,000 were 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. In 2010, median debt-to-asset was 58.2% for farmers younger than 40 years, 49.0% for farmers 40-49 years and 36.4% for farmers 50 years or older.
- In 2010, median net farm income increased for the low debt-to-asset category to \$268,017 from \$89,919. It increased to \$164,242 from \$44,814, and to \$62,544 from \$1,979 for the medium and high debt-to-asset categories, respectively.
- In 2010, 82% of farms with low debt had net farm income greater than \$100,000, compared to 28% of 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 2010, 33% of farm operators were under 40 years old and 24% were 40 to 49 years old. The percent of farmers 50 and older has steadily increased from 19% in 1996 to 43% in 2010.
- The age distribution of farm operators has been similar across regions during the 2001-2010 period.
- Farmers in the middle age and older age groups have similar total farm assets but farms in the middle age group typically have more liabilities, higher gross sales, larger farms and been more profitable than the younger or older age groups. An exception was 2006 and 2009, when the median net farm income was highest for farmers older than 50 years.
- For each age group, the years 2010, 2008 and 2007 had much higher median net farm income than other years during the 2001-2010 period. In 2010, it increased 150% to \$93,828 for farmers under 40 years old, 407% to \$228,857 for farmers 40-49 years old, and 255% to \$221,167 for farmers 50 years and older.
- Median total assets were lowest, 2001-2010, for farm operators less than 40 years old. However, median total assets of farmers between 40 and 49 years old and the older age group of farmers (50 years and older) is similar.
- As expected, there is a higher percent of crop land owned, and the percent of farm debt tends to decrease as the age of the farm operator increases. In 2010, median debt-to-asset was 58.2% for farmers less than 40 years old, 49.0% for farmers in the 40 to 49 age group and 36.4% for farmers 50 or older.
- From 2007 through 2010, median current ratio improved with farmer age. However, from 2001-2006, there was not a clear relationship between median current ratio and age groups.
- In each year, 2001-2010, the young age group of farmers employed assets more efficiently than farmers 50 and older. The young group had much fewer total assets and higher debt-to-asset, but achieved better median rates of return on assets and equity, and asset turnover.

Figure 13. Median Total Farm Assets and Liabilities by Farmer Age, 2010, N.D. Farm Mgt Program

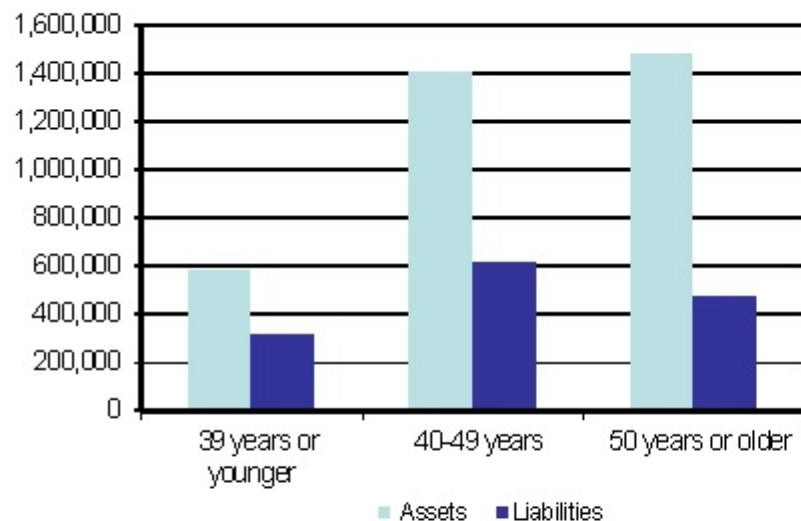


Figure 14. Median Net Farm Income by Farmer Age, 2001-2010, N.D. Farm Mgt Program

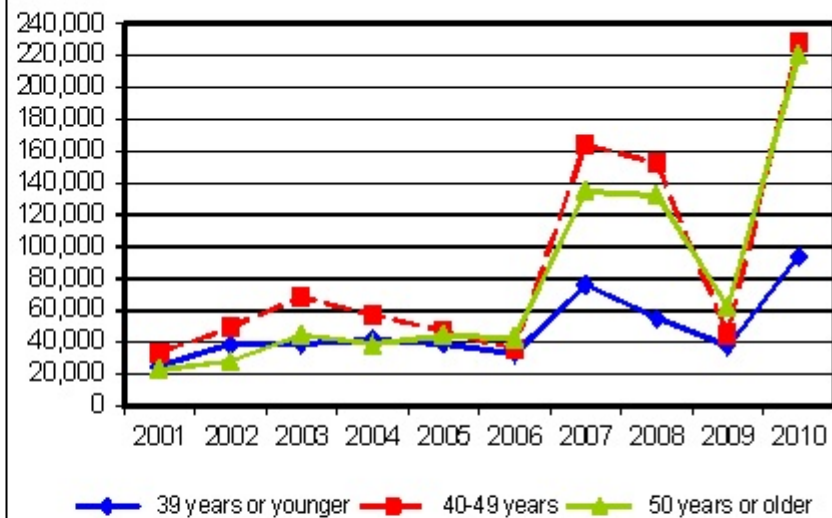


Figure 15. Median Term Debt Coverage Ratio by Farmer Age, 2001-2010, N.D. Farm Mgt Program

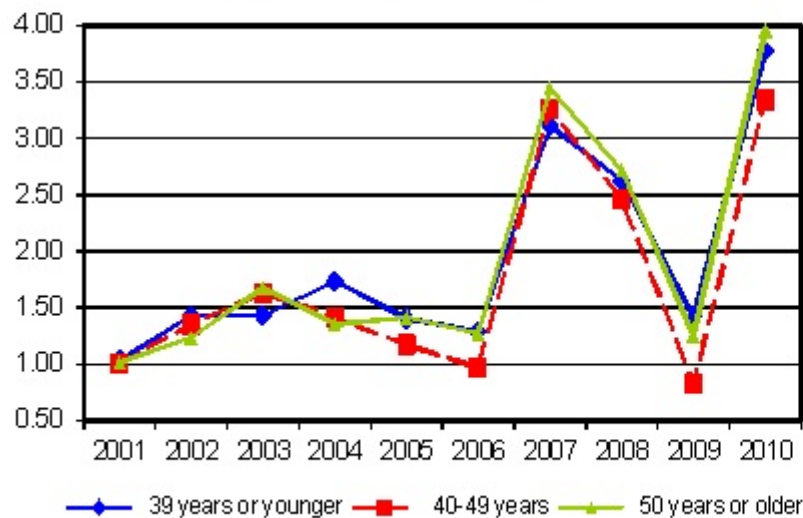


Figure 16. Median Net Farm Income as a Percent of Gross Revenue by Farmer Age, 2001-2010, N.D. Farm Mgt Program

