



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
<http://ageconsearch.umn.edu>
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

Financial Characteristics of North Dakota Farms

1995-1997

Andrew L. Swenson

Department of Agricultural Economics
North Dakota State University
Fargo, ND 58105-5636

TABLE OF CONTENTS

List of Tables	ii
Abstract	iii
Introduction	1
Source of Data	1
Definition of Financial Measures	2
Liquidity	2
Solvency	2
Profitability	3
Repayment Capacity	4
Financial Efficiency	4
Interpretation of Results	5
Farm Classifications and Highlights	6
All Farms	6
Region	7
Farm Enterprise	8
Farm Sales	9
Farm Size	10
Cropland Tenure	11
Net Farm Income	12
Debt-to-Asset Ratio	13
Farmer Age	14
Tables	15
References	25

LIST OF TABLES

Table 1.	Farm classifications, North Dakota Farm Business Management Education Program, 1997	15
Table 2.	Current assets and current liabilities, quartile values for 1997, median values for 1995 and 1996, North Dakota Farm Business Management Education program participants.	16
Table 3.	Liquidity measures, quartile values for 1997, median values for 1995 and 1996, North Dakota Farm Business Management Education Program participants.	17
Table 4.	Total assets and total liabilities, quartile values for 1997, median values for 1995 and 1996, North Dakota Farm Business Management Education Program participants.	18
Table 5.	Solvency measures, quartile values for 1997, median values for 1995 and 1996, North Dakota Farm Business Management Education Program participants.	19
Table 6.	Rate of return on assets and rate of return on equity profitability measures, quartile values for 1997, median values for 1995 and 1996, North Dakota Farm Business Management Education program participants.	20
Table 7.	Operating profit margin and net farm income profitability measures, quartile values for 1997, median values for 1995 and 1996, North Dakota Farm Business Management Education Program participants.	21
Table 8.	Repayment capacity measures, quartile values for 1997, median values for 1995 and 1996, North Dakota Farm Business Management Education Program participants.	22
Table 9.	Asset turnover, and operating expense and depreciation expense efficiency measures (as a percentage of gross farm income), quartile values for 1997, median values for 1995 and 1996, North Dakota Farm Business Management Education Program participants.	23
Table 10.	Interest expense and farm income efficiency measures (as a percentage of gross farm income), quartile values for 1997, median values for 1995 and 1996, North Dakota Farm Business Management Education Program participants.	24

Abstract

The performance of over 550 North Dakota farms, 1995-1997, is summarized using 16 financial measures. Farms are categorized by geographic region, farm type, farm size, gross cash sales, farm tenure, net farm income, debt-to-asset, and age of farmer to analyze relationships between financial performance and farm characteristics.

There was severe deterioration of financial performance in 1997 because of poor crop profitability. Livestock farm performance was weak, but improved from 1996. Median net farm income was \$14,290 in 1997 compared to \$31,603 in 1996. Three out of ten farms had negative net farm income and 57 percent of all farms were not able to make scheduled term debt payments.

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

NOTICE:

The analyses and views reported in this paper are those of the author. They are not necessarily endorsed by the Department of Agricultural Economics or by North Dakota State University.

North Dakota State University is committed to the policy that all persons shall have equal access to its programs, and employment without regard to race, color, creed, religion, national origin, sex, age, marital status, disability, public assistance status, veteran status, or sexual orientation.

Information on other titles in this series may be obtained from: Department of Agricultural Economics, North Dakota State University, P.O. Box 5636, Fargo, ND 58105. Telephone: 701-231-7441, Fax: 701-231-7400, or e-mail: cjensen@ndsuent.nodak.edu.

Copyright © 1998 by Andrew L. Swenson. All rights reserved. Readers may make verbatim copies of this document for non-commercial purposes by any means, provided that this copyright notice appears on all such copies.

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. Currently there is no nationwide database of farm records. However, there are statewide farm record programs in some states, such as North Dakota. Each farm has its own unique aspects, so the most appropriate comparison would be farms that have similar enterprises and resources.

