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# Financial Characteristics of North Dakota Farms 2005-2014

**Andrew L. Swenson**

**Department of Agribusiness and Applied Economics**
**Agricultural Experiment Station**
**North Dakota State University**
**Fargo, ND 58108-6050**

## Contact Information

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## Abstract

The performance of over 500 North Dakota farms, 2005-2014, 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, 2009-2013, are also presented. In 2014, median and average acreage per farm was 1,847 and 2,478, respectively. Median and average cash farm revenue was $531,374 and $734,233, respectively. Over 70% of farms were crop farms and 54 percent of farms had gross sales exceeding $500,000. Median age of farm operators was 48.

Median net farm income in 2014 declined to $54,543, from $90,629 in 2013. The 10 year high was $238,054 in 2012. Financial measures for 2012, 2011, 2010, 2008 and 2007 were much superior to those in other years for the 2005-2014 period. The Red River Valley and crop farms typically had stronger profitability, solvency, and repayment capacity than other regions and farm types, respectively, but not in 2013 and 2014. The 2014 median net farm income was $32,347 for crop farms compared to $95,130 for livestock farms, and $3,921 for Red River Valley farms compared to $69,995 for farms in the west region.

Farms with sales less than $500,000 were nearly 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 of the land they operate 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 lowest in the decade in 2014, at 12.5%, and the highest in 2012, at 36.8%.



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:

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

2. **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, 2005-2014. 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 2005-2014, the financial summaries of over 500 farms each year were considered usable for this study.

About 85 percent of the total farms repeat 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 2013, there were 30,800 farms in North Dakota with agricultural production of at least $1,000. Only 7,200, or 23%, had gross receipts greater than $500,000, whereas 54% of the 518 farms in 2014 for this study exceed that sales volume (median gross sales was $531,374). 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 46 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 43.6% (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 2014, there are only 61 mixed livestock-crop enterprise farms, 85 livestock farms, 84 farms with 70 percent or greater debt-to-assets, 84 farms in the west region, and 83 farms with net farm income greater than $200,000.

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, 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 less than $250,000 sales, and farms with greater than 70% debt-to-asset. 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 2014 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, 2005-2014.

| | 2014 | 2013 | 2012 | 2011 | 2010 | 2009 | 2008 | 2007 | 2006 | 2005 |
|---|---|---|---|---|---|---|---|---|---|---|
| Number of Farms | 518 | 527 | 537 | 551 | 543 | 537 | 532 | 531 | 509 | 520 |
| | ---------- Median---------- | | | | | | | | | |
| Age of Operator | 48 | 48 | 47 | 48 | 47 | 47 | 47 | 47 | 46 | 46 |
| Farm Size (acres) | 1,847 | 1,865 | 1,932 | 1,968 | 2,010 | 1,995 | 2,001 | 2,000 | 1,966 | 1,998 |
| Gross Cash Revenue | 531,374 | 606,730 | 585,143 | 569,268 | 469,023 | 430,321 | 464,464 | 353,252 | 281,751 | 281,667 |
| Total Farm Assets | 1,614,430 | 1,497,426 | 1,463,890 | 1,171,781 | 1,124,263 | 1,019,147 | 995,609 | 810,426 | 688,802 | 684,181 |
| Total Farm Liabilities | 622,633 | 514,407 | 500,161 | 442,159 | 441,482 | 444,169 | 419,979 | 371,180 | 348,102 | 338,657 |
| Current Ratio | 1.6 | 1.9 | 2.3 | 2.0 | 1.9 | 1.4 | 1.8 | 1.7 | 1.2 | 1.2 |
| Working Capital | 117,283 | 139,950 | 256,110 | 157,751 | 151,933 | 72,683 | 128,854 | 103,063 | 20,660 | 27,812 |
| Debt-to-Asset (%) | 44.7 | 41.8 | 40.6 | 43.7 | 46.7 | 51.2 | 48.4 | 50.0 | 57.5 | 54.8 |
| Rate of Return on Farm Assets (%) | 2.8 | 4.7 | 16.2 | 10.5 | 14.9 | 4.0 | 10.6 | 15.7 | 4.7 | 4.9 |
| Rate of Return on Farm Equity (%) | 2.1 | 5.3 | 24.8 | 15.4 | 23.6 | 3.0 | 15.8 | 25.3 | 2.4 | 4.3 |
| Operating Profit Margin (%) | 8.8 | 13.6 | 32.4 | 24.0 | 29.8 | 9.7 | 20.8 | 29.3 | 12.2 | 12.9 |
| Net Farm Income | 54,543 | 90,629 | 238,054 | 144,414 | 174,010 | 47,547 | 114,520 | 127,791 | 35,980 | 42,286 |
| Term Debt Coverage Ratio | 1.08 | 1.50 | 4.64 | 2.86 | 3.7 | 1.2 | 2.7 | 3.3 | 1.2 | 1.3 |
| Term Debt & Capital Repayment Margin ($) | 3,556 | 25,849 | 185,291 | 90,286 | 119,428 | 6,360 | 67,276 | 86,825 | 5,378 | 10,110 |
| Asset Turnover Ratio | .34 | .35 | .50 | .45 | .48 | .40 | .52 | .56 | .38 | .39 |
| Operating Expense Ratio (%) | 75.2 | 71.5 | 55.4 | 62.7 | 57.5 | 75.6 | 66.9 | 58.2 | 72.5 | 71.1 |
| Depreciation Expense Ratio (%) | 7.3 | 5.9 | 4.2 | 4.8 | 4.2 | 5.2 | 4.1 | 4.3 | 5.6 | 6.0 |
| Interest Expense Ratio (%) | 3.5 | 3.5 | 2.8 | 3.4 | 3.7 | 4.9 | 4.4 | 5.2 | 7.2 | 6.0 |
| Net Farm Income Ratio (%) | 12.5 | 17.9 | 36.8 | 27.5 | 33.1 | 13.4 | 24.2 | 30.6 | 14.2 | 16.0 |

# FARM CLASSIFICATION AND HIGHLIGHTS

## ALL FARMS

**Highlights**

- Some general trends over the past ten years, 2005-2014, for farms enrolled in the North Dakota Farm Business Management Education Program are that acreage has been relatively stable, but farms have become larger as measured by median gross revenue which has nearly doubled, and by median farm assets and liabilities, which increased 135% and 84%, to $1,614,430 and $622,633, respectively.

- There was a significant decline in financial performance in 2014 and 2013, despite record wheat yields and beef prices, because of sharply lower grain prices. North Dakota corn prices declined by nearly one-half and soybeans and wheat by one-third over a two year period. Median net farm income dropped to $54,543, compared to $92,629 in 2013 and $238,054 in 2012. During the 2005 to 2014 period, nearly all financial measures were the strongest in 2012. In 2012, record crop prices more than offset an increase of costs and there were surprisingly strong yields because stored soil moisture from a wet 2011 sustained crops over the dry summer.

- In 2011, below average yields and high costs were offset by high grain prices. Crop insurance indemnities were profitable on the nearly one-fourth of cropland prevented from planting because of strong prices used for insurance. In 2010, corn and sugar beets were record yields and barley, canola, and spring wheat were second highest in history. Grain prices increased to very high levels and costs were flat to down. Federal disaster payments for the 2008 crop year were paid in 2010.

- In 2009, lower crop prices, high costs and low livestock profit resulted in sharply lower financial performance despite record yields for spring wheat, durum, barley, canola, and field peas. Financial performance in 2007 and 2008 was outstanding because of high crop prices. In 2006 there was a severe drought in the west and portions of central North Dakota. Profit declined in 2005 from 2004 because portions of the state, particularly the northeast, had production problems. There was poor row crop yields in 2004 but good spring wheat, canola and field pea yields and strong beef cow-calf profit.

- Median current ratio dropped to 1.6 in 2014, the lowest since 1.4 in 2009. It was highest, 2.3, in 2012, 2.0 in 2011, 1.9 in 2013 and 2010, 1.8 in 2008, and 1.7 in 2007. It was 1.2 in 2005 and 2006. Median debt-to-asset was 44.7% in 2014 and 41.8% in 2013 compared to 40.6% in 2012, and 43.7% in 2011. It was 51.2% in 2009, 48.4% in 2008, 50% in 2007, and 57.5% in 2006 which was the worst during the past 10 years.

- In 2014, median rates of return on assets and equity were the lowest in the past ten years at 2.8% and 2.1%, respectively, compared to 16.2% and 24.8%, respectively, in 2012. ROE was less than ROA, which indicated that debt capital was not employed profitably, in 2005, 2006, 2009, and 2014.

- The median term debt coverage ratio, 1.08, and term debt and capital repayment margin, $3,556, of 2014 were ten-year lows, down from the highs in 2012, of 4.6 and $185,291, respectively.

- Interest expense as a percent of gross revenue was 3.5% in 2013 and 2014. It was 2.8% in 2012 after improving each year since 2008 because of lower interest rates and stronger gross revenue.

- Median net farm income as a percent of gross revenue was the lowest of the ten-year period, 12.5% in 2014 compared to the highest, 36.8% in 2012.

Table 2. Farm Classifications and Percent Distribution of Farm Types within Regions, North Dakota Farm Business Management Education Program, 2014.

| | | | Farm Group Category Breakout by Region | | | |
|---|---|---|---|---|---|---|
| Farm Category Group | Number of Farms (518) | Percentage | Red River Valley | North Central | South Central | West |
| Region | | | 104 | 168 | 162 | 84 |
| Red River Valley | 104 | 20 | | | | |
| North Central | 168 | 32 | | | | |
| South Central | 162 | 31 | | | | |
| West | 84 | 16 | | | | |
| Farm Enterprise | | | ----------percentage---------- | | | |
| Crop | 372 | 72 | 97 | 77 | 69 | 36 |
| Livestock | 85 | 16 | 1 | 13 | 17 | 42 |
| Mixed | 61 | 12 | 2 | 10 | 14 | 23 |
| Farm Sales | | | | | | |
| $249,999 or less | 117 | 23 | 16 | 21 | 28 | 24 |
| $250,000 - $499,999 | 121 | 23 | 20 | 23 | 22 | 31 |
| $500,000 - $999,999 | 171 | 33 | 38 | 40 | 25 | 30 |
| $1,000,000 or more | 109 | 21 | 26 | 16 | 26 | 15 |
| Farm Size | | | | | | |
| 1,999 acres or less | 277 | 53 | 81 | 46 | 57 | 27 |
| 2,000 acres or more | 241 | 47 | 19 | 54 | 43 | 73 |
| Cropland Tenure | | | | | | |
| Full tenant | 116 | 22 | 26 | 21 | 26 | 18 |
| 1-20 percent owned | 104 | 20 | 29 | 21 | 12 | 27 |
| 21-40 percent owned | 121 | 23 | 24 | 26 | 24 | 21 |
| 41 percent or more owned | 162 | 31 | 21 | 33 | 38 | 35 |
| Farm Income | | | | | | |
| $49,999 or less | 250 | 48 | 66 | 45 | 46 | 38 |
| $50,000 - $99,999 | 97 | 19 | 15 | 20 | 19 | 19 |
| $100,000 - $199,999 | 88 | 17 | 11 | 21 | 17 | 18 |
| $200,000 or more | 83 | 16 | 8 | 14 | 19 | 25 |
| Debt-to-asset Ratio | | | | | | |
| 0 – 40 percent | 228 | 44 | 50 | 46 | 45 | 31 |
| 41 – 70 percent | 206 | 40 | 39 | 37 | 43 | 40 |
| 71 percent or more | 84 | 16 | 11 | 17 | 12 | 29 |
| Farmer Age | | | | | | |
| 39 years or younger | 178 | 34 | 31 | 35 | 32 | 43 |
| 40 – 49 years | 97 | 19 | 17 | 24 | 17 | 13 |
| 50 years or older | 243 | 47 | 52 | 42 | 51 | 44 |

## 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 Fargo 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 2014 summaries are:

Red River Valley: Wahpeton, Fargo, and Northwood
North Central: Bottineau, Devils Lake, Langdon, Minot, and Rugby
South Central: Bismarck, Carrington, Jamestown, and Oakes
West: Bismarck, Dickinson, Glen Ullin and Williston

### Highlights

- In 2014 the median farm size increased from the Red River Valley (1,271 acres, all crop land) to the west region (3,250 acres, including pasture). Median farm size was 2,149 acres (1,864 crop acres) in the north central region and 1,583 acres (1,221 crop acres) for the south central region. The average size was larger: the Red River Valley, north central, south central and west regions were, 1,441, 2,418, 2,510, and 3,823 acres per farm, respectively.

- 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.

- Typically, the Red River Valley has the best financial performance but not in 2013 and 2014 because profit of its dominant enterprises, soybeans, corn and sugarbeets suffered.

- In 2014, the incidence of livestock and mixed enterprise farms ranged from only 3% in the Red River Valley to 65% in the west.

- The median net farm income in 2012 was the highest in the decade for all regions and 2014 was the only year it was higher in the west than other regions. From 2012 to 2014 it decreased 99% to $3,921 in the Red River Valley, 75% to $57,602 in the south central region, 70% to $63,549 in the north central region, and 36% to $59,995 in the west.

- In 2006, the west region 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.

- In 2014 the median current ratio was 1.7 in the Red River Valley and south central regions, 1.6 in the west and 1.5 in the north central region. The five year average, 2009-2013, median current ratio by region ranged from 1.7 in the west region to 2.5 in the Red River Valley.

- In 2012, median debt-to-asset for all regions were the best over the 2005 to 2014 period, ranging from 34.9% in the Red River Valley to 50.5% in the west. In 2014 it was 40.0% in the Red River Valley, 43.6% in the south central region, 44.3% in the north central region, and 54.5% in the west.