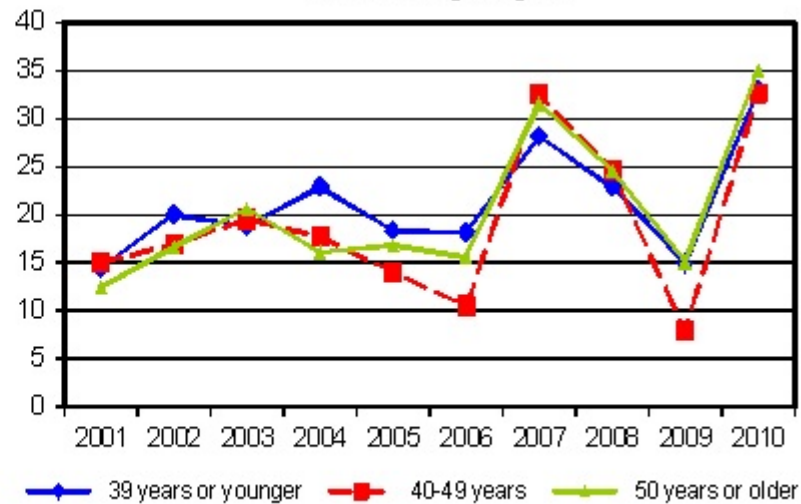


TABLE 3. CURRENT ASSETS AND CURRENT LIABILITIES, QUARTILE VALUES FOR 2010, MEDIAN VALUES FOR 2009, AND 5-YEAR AVERAGE, 2005-2009, OF MEDIAN VALUES, NORTH DAKOTA FARM BUSINESS MANAGEMENT EDUCATION PROGRAM PARTICIPANTS

Farm Group	2010			2009 Median	Average of 2005-2009 Medians	2010			2009 Median	Average of 2005-2009 Medians
	Upper Quartile	Lower Quartile	Median			Upper Quartile	Lower Quartile	Median		
	Current Farm Assets (\$)					Current Farm Liabilities (\$)				
All Farms	697,471	158,325	383,993	305,912	253,379	59,598	312,796	165,799	177,828	144,581
Region										
Red River Valley	772,945	234,378	480,303	373,427	339,076	88,549	350,159	192,608	201,442	174,783
North Central	687,426	181,991	385,702	318,809	255,494	74,948	292,896	177,553	166,089	143,878
South Central	697,471	147,472	347,018	290,790	246,585	53,026	329,600	141,559	165,965	139,698
West	665,425	89,164	249,791	247,977	193,451	34,580	311,917	120,518	159,817	108,775
Farm Enterprise										
Crop	815,587	243,683	480,067	374,469	312,133	84,890	351,222	205,255	204,946	170,136
Livestock	254,561	52,075	114,738	103,648	118,966	24,941	122,795	56,498	70,723	72,225
Mixed	393,094	119,362	220,303	217,776	179,268	64,692	252,707	137,427	142,026	132,852
Farm Sales										
\$249,999 or less	153,529	49,116	87,788	87,405	93,044	18,789	90,386	43,000	55,709	65,285
\$250,000-\$499,999	427,610	193,893	300,201	280,609	266,454	76,894	239,502	145,404	173,440	158,366
\$500,00-\$999,999	792,088	412,749	560,186	481,378	462,526	157,223	353,347	247,297	262,655	239,092
\$1,000,000 or more	1,684,054	775,469	1,236,439	1,111,323	966,509	251,204	666,821	459,444	577,119	567,485
Farm Size										
1,999 acres or less	417,326	88,717	191,094	171,121	152,470	36,239	183,790	90,314	104,810	94,048
2,000 acres or more	1,044,113	330,963	614,208	489,612	388,795	138,259	449,628	262,049	270,423	210,975
Cropland Tenure										
Full tenant	416,299	80,369	183,008	169,403	142,229	29,515	198,113	80,243	97,064	82,464
1-20 percent owned	987,489	355,847	599,845	438,778	357,267	150,608	430,406	280,585	265,822	212,678
21-40 percent owned	845,138	307,732	515,294	407,861	334,262	128,612	371,697	238,078	234,977	183,061
41 percent or more owned	619,956	134,880	316,745	274,905	226,534	42,868	249,035	119,186	136,675	117,711
Net Farm Income										
\$49,999 or less	139,616	41,568	68,435	178,187	120,451	16,756	99,832	42,502	138,250	96,119
\$50,000-\$99,999	235,279	100,250	152,164	337,462	247,439	40,429	170,403	80,455	169,502	144,015
\$100,000-\$199,999	435,173	210,520	300,201	465,643	374,804	86,927	268,841	172,744	219,199	182,939
\$200,000 or more	1,146,407	510,827	718,407	901,115	703,944	139,262	454,255	270,131	301,150	241,991
Debt-to-Asset Ratio										
0-40 percent	955,770	261,064	534,216	456,100	369,018	40,641	239,502	128,214	126,843	105,531
41-70 percent	658,013	168,767	361,407	287,031	246,583	92,363	421,199	240,656	217,619	175,484
71 percent or more	277,402	77,294	156,208	174,634	137,339	49,415	253,635	128,110	188,457	150,111
Farmer Age										
39 years or younger	411,469	72,671	164,295	171,670	150,162	38,048	217,128	88,636	109,168	97,233
40-49 years	792,229	266,675	505,505	403,166	350,275	122,795	382,890	234,020	264,148	204,257
50 years or older	879,406	243,603	486,813	379,378	294,804	77,475	341,643	194,500	185,341	145,001

TABLE 4. LIQUIDITY MEASURES, QUARTILE VALUES FOR 2010, MEDIAN VALUES FOR 2009, AND 5-YEAR AVERAGE, 2005-2009, OF MEDIAN VALUES, NORTH DAKOTA FARM BUSINESS MANAGEMENT EDUCATION PROGRAM PARTICIPANTS.