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

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

The purpose of this study is to provide information to producers, lenders, educators, and others on the financial performance of a sample of North Dakota

farms from 1995-1997. Similar studies for 1991, 1992, 1993 and 1994 are referenced on page 25 of this report. The data are from financial summaries of farms participating in the North Dakota Farm Business Management Education program. Median and upper and lower quartiles of 16 financial performance measures are presented for all farms in the data set and for groupings of farms by characteristic such as farm type, farm size, and age of producer. The results can be used by producers and lenders to evaluate the financial performance of a farm. Also, trends can be identified and relationships between farm characteristics and financial measures can be analyzed. However, because of the small number of farms in this study, the results should be used cautiously and only be considered guidelines.

SOURCE OF DATA

More than 700 farms are enrolled in the North Dakota Farm Business Management Education program. Instructors educate and assist producers in record keeping and review data for completeness and accuracy. Instructors use the Finpack farm financial management software program to generate financial summaries. From 1995 through 1997, the financial summaries of over 550 farms each year were considered usable for this study. Table 1 shows the distribution of farms by characteristic for 1997.

Most farms were represented in all three years (1995-1997) of this study. There normally is a small turnover of participants in farm management education programs. Also, the number of farms that complete their annual records by a cut off date varies from year to year. In 1997, 1996 and 1995, the number was 560, 551, and 596, respectively.

The farms in this study are larger and the age of the farm operators younger than the state average. In 1997, only 38% of the 30,500 farms in North Dakota had gross receipts greater than \$100,000, whereas 79% of the 560 farms in this study exceed that sales volume (median gross sales was \$179,052). The average age of farm operators in this study is 42 compared to 50 for the state average. The farms in the study are more representative of operations that provide the primary or only source of net family income. The state average

includes all farms with gross sales greater than \$1,000.

DEFINITION OF FINANCIAL MEASURES

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

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

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

Non-current asset valuation was:

- Machinery was valued at cost minus accumulated depreciation. Depreciation was straight line over estimated life of machine.
- 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. A \$20,000 charge was used per full time operator.

Rate of Return on Equity (ROE)

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

Interpretation: This ratio measures the pre-tax rate of return on equity capital employed in the business. Two important factors affecting this measure are valuation of assets and the charge for unpaid operator labor and management. A \$20,000 charge was used per full time operator. 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. A \$20,000 charge was used per full time operator. There is a relationship between operating profit margin, asset turnover rate, and ROA. Operating profit margin multiplied by asset turnover rate equals ROA.

Net Farm Income

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

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

REPAYMENT CAPACITY

Term Debt Coverage Ratio

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

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

Capital Replacement and Term Debt Repayment Margin

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

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

FINANCIAL EFFICIENCY

Asset Turnover

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

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.

INTERPRETATION OF RESULTS

Each financial measure was calculated for each farm. Farms were grouped by characteristics such as region, type of farm, and size and were sorted in order from strongest to weakest by each of the 16 financial measures. The **median** is the midpoint value of the financial measure: one-half of the farms in the category had a higher value and one-half had a lower value than the median. The **upper quartile** is the value that was exceeded by one-fourth of the farms, and the **lower quartile** is the value that was exceeded by three-fourths of the farms. (Another definition of lower quartile is the value for which one-quarter of the farms in the category had a weaker value.)

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

One ratio is not sufficient to make conclusions about the overall financial performance of a farm business. For example a crop farm may have a debt-to-asset ratio of 70%, which is worse than the median value of 57% (shown on table 5) for that farm enterprise category. However, other factors such as profitability, land tenure, 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 of the small number of farms and because one characteristic does not completely categorize a farm. A small number of farms increases the possibility that results may not be representative of a farm category. In this study, for 1997, there are only 95 farms from the Red River Valley, 98

livestock and 96 mixed livestock-crop enterprise farms, and 95 farms in the greater than \$50,000 net farm income category. Also for 1997, certain tables had fewer farms than indicated in Table 1. Thirty-three farms were omitted from the current liabilities and liquidity analysis because term debt was not separated into current and non-current portions; 60 farms were omitted from the repayment capacity analysis because of insufficient detail for scheduled term debt payments. The four farms with no cropland were omitted from cropland tenure categories.

There are some strong correlations between two or more classifications, so it is difficult to associate a financial measure with an individual farm characteristic. The Red River Valley has the highest proportion, relative to other regions, of farms in the full tenant, crop enterprise, and less than 1,600 acres categories. Is a median net farm income of \$28,199 for farms in the Red River Valley associated more with geographic location, tenancy, farm type or farm size?