- In 2014, the median term debt coverage ratio decreased in all regions except the west, at 1.9. It was 1.69 in the south central, 0.9 in the north central and 0.02 in the Red River Valley.

- In 2014, median operating expense (all expenses except depreciation and interest) as a percent of gross revenue was 84.6% in the Red River Valley, the highest of any region from 2005 to 2014. The best in 2014 was 68.7% in the west region. The only years any regions achieved less than 60% in the past 10 years were in 2012, 2010 and 2007.

## 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**

- From 2007 to 2014, about 71 to 75% of all farms were classified as crop, compared to about 64% from 2002 to 2006.

- In 2014, 65% of farms were classified as livestock or mixed enterprise in the west region compared to 3% in the Red River Valley, 26% in the north central and 31% in the south central regions.

- The best performance, by farm type, for nearly every financial measure over the 2005-2014 period was achieved by crop farms in 2012. Livestock farms had their best financial performance relative to other farm types in 2014 and 2005.

- Every year, 2005-2014, crop farms were larger than livestock and mixed enterprise farms in median total assets, total liabilities, and gross income. The only years in which median net farm income of both livestock and mixed enterprise farms exceeded that of crop farms was 2005 and 2014. In 2014, median net farm income increased 139% to $95,130 for livestock farms but decreased 68% to $32,347 for crop farms and 20% to $63,819 for mixed enterprise farms.

- Median rate of return on equity for livestock farms was historically high, 22.8% in 2014. It was 0.0% for crop farms and 5.2% for mixed enterprise farms.

- In 2014, the median asset turnover ratio was .34 for all farm types. However, typically it is higher for crop farms. The five year average, 2009-2013, median asset turnover was .50 for crop farms, .32 for mixed enterprise farms, and .27 for livestock farms (predominantly beef cow-calf farms).

- In 2014, crop farms had a median term debt coverage ratio of 0.59, compared to 5.60 in 2012. It was 2.90 for livestock farms, and 1.96 for mixed enterprise farms. The five year average, 2009-2013, was 3.10 for crop farms, 2.03 for livestock farms, and 1.88 for mixed enterprise farms.

- In 2014, median interest expense as a percent of gross revenue was 3.3% for livestock farms, 3.4% for crop farms and 4.1% for mixed enterprise farms. Each farm type had its best measure in 2012. Every year, 2005-2014, crop farms had a lower interest expense ratio than other farm types.

- Over the past ten years, the best performance in converting gross income into net income, was 39.5% by crop farms in 2012 and 38.4% by livestock farms in 2014. Crop farms had their ten year low, 8.4% in 2014. The five year average, 2009-2013, was 27.2% for crop farms, 20.8% for livestock farms, and 21.1% for mixed enterprise farms.

Figure 1. Median Total Farm Assets and Liabilities by Farm Type, 2014, N.D. Farm Mgt. Program

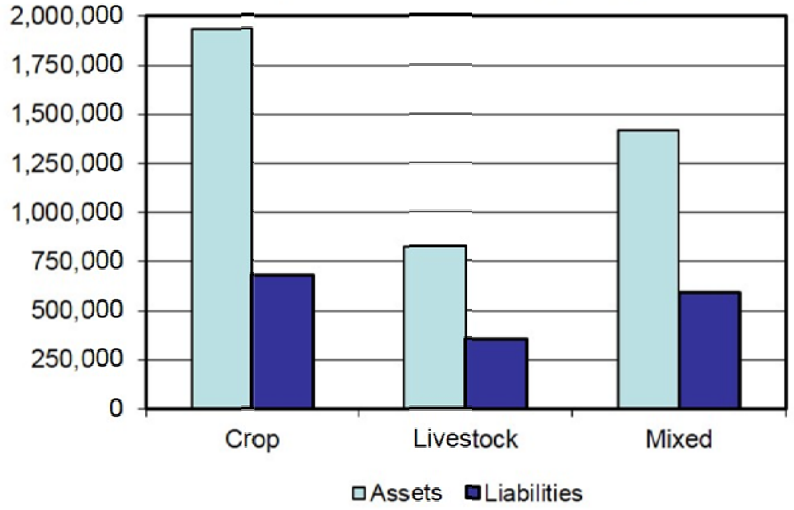



Figure 2. Median Net Farm Income by Farm Type, 2005-2014, N.D. Farm Mgt. Program

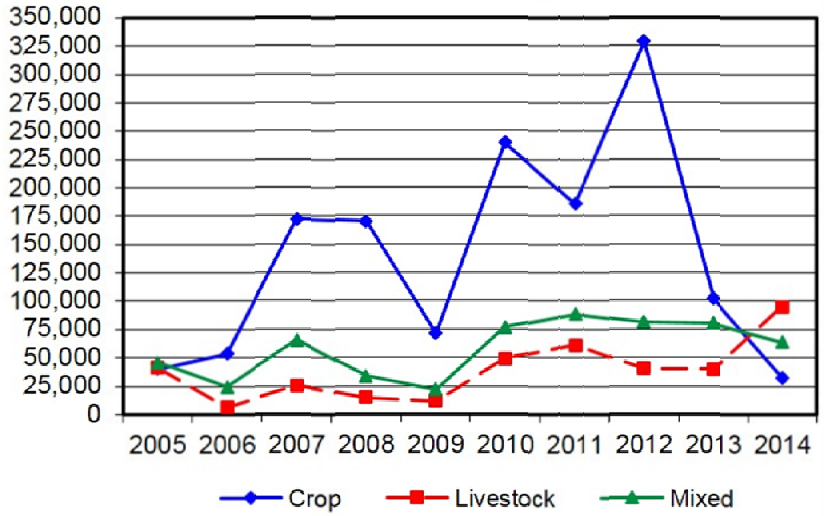



Figure 3. Median Rate of Return on Assets by Farm Type, 2005-2014, N.D. Farm Mgt. Program

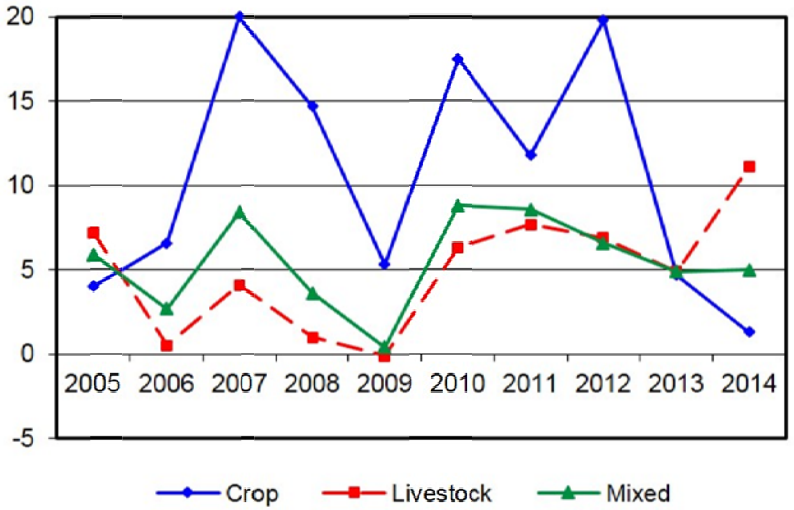
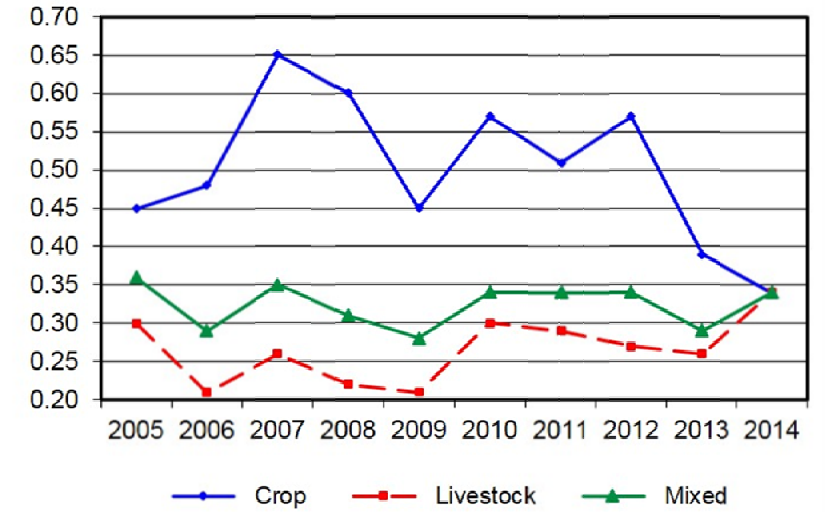



Figure 4. Median Asset Turnover Ratio by Farm Type, 2005-2014, N.D. Farm Mgt. Program



## 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 cash farm sales in 2014 were $531,374 and $734,233, respectively down from $606,730 and $868,840, respectively in 2013. In 2014, 54% of farms had sales greater than $500,000.

- Gross sales are correlated to region and farm type. In 2014, 64% of Red River Valley farms had sales in excess of $500,000, compared to 45% in the west region. Also, 63% of crop farms had sales greater than $500,000 compared to 26% of livestock farms.

- Young farmers typically have lower sales than older farmers, but farmers between the ages of 40 and 49 have usually been more likely to have farm sales greater than $500,000 than farmers 50 years and older.

- In 2014, farms with less than $500,000 sales were more likely to rent all cropland than farms with larger sales.

- The typical strong direct relationship between the level of gross sales and financial performance weakened in 2014 because crop farms were much less profitable than livestock farms despite being over twice as likely to have sales greater than $500,000.

- In 2014, median net farm income increased 12%, to $36,230 for farms with less than $250,000 sales. Livestock farms had strong profit and are much more likely to have less than $250,000 sales than crop farms. Median net farm income was $51,605, down 30%, for farms with sales $250,000 to $499,999, and down 40% for farms with sales $500,000 to $999,999, to $63,819, and for farms with sales greater than $1,000,000, to $124,377.

- Farms with low sales typically have worse solvency. The median debt-to-asset was 51.3%, 44.4%, 43.2%, and 40.4% for the lowest to highest farm sale groups, respectively, in 2014.

- Typically, repayment capacity is directly related to amount of sales. However, in 2013 and 2014 the opposite occurred. In 2014, farms with less than $250,000 sales had a median term debt coverage ratio of 1.9 and farms with greater than $1,000,000 sales had 0.86.

- Farms with greater sales typically use a smaller portion of gross revenue for interest expense. The five year average, 2008-2013 median interest expense as a percent of gross revenue was 5.5%, 4.0%, 3.5%, and 2.7% for the lowest to highest farm sale categories, respectively. However, in 2014 it was 3.3%, 3.8%, 3.6%, and 3.2% for the lowest to highest farm sales categories, respectively.

- In 2014, it was very unusual that farms with less than $250,000 sales had rates of returns on assets and equity at 5.6% and 7.3%, respectively, which were higher than farms with sales greater than $1,000,000 at 1.6% and 1.2%, respectively.

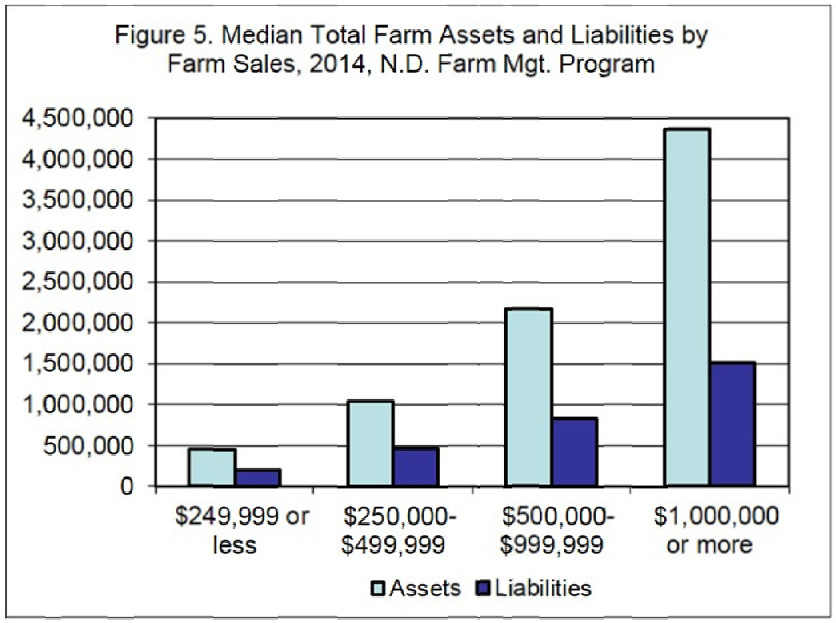


Figure 5. Median Total Farm Assets and Liabilities by Farm Sales, 2014, N.D. Farm Mgt. Program
4,500,000
4,000,000
3,500,000
3,000,000
2,500,000
2,000,000
1,500,000
1,000,000
500,000
0
$249,999 or less
$250,000-$499,999
$500,000-$999,999
$1,000,000 or more
Assets
Liabilities