Farm Group	2010			2009 Median	Average of 2005-2009 Medians	2010			2009 Median	Average of 2005-2009 Medians
	Upper Quartile	Lower Quartile	Median			Upper Quartile	Lower Quartile	Median		
	Current Ratio					Working Capital(\$)				
All Farms	3.7	1.4	1.9	1.4	1.5	382,840	41,519	151,933	72,683	70,614
Region										
Red River Valley	4.3	1.5	2.1	1.4	1.5	430,690	100,880	211,094	86,995	87,979
North Central	3.5	1.4	1.9	1.5	1.5	340,987	44,457	158,846	84,931	78,501
South Central	4.0	1.3	2.0	1.4	1.5	389,829	39,130	152,355	66,047	70,539
West	2.6	1.3	1.7	1.4	1.5	305,288	28,165	75,165	48,878	46,496
Farm Enterprise										
Crop	4.2	1.5	2.1	1.6	1.5	484,978	76,041	212,521	98,133	94,002
Livestock	2.6	1.2	1.6	1.2	1.4	110,168	12,231	40,167	19,683	28,913
Mixed	2.4	1.1	1.6	1.3	1.3	148,879	17,077	67,118	39,931	33,206
Farm Sales										
\$249,999 or less	2.6	1.3	1.7	1.4	1.3	63,714	12,231	33,533	18,619	18,345
\$250,000-\$499,999	3.8	1.3	1.9	1.4	1.5	248,211	57,030	138,278	72,189	81,527
\$500,000-\$999,999	3.6	1.5	2.1	1.6	1.7	504,600	136,431	267,035	159,530	164,319
\$1,000,000 or more	4.8	1.6	2.3	1.8	1.7	1,239,883	342,155	623,713	401,884	348,008
Farm Size										
1,999 acres or less	3.8	1.3	1.9	1.4	1.4	201,800	25,474	79,850	33,463	37,323
2,000 acres or more	3.4	1.4	1.9	1.5	1.5	624,952	90,577	274,952	128,369	126,688
Cropland Tenure										
Full tenant	4.0	1.3	1.9	1.4	1.4	211,094	21,587	63,714	35,371	34,181
1-20 percent owned	3.0	1.3	1.7	1.3	1.4	487,485	89,337	214,404	79,635	99,236
21-40 percent owned	3.8	1.5	1.9	1.5	1.5	506,016	112,205	238,987	121,596	104,370
41 percent or more owned	3.9	1.4	2.1	1.6	1.5	373,876	30,482	123,550	80,116	66,722
Net Farm Income										
\$49,999 or less	2.0	1.0	1.4	1.2	1.1	41,645	112	19,951	22,747	11,378
\$50,000-\$99,999	2.3	1.2	1.6	1.4	1.4	93,007	26,687	51,601	79,274	62,027
\$100,000-\$199,999	2.9	1.3	1.7	1.7	1.9	197,025	68,777	112,742	176,494	143,567
\$200,000 or more	4.9	1.7	2.4	2.7	2.7	732,019	226,448	395,603	557,749	395,784
Debt-to-Asset Ratio										
0-40 percent	7.4	2.4	4.3	3.4	3.2	685,709	174,102	372,850	288,153	238,850
41-70 percent	2.0	1.3	1.6	1.3	1.3	247,271	41,788	124,553	52,504	58,778
71 percent or more	1.6	1.0	1.2	1.0	1.0	59,551	-5,338	27,013	-6,356	-2,867
Farmer Age										
39 years or younger	2.8	1.3	1.7	1.3	1.4	176,578	24,828	59,250	27,808	31,758
40-49 years	2.8	1.3	1.8	1.3	1.4	483,587	63,699	193,702	76,438	88,127
50 years or older	5.0	1.5	2.3	1.8	1.7	526,986	91,059	235,146	129,935	105,614

TABLE 5. TOTAL ASSETS AND TOTAL LIABILITIES, QUARTILE VALUES FOR 2010, MEDIAN VALUES FOR 2009, AND 5-YEAR AVERAGE, 2005-2009, OF MEDIAN VALUES, NORTH DAKOTA FARM BUSINESS MANAGEMENT EDUCATION PROGRAM PARTICIPANTS