In 1995 and 1996 the extremely poor profitability of livestock, in comparison to crop farming, is reflected in farm categories that had a disproportionate number of livestock farms, such as the west region, farms with greater than 40% crop land ownership, and farms with less than \$100,000 sales.

Performance of the Red River Valley region may be overstated in 1996 and 1997, because most of the valley farms in the study are from the south, which had the higher profitability than the central or northern areas of the Red River Valley.

The tables reflect a severe deterioration of financial performance in 1997, particularly for the same farm categories that performed the best in 1996; Red River Valley and south central regions, crop farms, the 35 to 45 operator age group, farms with over \$250,000 sales, and farms with 1 to 20% crop land ownership. Three out of ten farms had negative net farm income and 57% of all farms were not able to make all scheduled term debt payments in 1997. Livestock farm performance was poor, but improved from 1996.

FARM CLASSIFICATION AND HIGHLIGHTS

ALL FARMS

Highlights

- Financial performance was extremely poor in 1997 because of poor crop profitability and continued weak performance of livestock farms.
- Median current assets decreased in 1997. Median total assets and liabilities have increased from 1995 to 1997.
- Median current ratio was 1.2 in 1997, one-fourth of all farms had a current ratio higher than 2.0, and one-fourth of all farms had a current ratio less than 0.8. Median working capital decreased 41%.
- Solvency deteriorated for the third consecutive year. The median debt-to-asset ratio was 58.6% in 1997, compared to 55.6% in 1996, 51.5% in 1995, and 46.4% in 1994. One-fourth of all farms had less than 37.4% debt and one-fourth had debt in excess of 75.6%.
- Three out of every ten farms had negative net farm income. The median net farm income was \$14,290 in 1997, a 54% decrease from 1996. Upper and lower quartiles were \$38,790 and \$-4,325, respectively.
- Median rates of return on assets and equity of 2.5% and -1.4%, respectively, were sharply lower than 1996 and 1995.
- Fifty-seven percent of all farms had a term debt coverage ratio below 1.0, indicating an inability to make all scheduled term debt payments in 1997. Median term debt coverage margin was \$-8,995.
- Median net farm income as a percent of gross revenue, a financial efficiency measure, was only 8.1% in 1997, compared to a range of 16.2% to 28.0% between 1991 and 1996.

REGION

Farms were classified in one of four geographic region in North Dakota, based on the location of their Farm Business Management program. However, farms enrolled in the Bismarck program are classified as "west or "south central" according to which side of the Missouri River the farm is located. Also, some farms that are enrolled in the Kindred and Grafton programs are not in the Red River Valley and are classified as south-central and north-central, respectively. The southern areas of both the "Red River Valley" and the "west" region are better represented than the northern areas.

Locations of North Dakota Farm Business Management programs that participated in the 1997 summaries were: Red River Valley: Grafton, Kindred and Wahpeton

North Central: Bottineau, Devils Lake, Minot, and Rugby

South Central: Bismarck, Carrington, Enderlin, Jamestown, Napoleon, Oakes, and Valley City

West: Bismarck, Carson, Dickinson, Glen Ullin, and Stanley

Highlights:

- In 1997 the average size of farm increased from the Red River Valley (about 1,450 acres, nearly all crop land) to the west region (2,500 acres, including 1,175 acres pasture). Farms in the north central and south central regions averaged about 1,950 total acres with 1,500 acres crop land.
- Several farm characteristics are strongly related to region. Red River Valley farms typically have smaller total acreage but have much larger total farm sales, assets and liabilities than farms in other regions. The incidence of livestock and mixed enterprise farms goes from a mere 1% in the Red River Valley to 69% in the west, and percent of crop land owned increases from east to west.
- Nearly all 16 financial measures of performance deteriorated for every region due to extremely poor returns to crop production and continued weakness in livestock. The Red River Valley and the south central regions had the greatest declines from 1996, and the south central region had the worst performance in 1997.
- Median current ratio declined in all regions but the north central.
- Median working capital declined nearly \$25,000 from 1996 in the Red River Valley. It was only \$-1,674 for the south central region.
- Solvency deteriorated for every region in 1997. The median debt-to-asset increased to 63.5% from 57.6% in the south central region.
- Median net farm income ranged from \$28,199 in the Red River Valley to \$6,453 in the south central. It was \$16,051 in the north central and \$13,007 in the west region. Thirty-nine percent of south central farms had negative net farm income compared to about 24% for other regions.
- Median rate of return on assets and equity ranged from 5.0% and 1.9%, respectively, in the Red River Valley to 1.1% and -4.4% in the south central region.
- Median term debt coverage ratio declined from 1.8 in 1996 to 0.8 in the Red River Valley. Over 60% of south central farms were unable to meet all scheduled term debt payments.