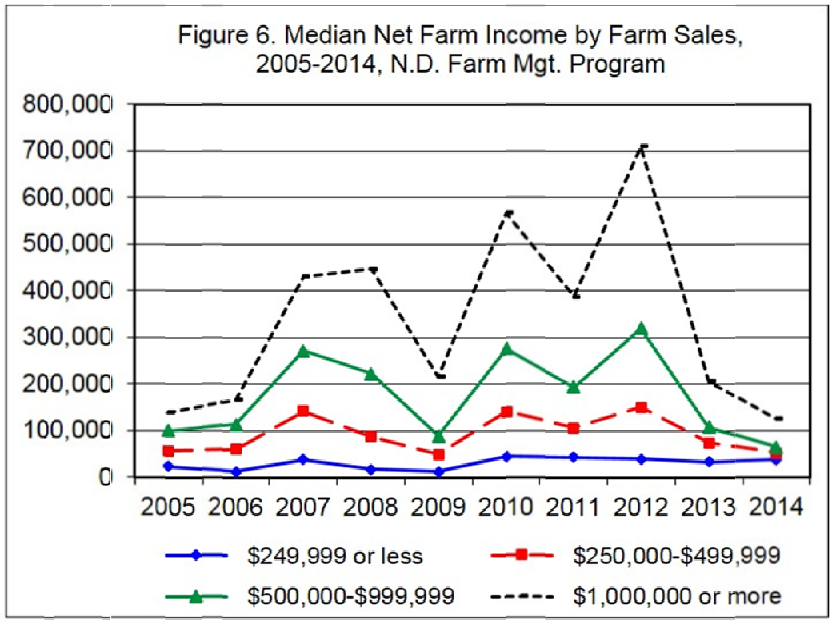


Figure 6. Median Net Farm Income by Farm Sales, 2005-2014, N.D. Farm Mgt. Program
800,000
700,000
600,000
500,000
400,000
300,000
200,000
100,000
0
2005 2006 2007 2008 2009 2010 2011 2012 2013 2014
$249,999 or less
$250,000-$499,999
$500,000-$999,999
$1,000,000 or more

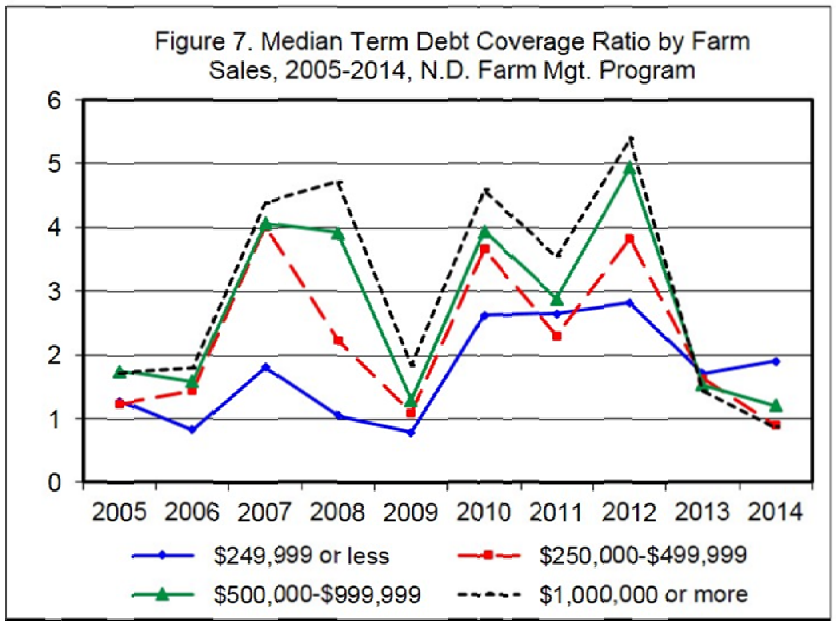


Figure 7. Median Term Debt Coverage Ratio by Farm Sales, 2005-2014, N.D. Farm Mgt. Program
6
5
4
3
2
1
0
2005 2006 2007 2008 2009 2010 2011 2012 2013 2014
$249,999 or less
$250,000-$499,999
$500,000-$999,999
$1,000,000 or more

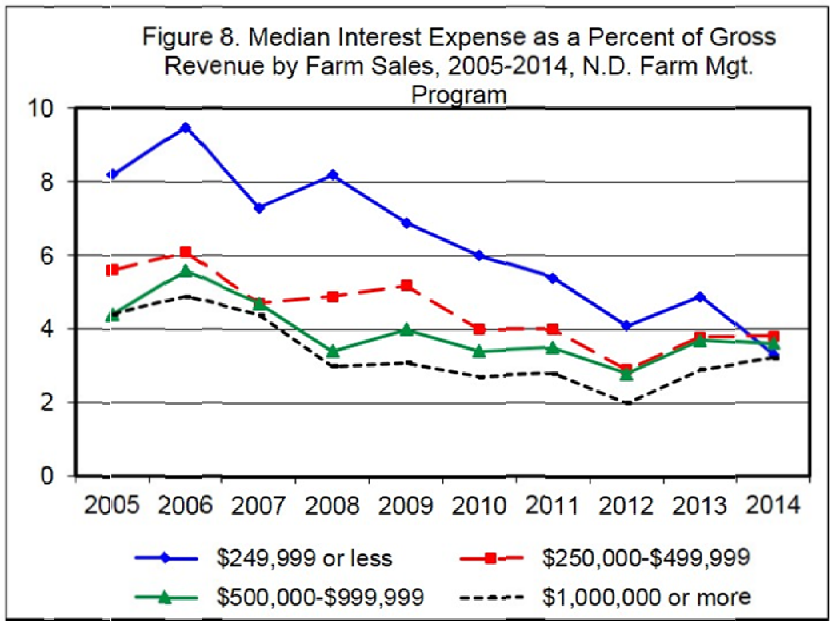


Figure 8. Median Interest Expense as a Percent of Gross Revenue by Farm Sales, 2005-2014, N.D. Farm Mgt. Program
10
8
6
4
2
0
2005 2006 2007 2008 2009 2010 2011 2012 2013 2014
$249,999 or less
$250,000-$499,999
$500,000-$999,999
$1,000,000 or more

## 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 and expensive crop land, only about one-fifth of the Red River Valley farms were larger than 2,000 acres, compared to 73% of west region farms and about one-half of farms in the central regions.

- From 2005 to 2014, mixed enterprise farms have typically been more likely to be larger than 2,000 acres than were crop or livestock farms. In 2014, 59% of mixed enterprise farms were larger than 2,000 acres compared to 45% of crop farms and 42% of livestock farms.

- In 2006 through 2014, less than one-third of farmers under 40 years old operated more than 2,000 acres compared to nearly two-thirds of farmers between 40 and 49 years old and about one-half of farmers 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 2014, median debt-to-asset was 46.1% for farms less than 2,000 acres and 43.6% for larger sized farms.

- In 2014, median net farm income decreased 33%, to $40,803 for farms with less than 2,000 acres and 40%, to $94,563 for farms with more than 2,000 acres. Historically, farms with more than 2,000 acres have over twice the net farm income of the small farm group. The five-year average, 2009-2013, median net farm income was $90,393 for farms less than 2,000 acres and $224,625 for farms with greater than 2,000 acres.

- Median current ratio in 2014 was 1.7 for farms with less than 2,000 acres and 1.8 for larger farms. The five year average, 2009-2013, median current ratio was 1.9 both for farms with less than 2000 acres and farms larger than 2000 acres.

- Typically, 2005 to 2014, median term debt coverage ratio was better for farms with more than 2,000 acres than for smaller farms, except in 2006, 2012, and 2013. Although smaller acreage farms generate less farm cash income, they tend to have more non-farm income than larger farms.

- In 2014, median operating expense (excluding depreciation and interest) as a percent of gross revenue was 74.8% for farms with less than 2,000 acres and 75.7% for farms with greater than 2,000 acres. Financial efficiency measures of farm size groups are typically 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**

- Substantial ownership of crop land is less likely in the Red River Valley. About 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. Farmers 50 years or older were over 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. In 2014, nearly one-half of livestock and mixed enterprise farms owned more than 40% of the crop land that they operate, compared to one-fourth of crop farms.

- In 2014, 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.

- Typically, farms that own some land, but less than 40%, are the most profitable, and are more likely to be crop farms, farm more acreage, and have larger sales. However, in 2014 farms with greater than 40% land ownership had similar profit as farms with 1% to 40% land ownership.

- In 2014, median net farm income was $34,023 for farms that rented all cropland and range from $59,000 to $64,000 for the other farm land ownership categories.

- Typically, prior to 2014, 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 the livestock and low sales farm categories and less likely to be in the Red River Valley Region. However, in 2014 profit was high for livestock farms and low for crop and Red River Valley farms.

- In the past ten years farms that owned greater than 40% of their crop land typically had a slightly higher current ratio. In 2014, the difference was greater. Farms with greater than 40% crop land ownership had a median current ratio of 1.9 compared to 1.4 for the other tenure groups.

- Farms with greater crop land ownership typically have better solvency. In 2014, median debt-to-asset ratio was 51.6% for farms with no crop land ownership, 44.9% for farms with 1-20% crop land ownership, 43.6% for farms with 21-40% crop land ownership, and 39.1% 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 with a smaller proportion of crop land ownership have fewer land assets and land interest costs and therefore have substantially higher asset turnover ratios and lower interest expense as a percent of gross revenue.

Figure 9. Median Net Farm Income by Crop Land Tenure, 2005-2014, N.D. Farm Mgt. Program

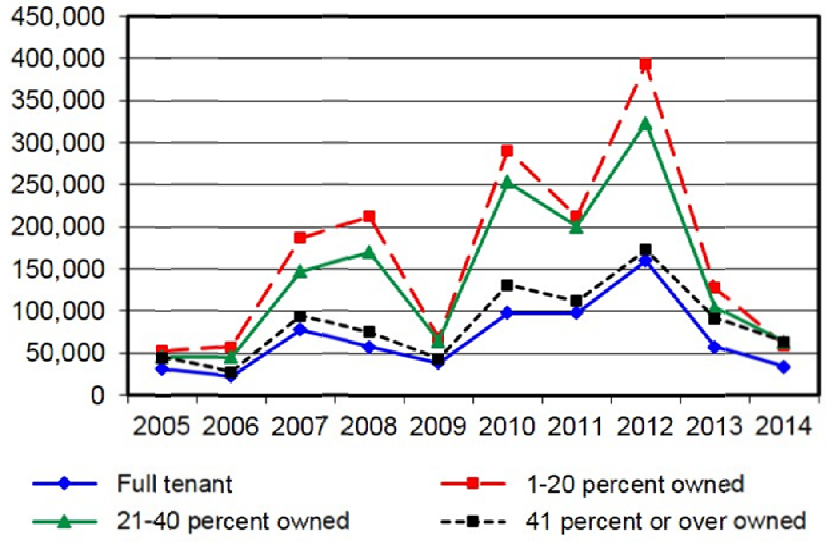



Figure 10. Median Asset Turnover Ratio by Crop Land Tenure, 2005-2014, N.D. Farm Mgt. Program

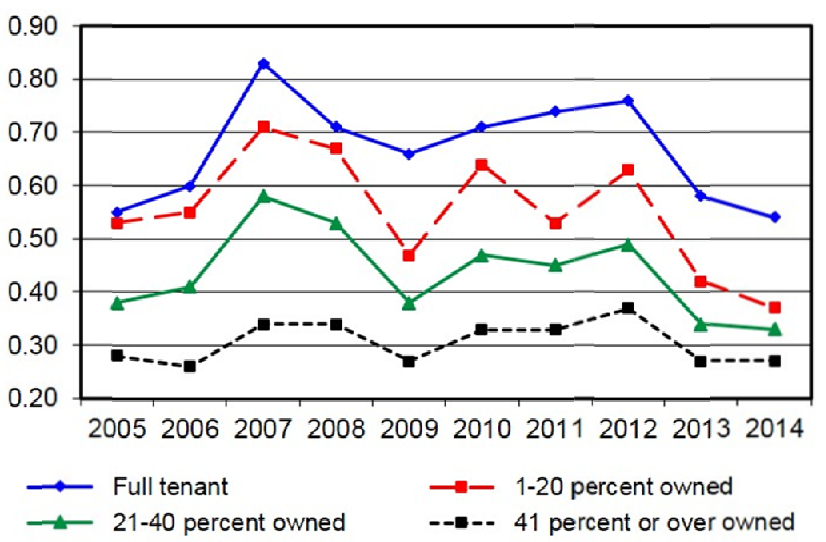



Figure 11. Median Net Farm Income by Debt-to-Asset Group, 2005-2014, N.D. Farm Mgt. Program

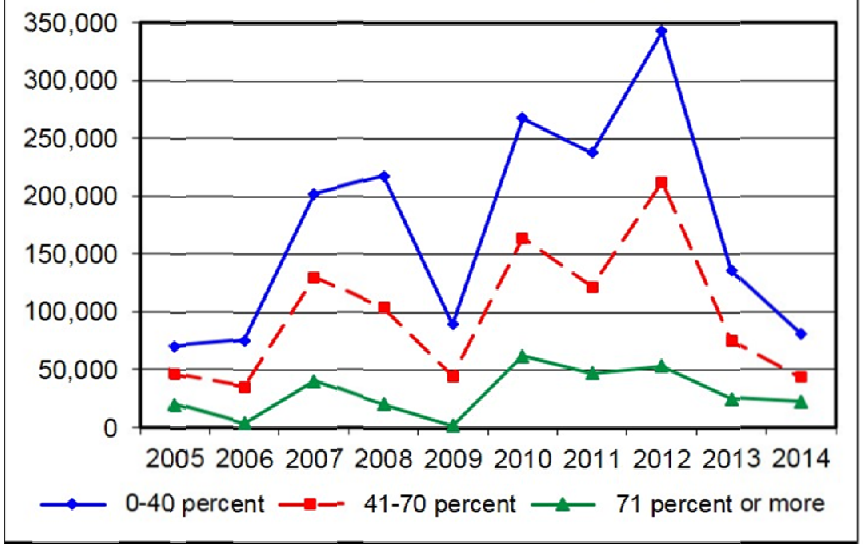
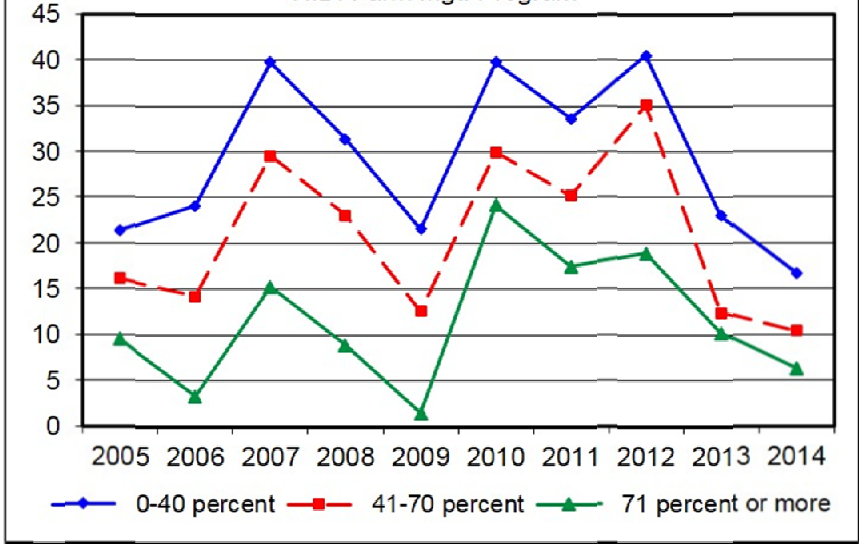



Figure 12. Median Net Farm Income as a Percent of Gross Revenue by Dept-to-Asset Group, 2005-2014, N.D. Farm Mgt. Program



## 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 over 70% the past 10 years. The largest change occurred in 2010. Statewide, median net farm income decreased 40% in 2014 and 62% in 2013. It increased 65% in 2012, decreased 17% in 2011, increased 266% in 2010, and decreased 58% in 2009 and 10% in 2008, after increasing 255% in 2007.