Farm Group	2010			Average of		2010			Average of	
	Upper Quartile	Lower Quartile	Median	2009 Median	2005-2009 Medians	Upper Quartile	Lower Quartile	Median	2009 Median	2005-2009 Medians
	Total Farm Assets(\$)					Total Farm Liabilities(\$)				
All Farms	2,009,433	551,591	1,124,263	1,019,147	839,633	213,464	772,918	441,482	444,169	384,417
Region										
Red River Valley	2,483,066	767,123	1,412,431	1,276,643	1,116,238	210,014	902,535	554,600	582,928	481,299
North Central	1,888,167	620,081	1,107,435	1,035,055	854,898	246,903	723,510	440,517	435,420	388,721
South Central	1,988,714	584,359	1,110,882	930,596	781,253	225,454	743,238	413,393	417,186	351,579
West	1,724,139	414,656	815,751	860,918	706,038	152,328	849,716	414,659	442,681	349,706
Farm Enterprise										
Crop	2,286,181	732,737	1,371,013	1,170,498	955,986	235,330	846,993	520,966	504,611	428,434
Livestock	1,126,534	312,425	545,530	535,796	566,681	121,488	489,988	287,674	278,219	249,887
Mixed	1,305,333	520,414	831,894	740,640	690,404	244,188	724,151	418,533	368,532	362,979
Farm Sales										
\$249,999 or less	601,566	221,288	416,271	406,327	423,636	101,370	338,213	196,536	187,158	212,680
\$250,000-\$499,999	1,283,692	663,101	921,943	928,995	834,357	220,483	590,738	387,026	437,559	391,317
\$500,000-\$999,999	2,215,039	1,230,788	1,641,054	1,513,934	1,430,883	391,593	862,200	625,049	654,162	605,232
\$1,000,000 or more	4,224,017	2,242,525	3,154,998	3,036,269	2,578,228	760,697	1,432,428	1,148,930	1,183,562	1,111,838
Farm Size										
1,999 acres or less	1,161,655	337,000	672,581	582,536	548,817	138,778	532,058	283,857	312,571	273,891
2,000 acres or more	2,879,971	1,066,724	1,761,685	1,508,075	1,225,434	374,813	1,124,516	700,921	637,963	526,386
Cropland Tenure										
Full tenant	884,188	241,919	447,752	424,966	393,609	108,836	417,689	238,146	206,049	186,873
1-20 percent owned	2,519,824	973,668	1,415,720	1,170,289	936,244	409,218	1,006,490	656,524	590,116	490,460
21-40 percent owned	2,587,097	946,325	1,560,347	1,393,700	1,099,854	355,036	940,490	650,045	620,891	487,161
41 percent or more owned	1,971,053	632,361	1,196,807	1,135,262	937,379	207,058	768,350	431,885	418,019	364,409
Net Farm Income										
\$49,999 or less	626,253	186,100	424,078	627,562	523,447	104,163	417,689	221,081	348,301	289,047
\$50,000-\$99,999	823,227	358,259	604,699	1,116,799	810,214	172,480	470,202	320,572	510,507	383,576
\$100,000-\$199,999	1,337,356	661,505	921,943	1,321,089	1,159,101	214,401	705,379	451,413	464,981	442,953
\$200,000 or more	3,001,841	1,443,736	2,068,916	2,381,143	1,896,030	370,000	1,168,692	700,921	691,495	570,871
Debt-to-Asset Ratio										
0-40 percent	2,643,120	792,862	1,564,516	1,384,322	1,186,345	131,351	556,703	295,527	283,772	247,561
41-70 percent	1,923,019	638,720	1,107,435	1,001,346	830,348	347,220	997,637	602,890	536,590	456,526
71 percent or more	940,676	328,654	608,647	562,605	551,173	285,955	738,413	527,662	505,789	470,032
Farmer Age										
39 years or younger	1,065,078	282,820	579,630	535,766	517,355	169,789	623,601	314,393	339,757	316,261
40-49 years	2,160,250	809,159	1,407,157	1,244,827	1,051,731	370,000	915,461	610,250	600,955	500,117
50 years or older	2,586,345	784,435	1,482,641	1,273,219	1,032,681	241,571	840,376	472,015	418,083	351,769

TABLE 6. SOLVENCY MEASURES, QUARTILE VALUES FOR 2010, MEDIAN VALUES FOR 2009, AND 5-YEAR AVERAGE, 2005-2009, OF MEDIAN VALUES, NORTH DAKOTA FARM BUSINESS MANAGEMENT EDUCATION PROGRAM PARTICIPANTS.

Farm Group	2010			Average of		2010			Average of		2010			Average of	
	Upper Quartile	Lower Quartile	Median	2009 Median	2005-2009 Medians	Upper Quartile	Lower Quartile	Median	2009 Median	2005-2009 Medians	Upper Quartile	Lower Quartile	Median	2009 Median	2005-2009 Medians
	Debt-to-Asset (%)					Equity-to-Asset (%)					Debt-to-Equity				
All Farms	26.8	63.0	46.7	51.2	52.4	73.2	37.0	53.3	48.8	47.6	0.4	1.7	0.9	1.0	1.1
Region															
Red River Valley	24.6	59.2	42.0	48.0	49.6	75.4	40.8	58.0	52.0	50.4	0.3	1.5	0.7	0.9	1.0
North Central	26.6	60.3	45.8	47.7	51.1	73.4	39.7	54.2	52.3	48.9	0.4	1.5	0.8	0.9	1.0
South Central	27.5	61.6	46.0	52.7	52.2	72.5	38.4	54.0	47.3	47.8	0.4	1.6	0.9	1.1	1.1
West	36.1	74.4	57.5	55.1	56.7	63.9	25.6	42.5	44.9	43.3	0.6	2.9	1.4	1.2	1.3
Farm Enterprise															
Crop	25.6	57.5	41.8	47.9	50.7	74.4	42.5	58.2	52.1	49.3	0.3	1.4	0.7	0.9	1.0
Livestock	35.5	78.5	55.6	58.6	57.1	64.5	21.5	44.4	41.4	42.9	0.6	3.7	1.3	1.4	1.3
Mixed	44.1	78.8	59.1	53.8	57.1	55.9	21.2	40.9	46.2	42.9	0.8	3.7	1.4	1.2	1.3
Farm Sales															
\$249,999 or less	37.4	81.2	57.5	58.6	60.8	62.6	18.8	42.5	41.4	39.2	0.6	4.3	1.4	1.4	1.6
\$250,000-\$499,999	27.8	63.1	48.5	53.3	50.7	72.2	36.9	51.5	46.7	49.3	0.4	1.7	0.9	1.1	1.0
\$500,000-\$999,999	24.9	40.9	40.9	45.1	45.8	75.1	59.1	59.1	54.9	54.2	0.3	0.7	0.7	0.8	0.8
\$1,000,000 or more	26.2	50.6	39.2	39.0	45.1	73.8	49.4	60.8	61.0	54.9	0.4	1.0	0.6	0.6	0.8
Farm Size															
1,999 acres or less	27.8	67.3	49.5	54.6	57.2	72.2	32.7	50.5	45.4	42.8	0.4	2.1	1.0	1.2	1.3
2,000 acres or more	26.1	58.9	44.1	46.4	47.7	73.9	41.1	55.9	53.6	52.3	0.4	1.4	0.8	0.9	0.9
Cropland Tenure															
Full tenant	27.6	69.0	48.6	53.6	58.1	72.4	31.0	51.4	46.4	41.9	0.4	2.2	0.9	1.2	1.4
1-20 percent owned	28.9	63.1	47.1	51.7	53.8	71.1	36.9	52.9	48.3	46.2	0.4	1.7	0.9	1.1	1.2
21-40 percent owned	27.1	56.1	43.5	47.2	51.6	72.9	43.9	56.5	52.8	48.4	0.4	1.3	0.8	0.9	1.1
41 percent or more owned	22.2	65.4	47.5	48.3	47.9	77.8	34.6	52.5	51.7	52.1	0.3	1.9	0.9	0.9	0.9
Net Farm Income															
\$49,999 or less	49.0	81.6	64.9	60.1	64.0	51.0	18.4	35.1	39.9	36.0	1.0	4.4	1.8	1.5	1.8
\$50,000-\$99,999	40.5	81.0	60.4	50.8	52.6	59.5	19.0	39.6	49.2	47.4	0.7	4.3	1.5	1.0	1.1
\$100,000-\$199,999	31.4	61.5	49.5	41.6	42.7	68.6	38.5	50.5	58.4	57.3	0.5	1.6	1.0	0.7	0.7
\$200,000 or more	22.6	48.9	35.1	30.9	33.4	77.4	51.1	64.9	69.1	66.6	0.3	1.0	0.5	0.4	0.5
Debt-to-Asset Ratio															
0-40 percent	14.2	30.7	24.0	25.8	25.5	85.8	69.3	76.0	74.2	74.5	0.2	0.4	0.3	0.3	0.3
41-70 percent	47.7	60.1	53.3	54.7	55.7	52.3	39.9	46.7	45.3	44.3	0.9	1.5	1.1	1.2	1.3
71 percent or more	76.9	89.3	81.6	84.5	82.9	23.1	10.7	18.4	15.5	17.1	3.3	8.3	4.4	5.5	4.8
Farmer Age															
39 years or younger	40.7	75.4	58.2	62.1	64.1	59.3	24.6	41.8	37.9	35.9	0.7	3.1	1.4	1.6	1.8
40-49 years	31.2	62.8	49.0	57.3	55.0	68.8	37.2	51.0	42.7	45.0	0.5	1.7	1.0	1.3	1.2
50 years or older	20.8	52.0	36.4	38.0	41.0	79.2	48.0	63.6	62.0	59.0	0.3	1.1	0.6	0.6	0.7