FARM ENTERPRISE

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

Highlights:

- Sixty-five percent of all farms statewide were in the crop category, with the remaining farms a near even split between livestock and mixed enterprise farms.
- Ninety-nine percent of Red River Valley farms, about two-thirds of farms in the central regions, and 30% of west region farms were classified as crop.
- Forty percent of the farms in the state that were classified as livestock were in the west region.
- Although performance of livestock farms and farms with less than \$100,000 sales were weak in 1997, they were the only farm categories to show some improvement from 1996.
- Performance of crop farms was dramatically lower in 1997. Performance of mixed enterprise farms were down overall, probably because 47% of mixed farms were in the south central area that had very poor crop profitability.
- Median current ratio was 1.1 for crop farms, 1.4 for livestock farms and 1.1 for mixed enterprise farms. Median working capital decreased 67% for crop farms but increased substantially for livestock farms.
- Mixed farms had the highest median debt-to-asset ratio, 64.2%, crop farms deteriorated from 51.3% in 1996 to 56.7%, and livestock farms had 59.2%, which was the first improvement in four years.
- Profitability measures were very low for all farm types, but livestock farms improved from 1996. Median rate of returns on assets and equity ranged from 2.7% and -0.7% for crop farms, respectively, to 1.9% and -3.0% for mixed farms.
- Median net farm income for crop farms was \$16,947 in 1997, a decrease of over \$30,000 from 1996, but nearly doubled for livestock farms, to \$15,599.
- Repayment capacity improved for livestock farms, possibly because non-farm income was more substantial, but 62% of crop farms and 58% of mixed enterprise farms were unable to meet scheduled term debt payments in 1997.
- The median asset turnover ratio decreased to .40 for crop farms and was .23 for livestock farms, but it is the relationship generally expected between crop and cow-calf enterprises.
- The median of net farm income as percent of gross revenue was only 8.0% for crop farms compared to 20.3% in 1996.

FARM SALES

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

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

Highlights

- Median farm sales were \$179,052 and the average was \$223,369. About 33% of farms had sales in excess of \$250,000, compared to 12% in 1991.
- Percent of farms in the middle sales category increased for the first time in five years, while the percentage of farms in the low sales category decreased to 21%, from 26% in 1996.
- Two-thirds of Red River Valley farms had sales in excess of \$250,000, compared to 23% and 18% of north central and west region farms, respectively, and one-third of south central farms.
- Only 4% of Red River Valley farms had sales less than \$100,000 compared to about one-fourth for the rest of the state.
- Crop farms are more than four times more likely to have sales in excess of \$250,000 than livestock or mixed farms. About 38% of livestock and mixed farms had farm sales less than \$100,000, compared to 12% of crop farms.
- Farmers between the ages of 35 and 45 tended to have greater farm sales than farmers who were younger or older.
- The typical strong relationship between gross sales and financial performance was weakened in 1997. Farm type was a factor because crop farms have more sales than livestock farms. Crop farm performance plummeted in 1997 while livestock farms improved.
- Liquidity improved for farms with less than \$100,000 sales but declined for others. Median working capital for farms with sales greater than \$250,000 decreased 67% from 1996.
- In 1997, debt-to-asset for farms in the small sale categories improved to 64.4%, but debt-to-asset for farms with more than \$250,000 sales increased from 47.1% to 55.1%.
- Median net farm income was nearly unchanged for farms with less than \$100,000 sales but down almost 60% for other farms. It dropped from \$80,050 to \$32,361 for farms with more than \$250,000 sales.
- In 1997, farms with less than \$100,000 sales had the best repayment capacity, in part because these farms have the most non-farm income. Over 60% of farms with sales greater than \$100,000 were not able to make all scheduled term debt payments.