- Median net farm income was $54,543 in 2014, down from $90,529 in 2013. The five highest median net farm income years in the 2005-2014 period were $238,054 in 2012, $174,010 in 2010, $144,414 in 2011, $127,791 in 2007, and $114,520 in 2008. It ranged between $35,980 and $47,547 from 2004 to 2006 and in 2009.

- The Red River Valley had the highest median net farm income five out of ten years from 2005 to 2014. The north central region was the highest in three years, and the south central and west regions were each the highest one year. The west region farms had the lowest median net farm income seven of the ten years, but the highest in 2014.

- In 2014, median net farm income was $95,130 for livestock farms and $32,347 for crop farms. Typically, crop farms have been more profitable than livestock farms. The five year average, 2009-2013, median net farm income was $185,317 for crop farms and $40,327 for livestock farms.

- In 2014, nearly one-half of livestock and mixed enterprise farms had net farm income greater than $100,000 compared to one-fourth of crop farms. Over one-half of crop farms earned less than $50,000.

- As expected, net farm income is strongly associated with farm sales and farm size. In 2014, 26% of farms with sales greater than $500,000 had net farm income greater than $200,000, compared to 5% of farms with less than $500,000 sales. Farms larger than 2,000 acres were five times more likely to have net farm income greater than $200,000 than were smaller farms.

- In all but four years from 2005 to 2014, 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, 2009, 2011, and 2013.

- 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**

- The median debt-to-asset of all farms increased from 53.3% to 57.5% between the years 2002 to 2006 and then generally improved until 2012, to 40.6%. It was 44.7% in 2014.
- The median debt-to-asset of farms in the north central region was the best in 2013 and 2007 through 2009 compared to other regions. However, the Red River Valley had the best solvency in all other years during the 2005-2014 period.
- 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 2005-2014 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 2014, farms in the low, medium and high debt-to-asset categories had median current ratios of 3.2, 1.2 and 0.9; term debt coverage ratios of 1.9, 0.8, and 0.32; interest expense as a percent of gross revenue of 2.0, 5.0, and 6.3; and net farm income as percent of gross revenue of 16.7, 10.4, and 6.3, respectively.
- In 2014, farms with sales less than $250,000 were three times more likely to be in the high debt group than farms with sales greater than $1,000,000.
- As expected, percent debt-to-asset tended to decrease as age of farmer increased. In 2014, median debt-to-asset was 57.9% for farmers younger than 40 years, 43.9% for farmers 40-49 years and 34.8% for farmers 50 years or older.
- In 2014, median net farm income decreased to $80,757 for the low debt-to-asset category, and to $43,545 and $22,417 for the medium and high debt-to-asset categories, respectively.
- In 2014, one-fourth of farms with low debt had net farm income greater than $200,000, compared to 2% 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 2014, 31% of farm operators were under 40 years old and 17% were 40 to 49 years old. The percent of farmers 50 and older has steadily increased from 19% in 1996 to 52% in 2014.
- The age distribution of farm operators has been similar across regions during the 2005-2014 period.
- 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, 2009, 2011, and 2013 when the median net farm income was highest for farmers older than 50 years.
- For each age group, the years 2012, 2011, 2010, 2008 and 2007 had much higher median net farm income than other years during the 2005-2014 period. In 2014 median net farm income was $50,646 for farmers under 40 years old, $69,799 for farmers 40-49 years old, and $54,592 for farmers 50 years and older.
- Median total assets are lowest for farm operators less than 40 years old. Median total assets of farmers between 40 and 49 years old and the older age group of farmers (50 years and older) were similar in 2005-2010, but greater for older farmers since 2010.
- 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 2014, median debt-to-asset was 57.9% for farmers less than 40 years old, 43.2% for farmers in the 40 to 49 age group and 34.8% for farmers 50 or older.
- From 2007 through 2014, median current ratio improved with farmer age. However, prior to 2007 there was not a clear relationship between median current ratio and age groups.
- For the first time in 2005-2014 period farmers older than 50 years had term debt coverage ratio less than 1.0, at 0.86, and a ratio which was lower than the other age groups.
- In each year, 2005-2014, 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, 2014 N.D. Farm Mgt. Program

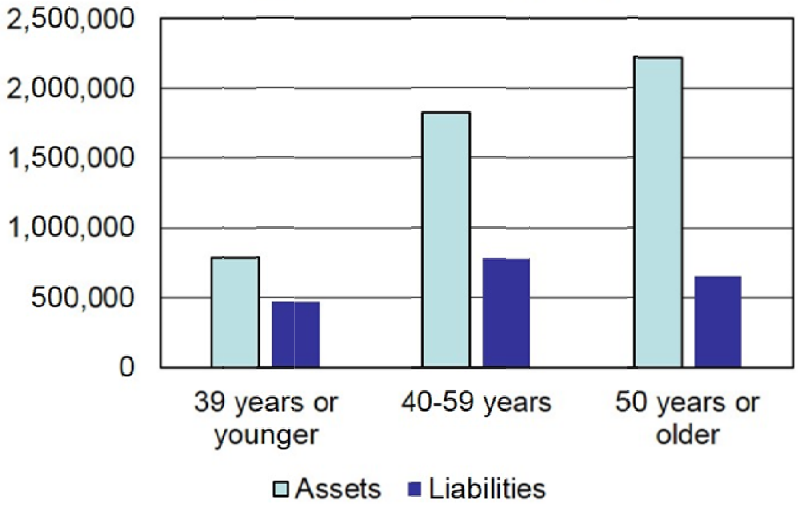



Figure 14. Median Net Farm Income by Farmer Age, 2005-2014, N.D. Farm Mgt. Program

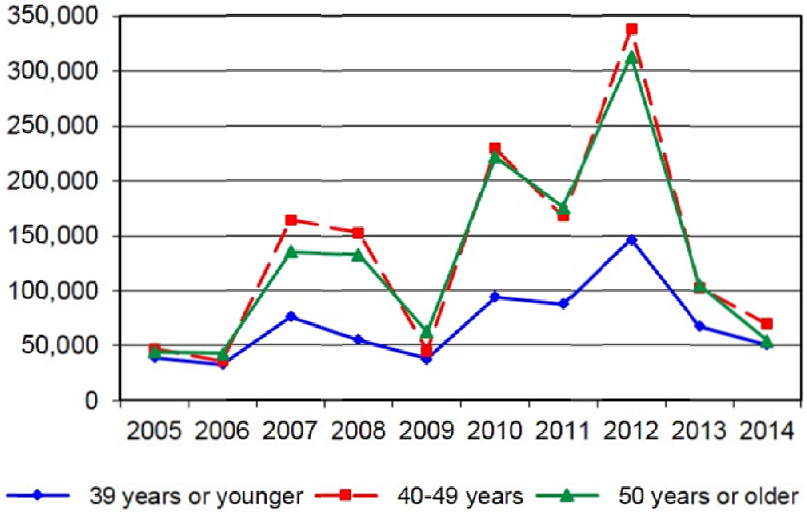



Figure 15. Median Term Debt Coverage Ratio by Farmer Age, 2005-2014, N.D. Farm Mgt. Program

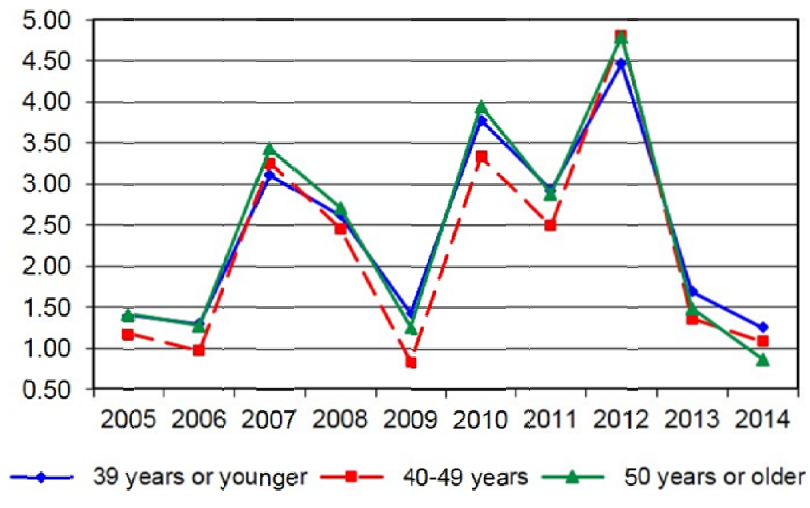



Figure 16. Median Net Farm Income as a Percent of Gross Revenue by Farmer Age, 2005-2014, N.D. Farm Mgt. Program

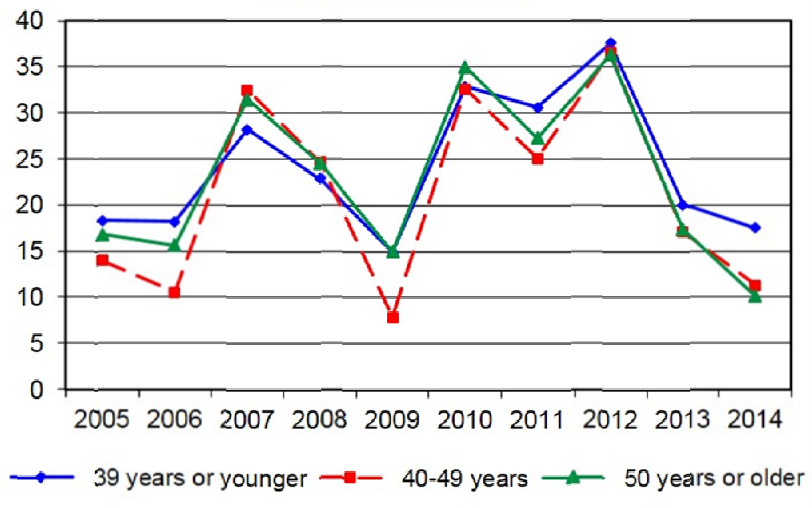


Table 3. Current Assets and Current Liabilities, Quartile Values for 2014, Median Values for 2013, and 5-Year Average, 2009-2013, of Median Values, North Dakota Farm Business Management Education Program Participants.