TABLE 7. RATE OF RETURN ON ASSETS AND RATE OF RETURN ON EQUITY PROFITABILITY MEASURES, QUARTILE VALUES FOR 2010, MEDIAN VALUES FOR 2009, AND 5-YEAR AVERAGE, 2005-2009, OF MEDIAN VALUES NORTH DAKOTA FARM BUSINESS MANAGEMENT EDUCATION PROGRAM PARTICIPANTS.

Farm Group	2010			2009 Median	Average of 2005-2009 Medians	2010			2009 Median	Average of 2005-2009 Medians
	Upper Quartile	Lower Quartile	Median			Upper Quartile	Lower Quartile	Median		
	Return on Farm Assets(%)					Return on Farm Equity(%)				
All Farms	22.0	8.4	14.9	4.0	8.0	42.0	10.6	23.6	3.0	10.2
Region										
Red River Valley	24.6	12.2	17.8	2.0	8.4	50.4	16.0	27.8	0.0	10.1
North Central	21.9	9.3	15.3	7.3	9.6	39.8	11.9	23.2	9.0	13.7
South Central	21.4	8.0	15.4	3.0	8.5	42.6	11.9	25.5	0.9	10.5
West	15.2	3.1	9.1	1.4	4.0	31.9	0.0	12.1	-0.1	3.3
Farm Enterprise										
Crop	24.4	11.9	17.5	5.3	10.1	44.3	16.8	29.0	5.6	14.6
Livestock	11.6	1.8	6.3	-0.1	2.5	21.1	-3.0	7.7	-3.2	0.6
Mixed	13.0	5.1	8.8	0.4	4.2	26.6	5.4	14.4	-1.4	3.4
Farm Sales										
\$249,999 or less	17.3	2.5	7.5	0.3	3.7	43.3	0.0	10.3	0.0	2.8
\$250,000-\$499,999	22.4	9.7	15.3	4.3	8.3	48.5	12.7	24.9	2.9	10.8
\$500,000-\$999,999	22.7	11.2	16.9	4.8	10.2	38.6	14.9	26.0	4.8	14.2
\$1,000,000 or more	23.4	12.2	17.4	7.0	11.1	40.6	18.5	24.6	8.5	15.9
Farm Size										
1,999 acres or less	22.8	7.8	14.6	2.9	7.1	47.4	9.4	26.9	0.7	9.0
2,000 acres or more	21.2	9.2	15.1	4.8	9.1	37.1	11.8	21.9	4.8	11.2
Cropland Tenure										
Full tenant	32.4	7.8	16.9	6.5	9.6	63.5	8.9	28.9	9.1	14.2
1-20 percent owned	24.3	12.1	18.7	4.3	10.3	45.5	19.3	32.4	4.2	15.9
21-40 percent owned	20.6	10.5	15.4	3.6	8.8	35.9	14.6	25.0	2.6	11.0
41 percent or more owned	16.2	6.0	11.2	3.2	5.8	28.1	7.7	15.8	2.3	6.2
Net Farm Income										
\$49,999 or less	7.3	-0.8	2.8	-0.6	1.2	10.3	-8.9	0.0	-6.2	-3.1
\$50,000-\$99,999	17.0	6.7	10.5	4.7	7.9	50.7	7.3	18.0	4.7	10.8
\$100,000-\$199,999	21.1	10.6	14.6	9.0	12.0	42.8	16.3	26.9	11.4	18.2
\$200,000 or more	24.4	14.9	19.1	13.5	17.6	43.7	19.5	30.7	17.9	26.1
Debt-to-Asset Ratio										
0-40 percent	23.5	10.3	16.0	5.0	9.6	32.4	11.9	20.4	5.0	11.0
41-70 percent	21.5	7.9	14.9	4.3	9.0	43.5	13.2	27.6	3.1	12.8
71 percent or more	18.5	3.9	10.6	0.3	3.6	78.3	0.0	34.9	-10.9	0.7
Farmer Age										
39 years or younger	26.0	8.8	17.2	6.2	9.5	64.0	15.9	31.3	7.0	16.8
40-49 years	22.1	9.7	15.3	2.9	8.1	38.7	13.3	25.7	0.1	10.7
50 years or older	19.1	7.9	13.2	3.5	6.9	32.3	9.3	18.7	2.9	7.7

TABLE 8. OPERATING PROFIT MARGIN AND NET FARM INCOME PROFITABILITY MEASURES, QUARTILE VALUES FOR 2010, MEDIAN VALUES FOR 2009, AND 5-YEAR AVERAGE, 2005-2009, OF MEDIAN VALUES, NORTH DAKOTA FARM BUSINESS MANAGEMENT PROGRAM PARTICIPANTS.