FARM SIZE

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

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

Highlights

- Total acreage per farm, crop land and pasture, increased from 1,473 in the Red River Valley to 2,501 in the west. Average crop acreage did not vary much by region, ranging from 1,326 in the west to 1,560 in the north central region.
- In 1997, 56% of farms were greater than 1,600 acres, compared to 50% in 1996.
- Only 35% of the farms in the Red River Valley had acreage greater than 1,600 compared to over two-thirds of the farms in the west.
- For the entire state, there was about an even split between farms in the small and large size categories, regardless of farm type (crop, livestock, or mixed).
- Only 41% of the farmers less than 35 years old operate more than 1,600 acres, compared to 62% of farmers between 35 and 45 years old, and 57% of farmers over 45 years.
- Each year, 1995-1997, the median current ratio for the large farm category has been slightly better than for the small farm category.
- Financial performance of both farm size categories deteriorated greatly from 1996. However, when comparing the two groups, the median measures of solvency and profitability were higher for the group of farms with more than 1,600 acres, but the median repayment capacity and financial efficiency measures were slightly better for the farms with less than 1,600 acres.
- Median net farm income was \$17,403 for farms larger than 1,600 acres and \$11,511 for smaller farms, both down about 56% from 1996.

CROPLAND TENURE

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

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

Highlights:

- Ownership of crop land was greatest in the west and lowest in the east. Over 30% of Red River Valley farms rented all crop land. Forty-eight percent of farms in the west region owned more than 40% of the crop land they operated, compared to about 37% for the central regions and 9% for the Red River Valley.
- Crop land ownership increases with age. Over one-half of farmers older than 45 years owned more than 40% of their crop land, compared to less than one-quarter of farmers younger than 45 years. Also, 36% of farmers less than 35 years owned no crop land, compared to 20% of farmers 35-45 years and 11% of farmers older than 45 years.
- Operators of livestock and mixed enterprise farms own a greater portion of their crop land than crop farms. One-half of livestock and mixed enterprise farms are in the highest percent crop land ownership category, compared to one-fourth of crop farms.
- Farms with zero crop land ownership tend to be smaller (less than 1,600 acres).
- Although farms in the 1 to 20% crop land ownership category had the greatest decline in financial performance in 1997, they are more likely to be crop farms, be larger farms, and have larger sales and net farm income than other farms.
- Median current ratio is highest for farms with greater than 40% crop land ownership.
- No clear trend between solvency and percent of crop land ownership is shown in the 1995-1997 period.
- Median term debt repayment margin decreased over 250% , to \$-18,305, for farms with 1 to 20% crop land ownership
- Net farm income was down significantly for all crop land tenure groups. Median net farm income ranged from \$10,279 for farms with high crop land ownership, to \$19,292 for farms with 1-20% crop land ownership.
- Farms with a greater proportion of crop land ownership have more land assets and land interest costs and therefore have lower asset turnover ratios and higher interest expense ratios, but lower operating expense ratios.

NET FARM INCOME

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

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

Highlights

- Median net farm income has been extremely low two of the past three years, \$14,290 in 1997 and 23,463 in 1995.
- Three out of every ten farms had negative net farm income in 1997.
- The strong associations that existed in 1996 between net farm income and farm type, farm sales, geographic region, and farm size were greatly reduced in 1997.
- Over 20% of all crop farms had net farm income greater than \$50,000 compared to only 9% of other farms. Over 60% of all farm types, crop, livestock, and mixed enterprise, had net farm income less than \$25,000.
- About 36% of the farms with sales greater than \$250,000 had net farm income greater than \$50,000, and 27% had negative net farm income. Only 19% of farms with sales less than \$100,000 exceeded \$25,000 net farm income, and 36% had negative net farm income.
- Median net farm income was the highest in the Red River Valley, although it decreased by over \$35,000, from 1996. It was the lowest in the south central region, \$6,453, a 79% decrease from 1996.
- Farms larger than 1,600 acres were almost as likely to have negative net farm income as smaller farms, but were nearly twice as likely to have net farm income greater than \$50,000.
- Farmers between the ages of 35 to 45 years old generally were more profitable than farmers that were younger or older. Thirty-five percent of farmers older than 45 years had negative net farm income.
- Solvency, liquidity, repayment capacity, and financial efficiency were strongly correlated with net farm income.
- About 60% of low debt farms (less than 40% debt-to-asset) had net farm income in excess of \$25,000, compared to 37% of farms with 40-70% debt, and 21% of high debt farms (greater than 70% debt). Nearly one-half of the high debt farms had negative net farm income.