| Farm Group | 2014 Upper Quartile | 2014 Lower Quartile | 2014 Median | 2013 Median | Average of 2009-2013 Medians | 2014 Upper Quartile | 2014 Lower Quartile | 2014 Median | 2013 Median | Average of 2009-2013 Medians |
|---|---|---|---|---|---|---|---|---|---|---|
| | Current Farm Assets ($) | | | | | Current Farm Liabilities ($) | | | | |
| All Farms | 755,986 | 219,185 | 418,171 | 447,889 | 399,166 | 80,191 | 514,996 | 249,002 | 176,123 | 168,161 |
| Region | | | | | | | | | | |
| Red River Valley | 785,332 | 256,704 | 466,686 | 539,552 | 518,993 | 78,804 | 508,971 | 249,501 | 231,543 | 200,012 |
| North Central | 650,220 | 233,356 | 418,126 | 415,156 | 382,436 | 97,424 | 481,114 | 259,925 | 144,511 | 158,902 |
| South Central | 838,199 | 180,885 | 398,438 | 452,516 | 388,434 | 70,259 | 536,063 | 202,933 | 190,274 | 169,155 |
| West | 831,890 | 212,607 | 435,898 | 431,053 | 324,018 | 84,390 | 491,270 | 238,580 | 208,856 | 155,904 |
| Farm Enterprise | | | | | | | | | | |
| Crop | 848,548 | 254,490 | 481,164 | 531,394 | 490,906 | 109,858 | 534,956 | 308,022 | 222,580 | 206,983 |
| Livestock | 473,804 | 117,696 | 233,715 | 161,254 | 129,831 | 26,215 | 188,535 | 72,653 | 65,413 | 62,913 |
| Mixed | 588,705 | 215,054 | 391,099 | 346,744 | 264,580 | 107,039 | 423,789 | 222,699 | 176,123 | 153,713 |
| Farm Sales | | | | | | | | | | |
| $249,999 or less | 209,427 | 56,407 | 121,211 | 110,139 | 97,180 | 19,715 | 116,493 | 55,739 | 44,614 | 46,810 |
| $250,000-$499,999 | 418,019 | 219,710 | 300,593 | 254,895 | 283,718 | 75,749 | 279,665 | 162,508 | 121,644 | 140,457 |
| $500,000-$999,999 | 773,861 | 396,177 | 563,354 | 503,021 | 529,172 | 171,198 | 533,321 | 370,282 | 235,915 | 234,956 |
| $1,000,000 or more | 1,807,789 | 750,860 | 1,197,413 | 1,020,951 | 1,145,051 | 471,988 | 1,129,344 | 679,158 | 482,900 | 475,155 |
| Farm Size | | | | | | | | | | |
| 1,999 acres or less | 434,410 | 122,476 | 251,883 | 256,900 | 227,659 | 40,751 | 290,383 | 120,334 | 95,746 | 93,004 |
| 2,000 acres or more | 1,197,413 | 441,463 | 728,495 | 764,569 | 663,841 | 226,040 | 704,580 | 443,553 | 380,082 | 294,317 |
| Cropland Tenure | | | | | | | | | | |
| Full tenant | 480,623 | 111,491 | 236,304 | 216,940 | 219,155 | 40,967 | 371,543 | 120,792 | 96,630 | 85,950 |
| 1-20 percent owned | 965,363 | 355,170 | 554,641 | 613,387 | 601,582 | 172,033 | 667,485 | 371,783 | 277,991 | 268,708 |
| 21-40 percent owned | 903,091 | 345,099 | 556,451 | 560,732 | 518,495 | 163,843 | 609,254 | 379,757 | 244,788 | 234,773 |
| 41 percent or more owned | 735,755 | 218,738 | 437,199 | 448,681 | 368,633 | 67,216 | 419,014 | 175,819 | 156,367 | 135,625 |
| Net Farm Income | | | | | | | | | | |
| $49,999 or less | 622,142 | 140,577 | 328,528 | 245,528 | 134,011 | 76,335 | 507,557 | 281,787 | 115,105 | 80,385 |
| $50,000-$99,999 | 525,439 | 183,231 | 305,661 | 281,913 | 227,468 | 41,506 | 309,485 | 139,107 | 123,592 | 112,188 |
| $100,000-$199,999 | 857,023 | 282,187 | 512,572 | 509,050 | 385,882 | 90,436 | 477,833 | 225,197 | 178,927 | 174,333 |
| $200,000 or more | 1,711,200 | 585,744 | 898,704 | 1,044,368 | 861,161 | 148,282 | 725,685 | 399,600 | 348,132 | 290,347 |
| Debt-to-Asset Ratio | | | | | | | | | | |
| 0-40 percent | 1,035,789 | 309,840 | 557,814 | 550,984 | 561,165 | 41,666 | 372,913 | 146,181 | 110,672 | 125,119 |
| 41-70 percent | 681,420 | 215,663 | 374,571 | 401,250 | 360,223 | 135,713 | 603,047 | 349,868 | 287,239 | 234,844 |
| 71 percent or more | 476,922 | 108,780 | 241,803 | 249,483 | 174,964 | 101,509 | 549,376 | 312,171 | 267,377 | 175,308 |
| Farmer Age | | | | | | | | | | |
| 39 years or younger | 415,096 | 118,049 | 241,680 | 219,558 | 203,677 | 49,159 | 360,405 | 135,535 | 106,383 | 99,839 |
| 40-49 years | 898,704 | 330,636 | 531,872 | 522,988 | 495,324 | 110,083 | 602,125 | 357,501 | 266,894 | 243,394 |
| 50 years or older | 952,016 | 304,473 | 556,968 | 588,467 | 522,021 | 110,669 | 533,896 | 306,993 | 223,334 | 198,858 |

Table 4. Liquidity Measures, Quartile Values for 2014, Median Values for 2013, and 5-Year Average, 2009-2013, of Median Values, North Dakota Farm Business Management Education Program Participants.

| Farm Group | 2014 Upper Quartile | 2014 Lower Quartile | 2014 Median | 2013 Median | Average of 2009-2013 Medians | 2014 Upper Quartile | 2014 Lower Quartile | 2014 Median | 2013 Median | Average of 2009-2013 Medians |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Current Ratio | | | | | Working Capital ($) | | |
| All Farms | 3.2 | 1.0 | 1.6 | 1.9 | 1.9 | 348,492 | 7,318 | 117,283 | 139,950 | 155,685 |
| Region | | | | | | | | | | |
| Red River Valley | 3.0 | 1.1 | 1.7 | 2.1 | 2.4 | 401,443 | 11,828 | 148,644 | 266,790 | 264,339 |
| North Central | 3.2 | 0.9 | 1.5 | 1.9 | 1.9 | 362,133 | -7,552 | 112,205 | 126,527 | 145,757 |
| South Central | 3.1 | 1.0 | 1.7 | 2.1 | 1.9 | 322,387 | 9,840 | 107,846 | 156,690 | 144,695 |
| West | 3.9 | 1.1 | 1.6 | 1.5 | 1.7 | 282,978 | 14,807 | 127,052 | 113,337 | 96,851 |
| Farm Enterprise | | | | | | | | | | |
| Crop | 3.1 | 0.9 | 1.5 | 2.0 | 2.1 | 383,632 | -12,391 | 126,498 | 187,296 | 215,841 |
| Livestock | 4.2 | 1.4 | 2.4 | 1.7 | 1.6 | 223,195 | 35,470 | 115,983 | 53,726 | 45,603 |
| Mixed | 2.4 | 1.1 | 1.6 | 1.7 | 1.6 | 265,089 | 14,792 | 103,964 | 139,538 | 84,649 |
| Farm Sales | | | | | | | | | | |
| $249,999 or less | 3.5 | 1.1 | 1.7 | 2.0 | 1.8 | 96,668 | 7,735 | 45,043 | 44,484 | 37,132 |
| $250,000-$499,999 | 3.9 | 1.1 | 1.7 | 2.0 | 1.8 | 247,889 | 12,967 | 105,904 | 98,506 | 112,094 |
| $500,000-$999,999 | 3.1 | 1.0 | 1.4 | 1.8 | 2.1 | 412,820 | -6,537 | 170,330 | 216,648 | 249,856 |
| $1,000,000 or more | 2.7 | 1.0 | 1.6 | 1.9 | 2.2 | 1,017,299 | 7,511 | 380,730 | 517,498 | 573,620 |
| Farm Size | | | | | | | | | | |
| 1,999 acres or less | 3.6 | 1.0 | 1.7 | 2.1 | 2.0 | 219,939 | 4,611 | 70,742 | 103,999 | 90,907 |
| 2,000 acres or more | 3.0 | 1.0 | 1.5 | 1.8 | 1.9 | 555,508 | 10,265 | 180,639 | 271,311 | 279,260 |
| Cropland Tenure | | | | | | | | | | |
| Full tenant | 3.5 | 0.9 | 1.4 | 1.8 | 1.9 | 153,810 | -9,068 | 42,953 | 68,243 | 80,501 |
| 1-20 percent owned | 2.8 | 1.0 | 1.4 | 2.0 | 1.9 | 381,878 | -2,264 | 141,199 | 299,777 | 252,503 |
| 21-40 percent owned | 2.6 | 1.0 | 1.4 | 1.8 | 1.9 | 450,997 | 11,616 | 149,038 | 216,648 | 231,518 |
| 41 percent or more owned | 4.1 | 1.1 | 1.9 | 2.2 | 2.1 | 399,248 | 23,224 | 151,012 | 160,092 | 143,282 |
| Net Farm Income | | | | | | | | | | |
| $49,999 or less | 2.1 | 0.9 | 1.3 | 1.4 | 1.4 | 162,308 | -35,143 | 28,783 | 41,104 | 26,653 |
| $50,000-$99,999 | 4.3 | 1.2 | 2.1 | 2.1 | 1.8 | 253,929 | 46,393 | 116,509 | 117,121 | 82,011 |
| $100,000-$199,999 | 3.3 | 1.2 | 1.9 | 2.1 | 1.9 | 371,579 | 80,534 | 161,647 | 223,370 | 157,688 |
| $200,000 or more | 6.6 | 1.6 | 2.8 | 2.8 | 2.8 | 1,005,873 | 275,774 | 481,150 | 672,590 | 528,740 |
| Debt-to-Asset Ratio | | | | | | | | | | |
| 0-40 percent | 7.4 | 1.9 | 3.2 | 4.3 | 4.1 | 706,710 | 150,817 | 359,058 | 389,676 | 391,185 |
| 41-70 percent | 1.7 | 0.9 | 1.2 | 1.4 | 1.5 | 147,985 | -8,855 | 50,365 | 87,107 | 103,684 |
| 71 percent or more | 1.1 | 0.6 | 0.9 | 0.9 | 1.1 | 24,784 | -136,573 | -21,862 | -8,951 | 7,533 |
| Farmer Age | | | | | | | | | | |
| 39 years or younger | 2.7 | 1.0 | 1.4 | 1.7 | 1.7 | 146,513 | 1,880 | 52,753 | 79,205 | 69,929 |
| 40-49 years | 3.6 | 1.0 | 1.5 | 1.8 | 1.8 | 381,366 | -9,218 | 119,420 | 150,359 | 185,877 |
| 50 years or older | 3.8 | 1.1 | 1.8 | 2.3 | 2.3 | 491,803 | 16,930 | 219,939 | 291,986 | 266,464 |

Table 5. Total Assets and Total Liabilities, Quartile Values for 2014, Median Values for 2013, and 5-year Average, 2009-2013, of Median Values, North Dakota Farm Business Management Education Program Participants.

| Farm Group | 2014 Upper Quartile | 2014 Lower Quartile | 2014 Median | 2013 Median | Average of 2009-2013 Medians | 2014 Upper Quartile | 2014 Lower Quartile | 2014 Median | 2013 Median | Average of 2009-2013 Medians |
|---|---|---|---|---|---|---|---|---|---|---|
| | Total Farm Assets ($) | | | | | Total Farm Liabilities ($) | | | | |
| All Farms | 2,837,512 | 774,243 | 1,614,430 | 1,497,426 | 1,255,301 | 255,057 | 1,118,471 | 622,633 | 514,407 | 468,476 |
| Region | | | | | | | | | | |
| Red River Valley | 3,136,275 | 1,015,441 | 1,808,948 | 1,740,542 | 1,551,501 | 246,946 | 1,175,147 | 653,505 | 622,535 | 600,155 |
| North Central | 2,750,189 | 833,225 | 1,616,725 | 1,362,524 | 1,192,347 | 302,636 | 1,050,826 | 604,817 | 482,957 | 436,362 |
| South Central | 3,009,734 | 751,997 | 1,652,804 | 1,577,812 | 1,282,626 | 209,717 | 1,215,269 | 573,073 | 485,843 | 452,126 |
| West | 2,505,150 | 658,215 | 1,439,926 | 1,283,807 | 1,020,028 | 343,020 | 1,138,782 | 588,732 | 614,850 | 489,584 |
| Farm Enterprise | | | | | | | | | | |
| Crop | 3,122,063 | 1,018,770 | 1,934,268 | 1,758,775 | 1,508,672 | 307,637 | 1,250,901 | 679,747 | 583,294 | 544,277 |
| Livestock | 1,537,381 | 463,994 | 824,237 | 673,264 | 591,730 | 190,375 | 687,508 | 353,828 | 356,014 | 301,223 |
| Mixed | 2,221,479 | 802,805 | 1,418,200 | 1,376,393 | 998,518 | 275,827 | 1,047,058 | 593,009 | 469,447 | 408,073 |
| Farm Sales | | | | | | | | | | |
| $249,999 or less | 723,661 | 214,724 | 458,727 | 472,923 | 439,355 | 72,988 | 380,831 | 206,348 | 176,781 | 192,250 |
| $250,000-$499,999 | 1,418,200 | 802,805 | 1,051,257 | 851,272 | 901,745 | 255,923 | 643,885 | 475,501 | 381,680 | 397,119 |
| $500,000-$999,999 | 2,718,056 | 1,656,058 | 2,168,539 | 1,682,674 | 1,640,916 | 498,870 | 1,208,576 | 838,634 | 577,181 | 595,137 |
| $1,000,000 or more | 5,895,041 | 3,261,179 | 4,361,448 | 3,523,571 | 3,244,716 | 1,003,191 | 2,134,026 | 1,517,736 | 1,144,638 | 1,111,992 |
| Farm Size | | | | | | | | | | |
| 1,999 acres or less | 1,700,499 | 494,668 | 984,693 | 806,612 | 709,507 | 147,651 | 717,657 | 357,205 | 322,813 | 310,301 |
| 2,000 acres or more | 4,281,417 | 1,667,994 | 2,605,436 | 2,586,254 | 2,024,682 | 569,598 | 1,604,485 | 1,006,584 | 896,492 | 740,272 |
| Cropland Tenure | | | | | | | | | | |
| Full tenant | 1,310,069 | 291,236 | 691,158 | 629,724 | 541,421 | 115,300 | 666,414 | 269,061 | 234,322 | 238,703 |
| 1-20 percent owned | 3,068,947 | 1,222,303 | 1,940,680 | 2,017,882 | 1,614,923 | 477,571 | 1,430,672 | 762,821 | 701,590 | 655,732 |
| 21-40 percent owned | 3,604,722 | 1,388,786 | 2,097,986 | 1,996,709 | 1,717,862 | 515,213 | 1,485,680 | 849,859 | 708,597 | 669,098 |
| 41 percent or more owned | 2,995,386 | 959,996 | 1,818,359 | 1,768,288 | 1,388,168 | 301,908 | 1,048,844 | 593,656 | 507,801 | 446,806 |
| Net Farm Income | | | | | | | | | | |
| $49,999 or less | 2,311,554 | 600,147 | 1,339,171 | 827,751 | 563,865 | 230,079 | 1,178,996 | 628,053 | 420,750 | 296,798 |
| $50,000-$99,999 | 1,943,201 | 642,112 | 1,116,303 | 962,781 | 820,263 | 180,558 | 740,229 | 436,002 | 415,973 | 383,494 |
| $100,000-$199,999 | 2,902,794 | 1,042,083 | 1,833,379 | 1,599,782 | 1,171,826 | 379,431 | 1,046,093 | 662,903 | 451,327 | 439,357 |
| $200,000 or more | 5,288,239 | 2,007,033 | 3,253,610 | 3,536,406 | 2,558,048 | 425,603 | 1,521,332 | 849,859 | 977,903 | 764,937 |
| Debt-to-Asset Ratio | | | | | | | | | | |
| 0-40 percent | 3,679,041 | 1,018,383 | 2,080,400 | 1,908,232 | 1,709,477 | 142,113 | 791,142 | 385,558 | 347,002 | 325,302 |
| 41-70 percent | 2,546,989 | 769,562 | 1,456,786 | 1,356,753 | 1,167,399 | 435,647 | 1,465,752 | 769,036 | 714,697 | 617,667 |
| 71 percent or more | 1,816,106 | 547,729 | 1,027,618 | 764,305 | 643,290 | 465,791 | 1,365,697 | 843,724 | 637,957 | 554,565 |
| Farmer Age | | | | | | | | | | |
| 39 years or younger | 1,521,452 | 413,403 | 787,159 | 733,104 | 643,129 | 198,539 | 940,512 | 472,594 | 416,279 | 362,843 |
| 40-49 years | 2,947,374 | 1,231,060 | 1,819,690 | 1,671,584 | 1,491,628 | 401,467 | 1,160,056 | 777,420 | 718,032 | 632,883 |
| 50 years or older | 3,716,830 | 1,179,292 | 2,221,479 | 2,194,982 | 1,724,890 | 302,377 | 1,264,030 | 649,845 | 562,795 | 497,059 |