Farm Group	2010			2009 Median	Average of 2005-2009 Medians	2010			2009 Median	Average of 2005-2009 Medians
	Upper Quartile	Lower Quartile	Median			Upper Quartile	Lower Quartile	Median		
	Operating Profit Margin(%)					Net Farm Income(\$)				
All Farms	38.7	21.1	29.8	9.7	17.0	338,882	66,270	174,010	47,547	73,625
Region										
Red River Valley	37.3	22.7	30.3	4.0	15.5	406,911	128,104	240,087	41,555	98,440
North Central	40.3	22.1	29.9	14.8	18.0	325,701	75,883	177,275	73,452	88,803
South Central	40.1	21.8	33.5	8.9	18.0	378,959	64,476	166,880	37,422	70,191
West	32.7	8.3	24.4	3.4	10.3	209,913	32,094	85,945	27,807	33,715
Farm Enterprise										
Crop	39.3	23.2	31.6	11.8	18.0	400,784	125,706	239,426	70,912	101,317
Livestock	36.6	5.9	21.9	-0.9	10.0	88,085	16,740	48,775	11,392	19,721
Mixed	34.6	15.4	26.8	1.6	12.9	131,605	47,249	76,648	21,870	38,179
Farm Sales										
\$249,999 or less	34.5	7.9	21.9	0.7	10.5	63,907	18,041	43,503	11,740	20,406
\$250,000-\$499,999	39.4	22.5	30.9	10.1	17.3	213,613	98,161	140,892	48,983	79,082
\$500,000-\$999,999	39.5	23.9	31.8	11.7	20.3	382,903	176,787	274,954	88,589	158,894
\$1,000,000 or more	39.0	24.2	31.6	14.5	19.1	770,089	375,746	565,841	215,438	279,400
Farm Size										
1,999 acres or less	38.6	18.5	29.9	6.0	14.7	201,086	41,607	108,049	25,524	45,395
2,000 acres or more	38.8	22.0	29.7	12.6	18.6	477,325	131,262	262,273	86,149	119,759
Cropland Tenure										
Full tenant	33.6	13.5	23.9	9.7	13.4	184,888	43,545	98,030	38,518	45,936
1-20 percent owned	36.5	22.2	29.6	8.1	16.7	430,122	164,582	291,026	68,624	115,923
21-40 percent owned	39.3	24.5	33.3	9.1	17.4	422,926	130,474	254,095	65,130	94,904
41 percent or more owned	41.0	22.0	33.2	11.7	18.7	276,239	49,976	131,133	43,407	57,319
Net Farm Income										
\$49,999 or less	21.7	-2.5	8.0	-2.1	2.9	34,001	5,486	19,952	7,030	11,792
\$50,000-\$99,999	33.3	16.2	24.3	12.3	17.2	86,710	59,807	69,451	73,037	71,778
\$100,000-\$199,999	34.9	22.9	29.5	19.9	23.9	174,065	124,394	147,946	133,736	135,409
\$200,000 or more	42.1	29.3	36.8	28.9	31.6	537,312	268,555	368,666	313,199	297,300
Debt-to-Asset Ratio										
0-40 percent	41.1	25.1	34.8	14.3	22.2	455,449	140,892	268,017	89,919	131,315
41-70 percent	35.1	20.3	28.7	10.3	17.2	310,220	63,713	164,242	44,814	72,275
71 percent or more	35.4	8.8	21.8	0.6	7.8	116,292	28,122	62,544	1,979	17,687
Farmer Age										
39 years or younger	37.3	16.5	27.5	10.4	17.0	184,345	36,700	93,828	37,611	48,156
40-49 years	38.0	23.2	30.1	6.7	15.7	380,090	106,310	228,857	45,098	88,955
50 years or older	39.2	21.8	31.1	10.1	17.3	408,325	93,384	221,167	62,334	83,383

TABLE 9. REPAYMENT CAPACITY MEASURES, QUARTILE VALUES FOR 2010, MEDIAN VALUES FOR 2009, AND 5-YEAR AVERAGE, 2005-2009, OF MEDIAN VALUES, NORTH DAKOTA FARM BUSINESS MANAGEMENT EDUCATION PROGRAM PARTICIPANTS.