DEBT-TO-ASSET RATIO

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

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

Highlights:

- Solvency has deteriorated. In 1997 the percent of farms in the low debt, middle debt and high debt group was 28%, 39% and 33%, respectively, compared to 36%, 45% and 19% in 1994.
- Farms in the lowest debt-to-asset category had the highest median total assets and the lowest median liabilities.
- There is a strong inverse relationship between level of debt and liquidity, repayment capacity, profitability and financial efficiency measures. As debt increases, these measures deteriorate.
- As expected, farms in the low debt category have the best median current ratio, 2.9, and median interest percent ratio, 8.1%, of any farm category.
- Median net farm income for the low, medium, and high debt categories was \$31,201, \$13,995 and \$725, respectively.
- Nearly one-half of farms with high debt had negative net farm income in 1997.
- Mixed enterprise farms had more debt in 1997 than other farms. About 42% of mixed enterprise farms were in the high debt category compared to 31% of other farms.
- About 35% of farms with sales less than \$100,000 were in the high debt group, compared to 24% of farms that had sales greater than \$250,000.
- Percent debt-to-asset tended to decrease as age of farmer increased.

FARMER AGE

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

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

Highlights:

- About 20% of farm operators were less than 35 years old, 41% were between 35 and 45 years old, and 39% were older than 45. The percent of farmers in the oldest age category has been steadily increasing.
- Age of farmers tended to increase from east to west. About 29% of farmers in the Red River Valley were older than 45 compared to 47% of farmers in the west.
- Farmers in the middle age group typically had more gross sales and larger farms than the younger or older age groups.
- As expected, as the age of the farm operator increases there is a higher percent of the crop land in the farm that is owned, and the percent of farm debt decreases.
- Younger farmers had the best median current ratio, 1.3, in 1997.
- In 1997, median net farm income decreased to \$19,537 for farmers less than 35 years, \$19,036 for farmers between 35 and 45 years old, and \$9,210 for farmers older than 45 years. The largest decrease was in the middle and oldest age farmer groups.
- In each year, 1995-1997, the young age group of farmers employed assets more efficiently than farmers older than 45 years. The young group had better median measures of repayment capacity, profitability and financial efficiency despite having much fewer total assets and higher debt-to-asset.

Table 1. Farm Classifications, North Dakota Farm Business Management Education Program, 1997.

Farm Group/Category	Number of Farms (560)	Percentage
Region		
Red River Valley	95	17.0
North Central	178	31.8
South Central	188	33.6
West	99	17.7
Farm Enterprise		
Crop	366	65.4
Livestock	98	17.5
Mixed	96	17.1
Farm Sales		
\$99,999 or less	116	20.7
\$100,000 - \$249,999	260	46.4
\$250,000 or over	184	32.9
Farm Size		
1,600 acres or less	248	44.3
1,600 acres or over	312	55.7
Cropland Tenure		
Full tenant	109	19.6
1-20 percent owned	140	25.2
21-40 percent owned	115	20.7
41 percent or over owned	192	34.5
Farm Income		
Negative	165	29.5
\$0-\$24,999	180	32.1
\$25,000-\$49,999	120	21.4
\$50,000 or more	95	17.0
Debt-to-asset Ratio		
0-40 percent	159	28.4
41-70 percent	219	39.1
71 percent or more	182	32.5
Farmer Age		
34 years or younger	112	20.0
35-44 years	229	40.9
45 years or older	219	39.1

TABLE 2. CURRENT ASSETS AND CURRENT LIABILITIES, QUARTILE VALUES FOR 1997, MEDIAN VALUES FOR 1995 AND 1996, NORTH DAKOTA FARM BUSINESS MANAGEMENT EDUCATION PROGRAM PARTICIPANTS