Table 6. Solvency Measures, Quartile Values for 2014, Median Values for 2013, and 5-year Average, 2009-2013, of Median Values, North Dakota Farm Business Management Education Program Participants.

| Farm Group | 2014 Debt-to-Asset (%) Upper Quartile | 2014 Debt-to-Asset (%) Lower Quartile | 2014 Debt-to-Asset (%) Median | 2013 Debt-to-Asset (%) Median | Average of 2009-2013 Debt-to-Asset (%) Medians | 2014 Equity-to-Asset (%) Upper Quartile | 2014 Equity-to-Asset (%) Lower Quartile | 2014 Equity-to-Asset (%) Median | 2013 Equity-to-Asset (%) Median | Average of 2009-2013 Equity-to-Asset (%) Medians | 2014 Debt-to-Equity Upper Quartile | 2014 Debt-to-Equity Lower Quartile | 2014 Debt-to-Equity Median | 2013 Debt-to-Equity Median | Average of 2009-2013 Debt-to-Equity Medians |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| All Farms | 25.1 | 62.4 | 44.7 | 41.8 | 44.8 | 74.9 | 37.6 | 55.3 | 58.2 | 55.2 | 0.3 | 1.7 | 0.8 | 0.7 | 0.8 |
| Region | | | | | | | | | | | | | | | |
| Red River Valley | 24.4 | 56.4 | 40.0 | 39.2 | 40.7 | 75.6 | 43.6 | 60.0 | 60.8 | 59.3 | 0.3 | 1.3 | 0.7 | 0.6 | 0.7 |
| North Central | 23.5 | 64.1 | 44.3 | 36.7 | 41.5 | 76.5 | 35.9 | 55.7 | 63.3 | 58.5 | 0.3 | 1.8 | 0.8 | 0.6 | 0.7 |
| South Central | 23.4 | 58.3 | 43.6 | 40.6 | 45.2 | 76.6 | 41.7 | 56.4 | 59.4 | 54.8 | 0.3 | 1.4 | 0.8 | 0.7 | 0.8 |
| West | 36.4 | 72.3 | 54.5 | 52.4 | 54.2 | 63.6 | 27.7 | 45.5 | 47.6 | 45.8 | 0.6 | 2.6 | 1.2 | 1.1 | 1.2 |
| Farm Enterprise | | | | | | | | | | | | | | | |
| Crop | 23.5 | 60.9 | 43.6 | 37.5 | 40.9 | 76.5 | 39.1 | 56.4 | 62.5 | 59.1 | 0.3 | 1.6 | 0.8 | 0.6 | 0.7 |
| Livestock | 36.6 | 65.2 | 50.5 | 55.0 | 56.0 | 63.4 | 34.8 | 49.5 | 45.0 | 44.0 | 0.6 | 1.9 | 1.0 | 1.2 | 1.3 |
| Mixed | 26.3 | 64.1 | 44.3 | 42.9 | 50.3 | 73.7 | 35.9 | 55.7 | 57.1 | 49.7 | 0.4 | 1.8 | 0.8 | 0.8 | 1.0 |
| Farm Sales | | | | | | | | | | | | | | | |
| $249,999 or less | 35.0 | 70.5 | 51.3 | 50.0 | 54.2 | 65.0 | 29.5 | 48.7 | 50.0 | 45.8 | 0.5 | 2.4 | 1.1 | 1.0 | 1.2 |
| $250,000-$499,999 | 22.7 | 60.9 | 44.4 | 44.5 | 48.4 | 77.3 | 39.1 | 55.6 | 55.5 | 51.6 | 0.3 | 1.6 | 0.8 | 0.8 | 0.9 |
| $500,000-$999,999 | 22.4 | 62.8 | 43.2 | 37.7 | 40.1 | 77.6 | 37.2 | 56.8 | 62.3 | 59.9 | 0.3 | 1.7 | 0.8 | 0.6 | 0.7 |
| $1,000,000 or more | 25.7 | 51.6 | 40.4 | 35.9 | 36.7 | 74.3 | 48.4 | 59.6 | 64.1 | 63.3 | 0.3 | 1.1 | 0.7 | 0.6 | 0.6 |
| Farm Size | | | | | | | | | | | | | | | |
| 1,999 acres or less | 24.9 | 63.9 | 46.1 | 42.0 | 47.5 | 75.1 | 36.1 | 53.9 | 58.0 | 52.5 | 0.3 | 1.8 | 0.9 | 0.7 | 0.9 |
| 2,000 acres or more | 25.3 | 60.1 | 43.6 | 41.7 | 41.9 | 74.7 | 39.9 | 56.4 | 58.3 | 58.1 | 0.3 | 1.5 | 0.8 | 0.7 | 0.7 |
| Cropland Tenure | | | | | | | | | | | | | | | |
| Full tenant | 31.0 | 73.1 | 51.6 | 47.6 | 48.9 | 69.0 | 26.9 | 48.4 | 52.4 | 51.1 | 0.4 | 2.7 | 1.1 | 0.9 | 1.0 |
| 1-20 percent owned | 26.0 | 59.7 | 44.9 | 38.6 | 42.9 | 74.0 | 40.3 | 55.1 | 61.4 | 57.1 | 0.4 | 1.5 | 0.8 | 0.6 | 0.8 |
| 21-40 percent owned | 28.4 | 56.2 | 43.6 | 43.0 | 43.3 | 71.6 | 43.8 | 56.4 | 57.0 | 56.7 | 0.4 | 1.3 | 0.8 | 0.8 | 0.8 |
| 41 percent or more owned | 19.6 | 61.3 | 39.1 | 35.4 | 42.1 | 80.4 | 38.7 | 60.9 | 64.6 | 57.9 | 0.2 | 1.6 | 0.6 | 0.5 | 0.7 |
| Net Farm Income | | | | | | | | | | | | | | | |
| $49,999 or less | 34.5 | 69.2 | 49.5 | 52.4 | 59.7 | 65.5 | 30.8 | 50.5 | 47.6 | 40.3 | 0.5 | 2.2 | 1.0 | 1.1 | 1.5 |
| $50,000-$99,999 | 19.7 | 63.2 | 43.6 | 42.4 | 52.1 | 80.3 | 36.8 | 56.4 | 57.6 | 47.9 | 0.2 | 1.7 | 0.8 | 0.7 | 1.1 |
| $100,000-$199,999 | 26.0 | 58.5 | 43.2 | 34.8 | 44.3 | 74.0 | 41.5 | 56.8 | 65.2 | 55.7 | 0.4 | 1.4 | 0.8 | 0.5 | 0.8 |
| $200,000 or more | 15.9 | 45.3 | 27.8 | 29.0 | 32.2 | 84.1 | 54.7 | 72.2 | 71.0 | 67.8 | 0.2 | 0.8 | 0.4 | 0.4 | 0.5 |
| Debt-to-Asset Ratio | | | | | | | | | | | | | | | |
| 0-40 percent | 11.9 | 32.9 | 22.6 | 21.8 | 23.5 | 88.1 | 67.1 | 77.4 | 78.2 | 76.5 | 0.1 | 0.5 | 0.3 | 0.3 | 0.3 |
| 41-70 percent | 46.3 | 61.4 | 53.2 | 53.2 | 53.2 | 53.7 | 38.6 | 46.8 | 46.8 | 46.8 | 0.9 | 1.6 | 1.1 | 1.1 | 1.1 |
| 71 percent or more | 74.4 | 89.2 | 79.7 | 79.1 | 81.1 | 25.6 | 10.8 | 20.3 | 20.9 | 18.9 | 2.9 | 8.3 | 3.9 | 3.8 | 4.3 |
| Farmer Age | | | | | | | | | | | | | | | |
| 39 years or younger | 41.9 | 71.8 | 57.9 | 54.5 | 56.5 | 58.1 | 28.2 | 42.1 | 45.5 | 43.5 | 0.7 | 2.5 | 1.4 | 1.2 | 1.3 |
| 40-49 years | 22.5 | 62.5 | 43.2 | 41.9 | 47.0 | 77.5 | 37.5 | 56.8 | 58.1 | 53.0 | 0.3 | 1.7 | 0.8 | 0.7 | 0.9 |
| 50 years or older | 18.0 | 49.6 | 34.8 | 30.9 | 34.2 | 82.0 | 50.4 | 65.2 | 69.1 | 65.8 | 0.2 | 1.0 | 0.5 | 0.4 | 0.5 |

Table 7. Rate of Return on Assets and Rate of Return on Equity Profitability Measures, Quartile Values for 2014, Median Values for 2013, and 5-year Average, 2009-2013, of Median Values, North Dakota Farm Business Management Education Program Participants.

| Farm Group | 2014 Upper Quartile | 2014 Lower Quartile | 2014 Median | 2013 Median | Average of 2009-2013 Medians | 2014 Upper Quartile | 2014 Lower Quartile | 2014 Median | 2013 Median | Average of 2009-2013 Medians |
|---|---|---|---|---|---|---|---|---|---|---|
| | Return on Farm Assets (%) | | | | | Return on Farm Equity (%) | | | | |
| All Farms | 8.0 | -1.5 | 2.8 | 4.7 | 10.1 | 11.1 | -5.1 | 2.1 | 5.3 | 14.4 |
| Region | | | | | | | | | | |
| Red River Valley | 2.6 | -5.5 | -0.9 | 1.7 | 11.6 | 2.0 | -10.8 | -3.5 | 0.9 | 16.3 |
| North Central | 8.0 | -0.7 | 3.3 | 7.6 | 11.5 | 9.6 | -4.3 | 2.6 | 9.8 | 16.2 |
| South Central | 8.4 | 0.1 | 3.9 | 4.5 | 9.7 | 13.2 | -2.7 | 3.9 | 4.7 | 14.2 |
| West | 12.0 | 0.6 | 6.1 | 4.6 | 6.4 | 21.9 | -1.8 | 8.3 | 5.8 | 8.8 |
| Farm Enterprise | | | | | | | | | | |
| Crop | 5.6 | -2.6 | 1.3 | 4.7 | 11.8 | 6.4 | -7.6 | 0.0 | 5.1 | 17.3 |
| Livestock | 17.5 | 6.2 | 11.1 | 4.9 | 5.1 | 36.4 | 7.8 | 22.8 | 8.2 | 6.7 |
| Mixed | 9.6 | 0.8 | 5.0 | 4.9 | 5.9 | 14.2 | 0.0 | 5.2 | 4.7 | 7.8 |
| Farm Sales | | | | | | | | | | |
| $249,999 or less | 14.8 | 0.8 | 5.6 | 4.3 | 5.6 | 26.2 | -1.2 | 7.3 | 4.2 | 7.7 |
| $250,000-$499,999 | 8.3 | -3.2 | 2.6 | 6.2 | 10.2 | 14.2 | -8.8 | 1.8 | 7.6 | 15.9 |
| $500,000-$999,999 | 6.4 | -1.2 | 2.5 | 4.3 | 10.7 | 8.5 | -5.4 | 1.4 | 4.7 | 15.1 |
| $1,000,000 or more | 5.1 | -1.8 | 1.6 | 4.8 | 12.4 | 5.8 | -5.8 | 1.2 | 5.1 | 17.8 |
| Farm Size | | | | | | | | | | |
| 1,999 acres or less | 8.0 | -2.2 | 2.9 | 3.9 | 9.9 | 13.1 | -6.5 | 1.9 | 4.1 | 15.3 |
| 2,000 acres or more | 7.3 | -1.0 | 2.7 | 5.8 | 10.4 | 9.8 | -4.5 | 2.4 | 6.8 | 14.2 |
| Cropland Tenure | | | | | | | | | | |
| Full tenant | 9.9 | -2.2 | 3.7 | 5.8 | 13.8 | 15.5 | -9.7 | 2.4 | 8.9 | 22.9 |
| 1-20 percent owned | 6.4 | -2.8 | 2.2 | 6.0 | 12.2 | 8.6 | -8.6 | 0.8 | 7.4 | 19.0 |
| 21-40 percent owned | 6.1 | -1.0 | 2.4 | 4.5 | 10.3 | 8.9 | -5.8 | 1.7 | 4.8 | 14.3 |
| 41 percent or more owned | 7.1 | -0.1 | 3.6 | 4.3 | 7.6 | 9.6 | -2.5 | 2.4 | 4.3 | 9.7 |
| Net Farm Income | | | | | | | | | | |
| $49,999 or less | 0.8 | -4.9 | -1.7 | -0.6 | 1.2 | -1.4 | -13.1 | -5.6 | -3.8 | -2.1 |
| $50,000-$99,999 | 9.4 | 2.4 | 5.6 | 5.1 | 7.4 | 18.1 | 1.8 | 6.2 | 6.5 | 11.1 |
| $100,000-$199,999 | 10.5 | 4.3 | 6.7 | 7.2 | 11.1 | 21.5 | 5.2 | 9.6 | 9.0 | 17.9 |
| $200,000 or more | 13.1 | 5.8 | 8.4 | 8.8 | 15.3 | 18.3 | 6.5 | 10.6 | 11.2 | 22.2 |
| Debt-to-Asset Ratio | | | | | | | | | | |
| 0-40 percent | 7.2 | -0.8 | 3.4 | 6.0 | 11.1 | 8.6 | -2.3 | 3.3 | 6.6 | 13.4 |
| 41-70 percent | 8.2 | -1.3 | 2.7 | 4.1 | 10.3 | 13.3 | -7.0 | 1.8 | 4.2 | 17.5 |
| 71 percent or more | 8.4 | -4.0 | 2.2 | 2.7 | 5.5 | 20.4 | -20.0 | 0.0 | 0.0 | 10.9 |
| Farmer Age | | | | | | | | | | |
| 39 years or younger | 12.1 | 0.1 | 5.7 | 6.3 | 12.2 | 25.0 | -3.4 | 8.6 | 9.3 | 21.8 |
| 40-49 years | 7.3 | -3.7 | 2.3 | 5.0 | 10.5 | 11.1 | -7.0 | 1.0 | 5.5 | 14.7 |
| 50 years or older | 5.5 | -1.8 | 1.8 | 4.3 | 9.1 | 6.2 | -5.4 | 0.9 | 4.3 | 11.4 |