Farm Group	2010					2010				
	Upper Quartile	Lower Quartile	Median	2009 Median	Average of 2005-2009 Medians	Upper Quartile	Lower Quartile	Median	2009 Median	Average of 2005-2009 Medians
	Term Debt Coverage Ratio					Term Debt and Capital Repayment Margin(\$)				
All Farms	6.98	2.04	3.69	1.21	1.93	269,191	40,533	119,428	6,350	35,188
Region										
Red River Valley	7.75	2.74	4.27	0.87	2.28	365,879	72,006	174,505	-5,434	55,410
North Central	6.85	1.83	3.33	1.42	2.07	232,143	38,083	114,439	15,362	44,646
South Central	8.70	2.40	4.00	1.06	2.08	299,520	45,885	127,402	3,235	35,258
West	5.41	1.49	2.99	0.92	1.25	160,659	19,280	60,605	-4,062	8,294
Farm Enterprise										
Crop	7.85	2.63	4.21	1.33	2.39	326,359	73,793	169,607	13,905	55,235
Livestock	5.22	0.97	2.29	0.81	1.08	66,560	-59	30,871	-8,686	2,164
Mixed	4.30	1.29	2.55	0.61	1.19	103,590	20,852	57,425	-16,769	4,280
Farm Sales										
\$249,999 or less	5.86	1.24	2.62	0.80	1.16	50,728	6,719	27,198	-2,294	3,523
\$250,000-\$499,999	5.96	2.02	3.66	1.10	2.01	174,505	60,605	111,431	3,387	37,396
\$500,000-\$999,999	7.54	2.38	3.94	1.30	2.52	313,007	115,941	201,193	15,191	97,965
\$1,000,000 or more	7.75	3.05	4.58	1.84	2.89	698,947	271,638	457,309	111,341	208,169
Farm Size										
1,999 acres or less	7.06	2.10	3.68	1.03	1.69	158,286	23,774	70,579	1,198	20,566
2,000 acres or more	6.95	2.03	3.78	1.32	2.15	394,883	71,660	183,537	20,324	65,991
Cropland Tenure										
Full tenant	10.51	2.03	4.17	1.64	2.25	149,425	20,376	64,827	12,802	27,665
1-20 percent owned	6.85	2.42	4.26	1.03	2.27	364,456	83,146	179,782	3,326	63,055
21-40 percent owned	6.25	2.31	3.65	1.16	2.04	348,725	78,120	187,361	10,359	50,482
41 percent or more owned	6.04	1.77	3.20	1.12	1.48	219,401	28,585	85,538	5,222	20,840
Net Farm Income										
\$49,999 or less	3.40	0.70	1.37	0.40	0.75	27,377	-9,374	7,274	-24,456	-10,024
\$50,000-\$99,999	5.22	1.49	2.63	1.30	1.73	61,964	20,816	43,635	14,596	30,367
\$100,000-\$199,999	5.45	2.03	3.19	2.00	2.79	129,946	70,542	97,802	69,005	86,575
\$200,000 or more	9.13	3.44	5.35	4.30	4.93	462,361	202,281	297,062	231,371	241,282
Debt-to-Asset Ratio										
0-40 percent	11.87	3.95	6.29	2.69	3.75	400,707	107,580	222,426	47,281	93,899
41-70 percent	4.46	1.79	3.03	0.93	1.71	210,362	35,626	99,430	-3,340	31,136
71 percent or more	3.90	0.92	1.85	0.39	0.84	68,907	-1,921	32,783	-19,770	-6,201
Farmer Age										
39 years or younger	8.96	1.90	3.78	1.42	1.97	155,472	21,373	60,261	10,470	24,230
40-49 years	5.58	2.04	3.34	0.83	1.74	300,629	63,005	149,425	-10,371	44,366
50 years or older	7.19	2.14	3.95	1.25	2.02	328,411	59,718	158,168	7,147	42,245

TABLE 10. ASSET TURNOVER AND OPERATING EXPENSE AND DEPRECIATION EXPENSE EFFICIENCY MEASURES (AS A PERCENTAGE OF GROSS FARM INCOME), QUARTILE VALUES FOR 2010, MEDIAN VALUES FOR 2009, AND 5-YEAR AVERAGE, 2005-2009, OF MEDIAN VALUES, FARM BUSINESS MANAGEMENT EDUCATION PROGRAM PARTICIPANTS.

Farm Group	2010			Average of		2010			Average of		2010			Average of	
	Upper Quartile	Lower Quartile	Median	2009 Median	2005-2009 Medians	Upper Quartile	Lower Quartile	Median	2009 Median	2005-2009 Medians	Upper Quartile	Lower Quartile	Median	2009 Median	2005-2009 Medians
	Asset Turnover					Operating Expense(%)					Depreciation Expense (%)				
All Farms	.67	.35	.48	.40	.45	49.4	66.6	57.5	75.6	68.9	2.9	6.0	4.2	5.2	5.0
Region															
Red River Valley	.86	.45	.59	.43	.50	51.1	65.3	58.4	81.6	71.1	3.2	6.6	4.9	5.4	5.1
North Central	.68	.37	.51	.42	.47	47.7	66.2	56.5	70.8	67.9	2.0	5.1	3.5	4.2	4.3
South Central	.63	.32	.47	.36	.45	48.4	66.0	55.5	75.2	67.1	3.1	6.6	4.6	6.2	5.6
West	.56	.30	.40	.32	.34	51.6	70.0	60.4	83.2	72.3	3.1	5.9	4.2	5.7	6.6
Farm Enterprise															
Crop	.77	.44	.57	.45	.53	48.4	64.8	56.1	74.0	68.2	3.0	5.8	4.2	5.1	4.8
Livestock	.39	.23	.30	.21	.24	51.1	73.7	65.5	81.3	70.3	2.5	6.7	4.1	5.2	7.2
Mixed	.45	.27	.34	.28	.32	51.7	67.8	59.7	81.1	71.5	2.8	5.5	4.1	5.9	5.6
Farm Sales															
\$249,999 or less	.56	.23	.34	.27	.32	48.8	70.0	57.7	78.0	69.8	2.0	6.3	3.9	5.0	5.3
\$250,000-\$499,999	.77	.35	.50	.39	.46	50.6	65.7	56.1	75.0	69.1	2.3	5.5	3.7	5.1	4.8
\$500,000-\$999,999	.68	.40	.53	.43	.51	48.0	65.2	57.2	74.1	67.6	3.3	6.1	4.4	5.4	5.3
\$1,000,000 or more	.68	.45	.53	.46	.56	50.1	66.2	59.1	74.8	70.7	3.5	6.8	5.0	5.3	4.8
Farm Size															
1,999 acres or less	.77	.33	.50	.39	.44	48.6	67.0	56.2	78.8	69.8	2.3	5.9	4.1	5.2	5.0
2,000 acres or more	.63	.38	.48	.40	.46	50.1	66.2	58.4	72.7	67.9	3.2	6.1	4.4	5.3	5.2
Cropland Tenure															
Full tenant	1.11	.47	.71	.66	.67	53.2	70.9	61.9	76.0	70.7	2.3	5.4	3.7	4.3	4.5
1-20 percent owned	.77	.50	.64	.47	.59	51.3	66.7	60.4	79.1	70.5	1.9	5.3	3.2	5.1	4.6
21-40 percent owned	.58	.39	.47	.38	.46	48.1	64.2	54.5	75.6	68.6	2.4	5.9	3.7	5.6	5.2
41 percent or more owned	.45	.26	.33	.27	.30	46.8	63.9	54.1	71.0	65.8	2.8	8.8	5.4	5.8	5.8
Net Farm Income															
\$49,999 or less	.51	.22	.32	.34	.32	55.7	81.0	69.9	86.3	78.0	2.2	7.7	4.0	5.2	6.2
\$50,000-\$99,999	.66	.30	.45	.42	.46	52.0	69.7	60.6	72.0	69.2	2.3	5.0	3.7	5.6	4.7
\$100,000-\$199,999	.77	.38	.51	.46	.50	52.8	65.5	58.5	66.4	63.2	2.5	5.4	3.7	4.6	4.6
\$200,000 or more	.68	.43	.54	.45	.57	46.9	61.2	52.5	58.5	56.9	3.3	6.3	4.6	4.3	4.9
Debt-to-Asset Ratio															
0-40 percent	.65	.35	.47	.35	.41	46.8	61.2	52.4	69.5	63.3	3.2	6.7	4.9	6.0	5.8
41-70 percent	.68	.38	.52	.42	.47	52.3	68.3	60.3	75.9	69.1	2.7	5.5	4.0	5.2	4.8
71 percent or more	.69	.32	.46	.43	.47	52.9	75.8	65.0	84.1	77.1	2.2	5.1	3.4	4.2	4.7
Farmer Age															
39 years or younger	.90	.38	.56	.50	.54	50.0	69.2	58.5	75.6	68.0	1.9	5.0	3.4	4.2	4.3
40-49 years	.67	.38	.53	.42	.47	51.6	65.3	57.5	78.7	70.6	3.4	6.4	4.6	5.1	5.0
50 years or older	.58	.31	.44	.35	.39	48.4	66.0	55.5	74.0	68.1	3.2	6.5	4.9	6.0	5.8