Farm Group	1997					1997				
	Upper Quartile	Lower Quartile	Median	1996 Median	1995 Median	Upper Quartile	Lower Quartile	Median	1996 Median	1995 Median
	Current Farm Assets (\$)					Current Farm Liabilities (\$)				
All Farms	190,411	65,281	112,072	119,884	101,000	39,624	161,892	84,069	79,024	65,865
Region										
Red River Valley	285,911	122,129	184,794	186,113	171,980	69,046	231,895	145,246	132,267	124,869
North Central	148,266	59,446	98,292	88,904	83,445	28,370	117,856	66,999	54,469	46,948
South Central	193,975	58,391	111,552	124,068	85,731	48,375	175,891	98,014	89,837	65,865
West	164,207	49,596	99,590	102,022	95,255	28,645	135,932	65,887	56,390	54,073
Farm Enterprise										
Crop	223,517	75,787	130,722	142,852	116,570	48,560	185,856	106,734	93,355	74,159
Livestock	115,483	43,362	75,902	60,115	58,272	23,175	89,679	48,451	42,365	46,593
Mixed	143,560	54,353	86,545	91,127	87,119	40,799	139,096	70,701	74,770	69,827
Farm Sales										
\$99,999 or less	70,870	25,507	45,879	49,820	40,274	16,005	57,553	28,508	38,171	27,302
\$100,000-\$249,999	138,640	68,149	103,363	115,824	102,249	46,398	125,655	84,436	81,418	69,197
\$250,000 or over	325,716	152,857	228,253	243,929	253,972	86,084	279,559	180,677	155,114	165,810
Farm Size*										
1,600 acres or less	126,850	38,758	76,873	81,134	53,058	26,378	117,389	58,783	55,514	38,914
1,601 acres or over	245,127	93,554	144,844	151,366	125,147	54,744	202,139	106,023	103,944	83,637
Cropland Tenure										
Full tenant	184,794	54,353	112,188	110,072	83,831	24,028	150,712	64,212	62,949	57,154
1-20 percent owned	245,005	88,731	136,831	132,159	110,079	65,552	217,756	120,815	95,841	95,003
21-40 percent owned	204,280	85,616	132,836	145,991	121,288	53,502	193,188	103,179	109,148	87,588
41 percent or over owned	144,995	47,495	87,415	95,591	81,931	30,180	117,856	60,333	60,446	52,421
Net Farm Income**										
Negative	141,776	49,320	90,102	63,531	52,916	54,291	180,850	97,150	67,448	62,724
\$0-\$24,999	141,636	51,745	87,415	63,487	66,491	35,391	142,658	69,603	54,827	53,153
\$25,000-\$49,999	197,342	72,664	113,646	107,525	97,885	32,982	139,491	65,887	76,274	54,073
\$50,000 or more	357,195	158,470	238,438	200,813	187,747	38,825	217,625	110,427	113,945	97,210
Debt-to-Asset Ratio										
0-40 percent	223,380	77,219	125,654	150,985	125,147	16,269	76,604	41,933	38,815	33,588
41-70 percent	203,408	67,110	112,696	129,574	108,656	54,291	185,041	117,806	95,966	91,794
71 percent or more	151,031	50,744	90,767	74,910	59,376	63,118	187,228	110,192	86,499	77,037
Farmer Age										
34 years or younger	143,393	49,508	90,600	86,949	73,955	23,827	128,336	57,575	42,831	46,834
35-44 years	247,879	73,916	131,837	137,022	118,549	43,022	185,856	99,990	83,907	70,121
45 years or older	158,125	62,528	106,138	110,072	92,968	43,882	148,267	81,130	81,023	71,035

*Farm size categories in 1995 were: 1,200 acres or less, and 1,201 acres or over.

**Net Farm Income categories in 1995 were: negative; 0-19,999; 20,000-39,999; and 40,000 or more.

TABLE 3. LIQUIDITY MEASURES, QUARTILE VALUES FOR 1997, MEDIAN VALUES FOR 1995 AND 1996, NORTH DAKOTA FARM BUSINESS MANAGEMENT EDUCATION PROGRAM PARTICIPANTS.