Table 8. Operating Profit Margin and Net Farm Income Profitability Measures, Quartile Values for 2014, Median Values for 2013, and 5-year Average, 2009-2013, of Median Values, North Dakota Farm Business Management Education Program Participants.

| Farm Group | 2014 Upper Quartile | 2014 Lower Quartile | 2014 Median | 2013 Median | Average of 2009-2013 Medians | 2014 Upper Quartile | 2014 Lower Quartile | 2014 Median | 2013 Median | Average of 2009-2013 Medians |
|---|---|---|---|---|---|---|---|---|---|---|
| | Operating Profit Margin (%) | | | | | Net Farm Income ($) | | | | |
| All Farms | 21.7 | -4.1 | 8.8 | 13.6 | 21.9 | 142,258 | -3,704 | 54,543 | 90,629 | 138,931 |
| Region | | | | | | | | | | |
| Red River Valley | 8.6 | -20.0 | -2.4 | 4.6 | 19.7 | 74,164 | -57,226 | 3,921 | 72,134 | 192,676 |
| North Central | 20.5 | -2.4 | 9.5 | 21.1 | 24.4 | 157,075 | 3,388 | 63,549 | 118,571 | 146,068 |
| South Central | 25.3 | 0.1 | 12.2 | 12.5 | 20.5 | 147,896 | 14,735 | 57,602 | 79,983 | 131,158 |
| West | 34.7 | 2.7 | 16.9 | 14.6 | 17.5 | 185,541 | 17,176 | 69,995 | 82,507 | 80,091 |
| Farm Enterprise | | | | | | | | | | |
| Crop | 14.7 | -7.3 | 4.0 | 12.4 | 22.9 | 111,830 | -20,812 | 32,347 | 101,731 | 185,317 |
| Livestock | 47.5 | 21.6 | 36.6 | 20.2 | 17.2 | 175,464 | 53,078 | 95,130 | 39,827 | 40,327 |
| Mixed | 24.6 | 2.9 | 14.9 | 15.3 | 17.8 | 161,072 | 29,664 | 63,819 | 80,247 | 69,705 |
| Farm Sales | | | | | | | | | | |
| $249,999 or less | 31.7 | 2.0 | 16.3 | 14.1 | 17.4 | 66,343 | 12,864 | 36,230 | 32,363 | 33,951 |
| $250,000-$499,999 | 23.7 | -8.9 | 8.9 | 14.7 | 21.6 | 106,898 | -8,485 | 51,605 | 73,692 | 103,886 |
| $500,000-$999,999 | 20.2 | -3.6 | 6.5 | 13.7 | 22.8 | 170,772 | -3,042 | 63,819 | 107,226 | 196,734 |
| $1,000,000 or more | 14.1 | -4.9 | 5.6 | 12.8 | 24.1 | 255,178 | -42,165 | 124,377 | 205,575 | 416,635 |
| Farm Size | | | | | | | | | | |
| 1,999 acres or less | 21.5 | -6.3 | 9.1 | 10.2 | 20.3 | 89,950 | -3.768 | 40,803 | 60,648 | 90,393 |
| 2,000 acres or more | 22.2 | -2.9 | 8.6 | 15.3 | 22.8 | 224,424 | -1,629 | 94,563 | 156,813 | 224,625 |
| Cropland Tenure | | | | | | | | | | |
| Full tenant | 18.1 | -4.2 | 8.1 | 11.1 | 20.0 | 87,427 | 2,097 | 34,023 | 58,000 | 90,717 |
| 1-20 percent owned | 14.9 | -8.9 | 5.7 | 14.4 | 21.2 | 159,572 | -27,276 | 58,984 | 127,706 | 218,877 |
| 21-40 percent owned | 19.5 | -2.9 | 7.5 | 13.6 | 23.1 | 170,208 | -16,956 | 63,819 | 104,399 | 189,608 |
| 41 percent or more owned | 25.3 | -0.9 | 12.6 | 15.5 | 23.5 | 161,009 | 3,526 | 63,372 | 91,650 | 110,344 |
| Net Farm Income | | | | | | | | | | |
| $49,999 or less | 2.9 | -15.7 | -4.4 | -1.18 | 3.5 | 21,089 | -56,473 | -6,732 | 9,194 | 16,187 |
| $50,000-$99,999 | 25.3 | 7.7 | 13.1 | 13.3 | 18.8 | 89,909 | 60,794 | 72,528 | 75,124 | 73,522 |
| $100,000-$199,999 | 31.0 | 12.4 | 19.8 | 17.4 | 23.5 | 170,550 | 118,151 | 145,310 | 140,892 | 142,086 |
| $200,000 or more | 34.9 | 17.9 | 25.3 | 23.5 | 31.5 | 361,389 | 234,957 | 276,972 | 286,925 | 351,118 |
| Debt-to-Asset Ratio | | | | | | | | | | |
| 0-40 percent | 23.4 | -2.2 | 10.1 | 16.4 | 25.8 | 202,255 | 12,871 | 80,757 | 136,005 | 215,073 |
| 41-70 percent | 21.5 | -3.4 | 8.6 | 10.6 | 20.7 | 124,388 | -8,730 | 43,545 | 75,124 | 123,919 |
| 71 percent or more | 17.7 | -12.6 | 4.0 | 6.8 | 12.7 | 61,730 | -27,005 | 22,417 | 25,418 | 38,261 |
| Farmer Age | | | | | | | | | | |
| 39 years or younger | 28.1 | 0.2 | 14.0 | 14.6 | 22.1 | 94,637 | 14,538 | 50,646 | 67,600 | 86,509 |
| 40-49 years | 17.4 | -9.9 | 6.5 | 12.5 | 21.2 | 177,187 | -31,276 | 69,799 | 102,674 | 176,488 |
| 50 years or older | 20.0 | -6.0 | 6.6 | 13.3 | 22.0 | 174,311 | -14,331 | 54,592 | 105,047 | 175,325 |

Table 9. Repayment Capacity Measures, Quartile Values for 2014, Median Values for 2013, and 5-year Average, 2009-2013, of Median Values, North Dakota Farm Business Management Education Program Participants.

| Farm Group | 2014 Upper Quartile | 2014 Lower Quartile | 2014 Median | 2013 Median | Average of 2009-2013 Medians | 2014 Upper Quartile | 2014 Lower Quartile | 2014 Median | 2013 Median | Average of 2009-2013 Medians |
|---|---|---|---|---|---|---|---|---|---|---|
| | Term Debt Coverage Ratio (%) | | | | | Term Debt and Capital Repayment Margins ($) | | | | |
| All Farms | 2.83 | 0.03 | 1.08 | 1.50 | 2.78 | 83,630 | -75,244 | 3,556 | 25,849 | 85,441 |
| Region | | | | | | | | | | |
| Red River Valley | 1.11 | -0.91 | 0.02 | 0.85 | 3.22 | 6,959 | -179,971 | -58,146 | -18,566 | 124,648 |
| North Central | 2.37 | 0.07 | 0.90 | 1.72 | 2.68 | 66,502 | -82,773 | -7,119 | 34,793 | 76,838 |
| South Central | 3.93 | 0.36 | 1.69 | 1.73 | 2.93 | 114,576 | -53,151 | 22,074 | 30,299 | 89,237 |
| West | 4.34 | 0.76 | 1.91 | 1.70 | 2.23 | 125,121 | -18,865 | 57,466 | 32,737 | 48,375 |
| Farm Enterprise | | | | | | | | | | |
| Crop | 1.78 | -0.16 | 0.59 | 1.44 | 3.10 | 55,979 | -118,724 | -21,341 | 27,319 | 115,376 |
| Livestock | 6.46 | 1.80 | 2.90 | 1.84 | 2.03 | 126,119 | 30,298 | 69,535 | 20,725 | 22,871 |
| Mixed | 3.03 | 0.71 | 1.96 | 1.60 | 1.88 | 112,361 | -21,949 | 37,126 | 36,348 | 34,619 |
| Farm Sales | | | | | | | | | | |
| $249,999 or less | 4.96 | 0.36 | 1.90 | 1.71 | 2.12 | 51,929 | -19,206 | 17,888 | 14,182 | 20,053 |
| $250,000-$499,999 | 2.93 | 0.00 | 1.20 | 1.63 | 2.51 | 82,583 | -60,973 | 4,659 | 25,755 | 59,904 |
| $500,000-$999,999 | 2.15 | 0.02 | 0.90 | 1.53 | 2.92 | 107,670 | -137,228 | -8,883 | 27,319 | 121,238 |
| $1,000,000 or more | 1.90 | 0.00 | 0.86 | 1.43 | 3.36 | 141,242 | -203,002 | -29,222 | 57,939 | 303,147 |
| Farm Size | | | | | | | | | | |
| 1,999 acres or less | 2.60 | -0.02 | 1.04 | 1.51 | 2.82 | 46,229 | -53,528 | 1,845 | 15,041 | 51,624 |
| 2,000 acres or more | 2.90 | 0.21 | 1.10 | 1.48 | 2.80 | 126,634 | -138,818 | 14,661 | 48,606 | 135,414 |
| Cropland Tenure | | | | | | | | | | |
| Full tenant | 3.99 | -0.18 | 1.02 | 1.82 | 3.57 | 60,395 | -54,417 | 1,152 | 25,974 | 53,242 |
| 1-20 percent owned | 1.88 | -0.20 | 0.58 | 1.65 | 2.99 | 71,614 | -177,529 | -41,585 | 27,433 | 127,584 |
| 21-40 percent owned | 2.11 | 0.20 | 1.09 | 1.35 | 2.75 | 83,265 | -99,310 | 7,568 | 23,038 | 119,941 |
| 41 percent or more owned | 3.07 | 0.30 | 1.38 | 1.48 | 2.36 | 112,354 | -61,030 | 23,627 | 29,943 | 64,265 |
| Net Farm Income | | | | | | | | | | |
| $49,999 or less | 0.64 | -0.64 | 0.06 | 0.21 | 0.93 | -9,583 | -167,182 | -66,758 | -32,151 | -7,583 |
| $50,000-$99,999 | 4.33 | 0.90 | 1.77 | 1.61 | 2.16 | 64,056 | -6,446 | 33,143 | 25,849 | 38,302 |
| $100,000-$199,999 | 3.24 | 1.32 | 1.96 | 1.79 | 2.65 | 115,535 | 20,766 | 78,954 | 61,869 | 83,020 |
| $200,000 or more | 5.38 | 1.82 | 3.06 | 2.46 | 4.45 | 294,018 | 122,470 | 198,065 | 190,367 | 268,944 |
| Debt-to-Asset Ratio | | | | | | | | | | |
| 0-40 percent | 5.29 | 0.53 | 1.90 | 2.21 | 4.46 | 146,603 | -21,889 | 45,429 | 57,584 | 151,856 |
| 41-70 percent | 1.92 | 0.00 | 0.80 | 1.16 | 2.30 | 55,451 | -109,612 | -18,806 | 6,028 | 64,244 |
| 71 percent or more | 1.18 | -0.39 | 0.32 | 0.64 | 1.10 | 9,045 | -108,534 | -38,838 | -29,094 | 2,769 |
| Farmer Age | | | | | | | | | | |
| 39 years or younger | 3.03 | 0.19 | 1.25 | 1.69 | 2.86 | 65,853 | -36,652 | 7,902 | 18,694 | 50,329 |
| 40-49 years | 2.68 | -0.02 | 1.08 | 1.36 | 2.57 | 112,361 | -118,101 | 4,742 | 20,883 | 98,849 |
| 50 years or older | 2.71 | 0.02 | 0.86 | 1.48 | 2.87 | 95,831 | -100,131 | -17,802 | 30,427 | 109,189 |