TABLE 11. INTEREST EXPENSE AND FARM INCOME EFFICIENCY MEASURES (AS A PERCENTAGE OF GROSS FARM INCOME), QUARTILE VALUES FOR 2010 MEDIAN VALUES FOR 2009 AND 5-YEAR AVERAGE, 2005-2009, OF MEDIAN VALUES, NORTH DAKOTA FARM BUSINESS MANAGEMENT EDUCATION PROGRAM PARTICIPANTS.

Farm Group	2010			Average of		2010			Average of	
	Upper Quartile	Lower Quartile	Median	2009 Median	2005-2009 Medians	Upper Quartile	Lower Quartile	Median	2009 Median	2005-2009 Medians
	Interest Expense(%)					Net Farm Income (%)				
All Farms	2.1	6.2	3.7	4.9	5.5	42.5	23.6	33.1	13.4	19.7
Region										
Red River Valley	1.6	4.6	2.7	3.9	4.4	40.4	26.4	33.0	7.8	18.9
North Central	2.1	5.9	3.8	4.8	5.6	44.8	25.6	34.9	19.6	21.5
South Central	2.0	6.0	3.7	5.1	5.3	42.8	23.2	34.1	12.9	20.7
West	3.0	9.3	5.5	5.9	7.7	37.8	18.4	28.5	6.2	12.7
Farm Enterprise										
Crop	1.7	4.9	3.2	4.1	4.7	43.6	26.6	35.6	16.0	21.4
Livestock	3.4	8.9	5.9	7.7	8.8	37.9	15.6	24.0	4.0	12.4
Mixed	3.5	9.9	6.5	6.7	7.7	36.0	19.8	29.8	6.9	15.0
Farm Sales										
\$249,999 or less	3.1	9.7	6.0	6.9	8.0	41.0	17.4	30.4	7.9	14.8
\$250,000-\$499,999	2.4	6.0	4.0	5.2	5.3	41.7	24.3	35.0	14.6	20.1
\$500,000-\$999,999	1.8	4.9	3.4	4.0	4.4	44.6	26.1	33.1	14.5	22.1
\$1,000,000 or more	1.7	3.8	2.7	3.1	4.0	40.9	25.5	32.9	16.4	19.9
Farm Size										
1,999 acres or less	1.9	6.5	3.9	5.0	5.7	42.7	23.4	34.3	10.9	18.7
2,000 acres or more	2.1	6.0	3.6	4.7	5.3	42.1	23.9	32.7	15.2	20.8
Cropland Tenure										
Full tenant	1.6	4.7	2.9	3.3	3.9	39.7	20.7	31.2	15.1	18.5
1-20 percent owned	3.0	4.1	4.1	4.7	4.9	40.9	23.8	31.6	10.8	19.6
21-40 percent owned	3.4	6.2	4.5	5.2	5.8	42.8	26.7	35.3	12.9	20.5
41 percent or more owned	2.9	6.9	4.6	6.3	7.5	44.8	24.1	34.3	15.1	20.2
Net Farm Income										
\$49,999 or less	3.2	10.2	7.0	6.1	8.4	30.4	3.3	17.1	1.9	6.7
\$50,000-\$99,999	3.2	7.2	5.2	5.2	5.5	38.8	20.2	28.7	15.5	19.8
\$100,000-\$199,999	2.6	6.4	4.4	3.4	4.3	38.6	24.1	32.5	24.5	27.0
\$200,000 or more	1.6	4.0	2.7	2.6	3.1	45.5	31.1	39.0	31.4	33.9
Debt-to-Asset Ratio										
0-40 percent	1.0	3.3	2.0	2.5	3.0	45.8	31.5	39.8	21.6	27.7
41-70 percent	3.2	7.0	4.9	6.2	6.3	38.4	21.5	30.0	12.6	19.1
71 percent or more	4.3	10.1	6.8	7.7	8.8	36.3	12.2	24.2	1.5	7.7
Farmer Age										
39 years or younger	2.4	6.7	3.8	5.1	5.7	42.4	21.5	32.9	14.9	20.5
40-49 years	2.4	6.7	4.0	5.3	5.6	39.4	25.7	32.6	7.9	17.9
50 years or older	1.8	5.9	3.5	4.4	5.3	43.9	24.7	35.0	15.0	20.7

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 profitably 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 \$20,000 charge per full time operator 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 \$20,000 charge per full time operator 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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