Table 10. Asset Turnover and Operating Expense and Depreciation Expense Efficiency Measures (as a Percentage of Gross Farm Income), Quartile Values for 2014, Median Values for 2013, and 5-year Average, 2009-2013, of Median Values, North Dakota Farm Business Management Education Program Participants.

| | 2014 | | | | | 2014 | | | | | 2014 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Farm Group | Upper Quartile | Lower Quartile | Median | 2013 Median | Average of 2009-2013 Medians | Upper Quartile | Lower Quartile | Median | 2013 Median | Average of 2009-2013 Medians | Upper Quartile | Lower Quartile | Median | 2013 Median | Average of 2009-2013 Medians |
| | Asset Turnover | | | | | Operating Expense (%) | | | | | Depreciation Expense (%) | | | | |
| All Farms | .44 | .26 | .34 | .35 | 0.44 | 62.6 | 86.8 | 75.2 | 71.5 | 64.5 | 4.5 | 11.0 | 7.3 | 5.9 | 4.9 |
| Region | | | | | | | | | | | | | | | |
| Red River Valley | .46 | .24 | .33 | .39 | 0.51 | 74.4 | 95.7 | 84.6 | 78.9 | 66.8 | 6.5 | 12.9 | 9.2 | 7.5 | 5.5 |
| North Central | .44 | .28 | .35 | .36 | 0.45 | 64.0 | 85.3 | 74.9 | 65.5 | 62.1 | 3.6 | 10.4 | 6.5 | 4.7 | 4.0 |
| South Central | .43 | .25 | .33 | .34 | 0.42 | 58.4 | 84.2 | 72.3 | 71.5 | 63.8 | 4.5 | 11.2 | 7.9 | 6.9 | 5.6 |
| West | .44 | .29 | .35 | .34 | 0.37 | 53.7 | 82.9 | 68.7 | 68.5 | 67.7 | 4.0 | 8.6 | 6.3 | 5.6 | 4.8 |
| Farm Enterprise | | | | | | | | | | | | | | | |
| Crop | .46 | .26 | .34 | .39 | 0.50 | 69.9 | 89.6 | 78.6 | 72.4 | 63.8 | 5.3 | 11.8 | 8.4 | 6.3 | 4.9 |
| Livestock | .42 | .26 | .34 | .26 | 0.27 | 40.2 | 64.4 | 52.0 | 63.4 | 66.6 | 2.5 | 6.9 | 4.3 | 4.3 | 4.6 |
| Mixed | .45 | .26 | .34 | .29 | 0.32 | 61.5 | 84.2 | 68.6 | 68.7 | 67.9 | 4.4 | 8.2 | 6.4 | 6.0 | 4.8 |
| Farm Sales | | | | | | | | | | | | | | | |
| $249,999 or less | .59 | .24 | .35 | .27 | 0.31 | 48.4 | 78.6 | 64.7 | 63.9 | 62.7 | 2.3 | 8.8 | 4.4 | 5.0 | 4.4 |
| $250,000-$499,999 | .51 | .28 | .35 | .42 | 0.46 | 62.1 | 89.3 | 75.2 | 71.3 | 65.1 | 3.7 | 10.2 | 6.7 | 4.3 | 4.1 |
| $500,000-$999,999 | .39 | .26 | .33 | .35 | 0.45 | 66.6 | 87.0 | 76.7 | 72.4 | 64.3 | 5.6 | 11.1 | 7.9 | 5.9 | 5.1 |
| $1,000,000 or more | .42 | .27 | .34 | .36 | 0.48 | 72.1 | 89.5 | 80.3 | 72.9 | 64.8 | 6.3 | 12.9 | 8.9 | 7.2 | 5.6 |
| Farm Size | | | | | | | | | | | | | | | |
| 1,999 acres or less | .52 | .24 | .34 | .36 | 0.45 | 61.4 | 87.1 | 74.8 | 72.5 | 64.6 | 3.7 | 10.5 | 6.6 | 5.6 | 4.6 |
| 2,000 acres or more | .42 | .27 | .34 | .35 | 0.42 | 64.0 | 86.6 | 75.7 | 70.8 | 64.5 | 5.4 | 11.3 | 7.9 | 6.1 | 5.1 |
| Cropland Tenure | | | | | | | | | | | | | | | |
| Full tenant | .74 | .37 | .54 | .58 | 0.69 | 64.0 | 89.5 | 76.1 | 74.0 | 66.3 | 3.7 | 9.1 | 6.3 | 5.3 | 4.2 |
| 1-20 percent owned | .46 | .31 | .37 | .42 | 0.54 | 70.6 | 89.7 | 79.4 | 72.6 | 66.9 | 5.3 | 10.8 | 8.0 | 5.6 | 4.6 |
| 21-40 percent owned | .38 | .27 | .33 | .34 | 0.43 | 65.3 | 86.9 | 77.3 | 71.9 | 63.4 | 5.4 | 11.4 | 8.2 | 6.5 | 5.0 |
| 41 percent or more owned | .34 | .22 | .27 | .27 | 0.31 | 57.7 | 84.3 | 70.1 | 68.1 | 61.7 | 4.4 | 11.5 | 7.3 | 6.2 | 5.5 |
| Net Farm Income | | | | | | | | | | | | | | | |
| $49,999 or less | .46 | .25 | .33 | .32 | 0.32 | 79.0 | 95.8 | 87.0 | 86.0 | 78.1 | 5.3 | 12.4 | 8.5 | 6.2 | 5.0 |
| $50,000-$99,999 | .49 | .26 | .35 | .38 | 0.41 | 58.6 | 76.7 | 71.5 | 71.0 | 65.7 | 3.2 | 9.7 | 6.2 | 5.4 | 4.6 |
| $100,000-$199,999 | .41 | .29 | .35 | .40 | 0.47 | 55.9 | 72.2 | 66.2 | 68.8 | 63.7 | 4.4 | 9.1 | 6.6 | 5.4 | 4.2 |
| $200,000 or more | .41 | .26 | .35 | .35 | 0.48 | 52.5 | 72.0 | 61.4 | 63.3 | 56.6 | 4.5 | 10.0 | 6.5 | 6.5 | 5.2 |
| Debt-to-Asset Ratio | | | | | | | | | | | | | | | |
| 0-40 percent | .39 | .25 | .31 | .33 | 0.41 | 60.4 | 83.8 | 73.2 | 67.4 | 60.0 | 5.4 | 12.0 | 8.4 | 6.3 | 5.5 |
| 41-70 percent | .46 | .27 | .35 | .38 | 0.47 | 65.1 | 86.5 | 76.2 | 75.3 | 66.8 | 4.2 | 10.4 | 6.7 | 6.0 | 4.7 |
| 71 percent or more | .57 | .30 | .40 | .40 | 0.41 | 66.5 | 94.7 | 79.2 | 76.2 | 73.3 | 3.5 | 8.6 | 5.9 | 4.2 | 3.7 |
| Farmer Age | | | | | | | | | | | | | | | |
| 39 years or younger | .58 | .31 | .42 | .46 | 0.53 | 56.4 | 82.8 | 72.2 | 71.1 | 64.1 | 2.9 | 8.5 | 5.0 | 4.6 | 3.9 |
| 40-49 years | .43 | .30 | .36 | .40 | 0.48 | 68.8 | 91.5 | 77.8 | 72.5 | 66.2 | 5.6 | 11.2 | 8.0 | 6.1 | 5.0 |
| 50 years or older | .37 | .24 | .30 | .31 | 0.39 | 65.1 | 87.9 | 76.8 | 71.1 | 63.7 | 5.7 | 12.2 | 8.5 | 6.8 | 5.6 |

Table 11. Interest Expense and Farm Income Efficiency Measures (as a Percentage of Gross Farm Income), Quartile Values for 2014, Median Values for 2013, and 5-year Average, 2009-2013, of Median Values, North Dakota Farm Business Management Education Program Participants.

| Farm Group | 2014 Upper Quartile | 2014 Lower Quartile | 2014 Median | 2013 Median | Average of 2009-2013 Medians | 2014 Upper Quartile | 2014 Lower Quartile | 2014 Median | 2013 Median | Average of 2009-2013 Medians |
|---|---|---|---|---|---|---|---|---|---|---|
| | Interest Expense (%) | | | | | Net Farm Income (%) | | | | |
| All Farms | 1.9 | 6.0 | 3.5 | 3.5 | 3.7 | 26.1 | -0.7 | 12.5 | 17.9 | 25.7 |
| Region | | | | | | | | | | |
| Red River Valley | 1.7 | 6.3 | 3.4 | 2.8 | 2.8 | 12.7 | -14.4 | 1.2 | 10.8 | 23.9 |
| North Central | 2.1 | 5.7 | 3.5 | 3.4 | 3.6 | 25.5 | 0.6 | 15.1 | 25.7 | 29.3 |
| South Central | 1.6 | 6.0 | 3.2 | 3.4 | 3.7 | 28.9 | 3.2 | 16.0 | 16.2 | 25.4 |
| West | 2.7 | 7.2 | 5.0 | 5.1 | 5.1 | 35.5 | 4.5 | 19.0 | 17.7 | 20.5 |
| Farm Enterprise | | | | | | | | | | |
| Crop | 1.7 | 6.0 | 3.4 | 3.1 | 3.1 | 19.0 | -5.1 | 8.4 | 17.0 | 27.2 |
| Livestock | 2.1 | 5.9 | 3.3 | 5.5 | 5.8 | 49.5 | 25.8 | 38.4 | 25.6 | 20.8 |
| Mixed | 2.2 | 6.2 | 4.1 | 4.3 | 5.4 | 28.2 | 6.1 | 18.0 | 17.1 | 21.1 |
| Farm Sales | | | | | | | | | | |
| $249,999 or less | 1.7 | 6.9 | 3.3 | 4.9 | 5.5 | 40.3 | 10.2 | 23.9 | 25.5 | 26.2 |
| $250,000-$499,999 | 1.7 | 6.1 | 3.8 | 3.8 | 4.0 | 26.6 | -3.2 | 12.9 | 21.2 | 26.6 |
| $500,000-$999,999 | 2.0 | 6.6 | 3.6 | 3.7 | 3.5 | 22.5 | -0.5 | 10.3 | 17.3 | 25.9 |
| $1,000,000 or more | 2.0 | 5.1 | 3.2 | 2.9 | 2.7 | 16.5 | -2.4 | 6.8 | 15.5 | 26.2 |
| Farm Size | | | | | | | | | | |
| 1,999 acres or less | 1.6 | 6.2 | 3.4 | 3.4 | 3.7 | 27.9 | -1.7 | 14.5 | 17.1 | 25.6 |
| 2,000 acres or more | 2.1 | 6.0 | 3.6 | 3.8 | 3.6 | 24.7 | -0.2 | 11.1 | 18.2 | 25.8 |
| Cropland Tenure | | | | | | | | | | |
| Full tenant | 1.2 | 4.1 | 2.4 | 2.4 | 2.5 | 25.6 | 0.7 | 14.3 | 17.5 | 26.6 |
| 1-20 percent owned | 2.1 | 5.3 | 3.5 | 3.2 | 3.4 | 18.7 | -2.7 | 9.4 | 17.4 | 24.3 |
| 21-40 percent owned | 2.4 | 6.4 | 4.2 | 4.1 | 4.1 | 23.2 | -1.9 | 10.2 | 16.7 | 26.1 |
| 41 percent or more owned | 2.1 | 7.9 | 4.7 | 4.3 | 4.8 | 29.0 | 0.7 | 16.7 | 19.7 | 26.9 |
| Net Farm Income | | | | | | | | | | |
| $49,999 or less | 2.4 | 7.8 | 4.6 | 4.8 | 6.0 | 6.9 | -12.1 | -1.3 | 2.2 | 8.8 |
| $50,000-$99,999 | 1.5 | 5.1 | 3.2 | 4.1 | 4.6 | 31.4 | 11.1 | 17.5 | 19.4 | 23.7 |
| $100,000-$199,999 | 2.0 | 5.4 | 3.4 | 2.8 | 3.4 | 32.8 | 15.9 | 23.8 | 22.8 | 27.9 |
| $200,000 or more | 1.1 | 3.5 | 2.2 | 2.5 | 2.5 | 36.9 | 20.4 | 26.9 | 27.3 | 34.6 |
| Debt-to-Asset Ratio | | | | | | | | | | |
| 0-40 percent | 0.9 | 3.1 | 2.0 | 1.7 | 2.0 | 28.4 | 3.6 | 16.7 | 23.0 | 31.7 |
| 41-70 percent | 3.4 | 7.2 | 5.0 | 4.9 | 4.9 | 24.8 | -1.3 | 10.4 | 12.4 | 23.1 |
| 71 percent or more | 4.0 | 9.7 | 6.3 | 6.5 | 6.9 | 19.5 | -11.4 | 6.3 | 10.2 | 14.5 |
| Farmer Age | | | | | | | | | | |
| 39 years or younger | 2.1 | 6.2 | 3.9 | 3.8 | 3.9 | 33.7 | 4.9 | 17.5 | 20.1 | 27.2 |
| 40-49 years | 1.9 | 6.0 | 3.3 | 3.7 | 3.9 | 20.4 | -4.6 | 11.3 | 17.1 | 23.9 |
| 50 years or older | 1.7 | 6.0 | 3.4 | 3.3 | 3.4 | 23.7 | -2.3 | 10.1 | 17.4 | 26.2 |

## 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 $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 cash flows 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' 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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