Farm Group	1997			1996 Median	1995 Median	1997			1996 Median	1995 Median
	Upper Quartile	Lower Quartile	Median			Upper Quartile	Lower Quartile	Median		
	Current Ratio					Working Capital(\$)				
All Farms	2.0	0.8	1.2	1.2	1.3	58,235	-20,778	11,207	19,042	18,984
Region										
Red River Valley	1.9	0.9	1.1	1.3	1.2	83,789	-29,637	18,045	42,944	32,034
North Central	2.7	0.8	1.3	1.3	1.5	59,183	-18,649	18,623	18,330	22,151
South Central	1.5	0.8	1.0	1.1	1.1	38,625	-28,143	-1,674	8,555	6,422
West	2.4	0.9	1.3	1.4	1.4	55,539	-5,219	20,045	26,429	35,951
Farm Enterprise										
Crop	1.9	0.8	1.1	1.3	1.3	67,334	-29,637	8,324	25,595	32,034
Livestock	2.5	1.0	1.4	1.2	1.1	51,601	763	20,403	12,424	7,429
Mixed	1.5	0.8	1.1	1.1	1.3	49,927	-15,337	11,536	11,046	17,656
Farm Sales										
\$99,999 or less	2.4	0.8	1.4	1.2	1.3	26,642	-5,066	11,122	6,643	7,085
\$100,000-\$249,999	1.8	0.8	1.1	1.2	1.2	52,277	-19,753	9,840	14,944	20,068
\$250,000 or over	1.9	0.8	1.1	1.4	1.4	108,126	-43,846	22,212	66,493	67,607
Farm Size*										
1,600 acres or less	2.0	0.8	1.1	1.2	1.2	37,482	-18,129	5,479	10,487	7,085
1,601 acres or over	2.0	0.8	1.2	1.3	1.3	73,524	-22,885	19,627	27,479	33,822
Cropland Tenure										
Full tenant	2.2	0.9	1.2	1.2	1.3	58,024	-10,896	12,412	14,580	10,112
1-20 percent owned	1.6	0.8	1.0	1.3	1.2	58,087	-34,903	4,111	36,292	18,280
21-40 percent owned	1.6	0.8	1.1	1.2	1.4	55,364	-23,076	6,936	17,582	42,534
41 percent or over owned	2.9	0.8	1.3	1.3	1.4	64,652	-13,548	18,623	18,330	20,068
Net Farm Income**										
Negative	1.2	0.6	0.8	1.0	0.8	9,692	-48,410	-13,185	-709	-10,771
\$0-\$24,999	1.6	0.8	1.1	1.1	1.2	27,414	-19,203	8,038	3,841	8,820
\$25,000-\$49,999	2.7	1.0	1.5	1.4	1.4	71,570	2,511	42,150	22,081	22,456
\$50,000 or more	3.9	1.1	1.8	1.7	1.7	206,670	23,645	92,951	80,136	78,755
Debt-to-Asset Ratio										
0-40 percent	6.2	1.7	2.9	3.0	3.2	138,979	36,595	75,458	88,741	86,105
41-70 percent	1.5	0.8	1.1	1.2	1.2	44,500	-19,203	9,877	19,710	16,624
71 percent or more	1.0	0.7	0.9	0.9	0.8	2,046	-41,550	-16,907	-6,892	-15,043
Farmer Age										
34 years or younger	2.4	0.9	1.3	1.2	1.3	50,525	-18,649	12,429	10,968	9,506
35-44 years	2.1	0.8	1.1	1.3	1.3	69,994	-16,907	12,412	27,479	32,832
45 years or older	1.6	0.8	1.1	1.2	1.2	51,601	-24,324	8,038	14,580	17,451

*Farm size categories in 1995 were: 1,200 acres or less, and 1,201 acres or over.

**Net Farm Income categories in 1995 were: negative; 0-19,999; 20,000-39,999; and 40,000 or more.

TABLE 4. TOTAL ASSETS AND TOTAL LIABILITIES, QUARTILE VALUES FOR 1997, MEDIAN VALUES FOR 1995 AND 1996, NORTH DAKOTA FARM BUSINESS MANAGEMENT EDUCATION PROGRAM PARTICIPANTS

Farm Group	1997					1997				
	Upper Quartile	Lower Quartile	Median	1996 Median	1995 Median	Upper Quartile	Lower Quartile	Median	1996 Median	1995 Median
	Total Farm Assets(\$)					Total Farm Liabilities(\$)				
All Farms	735,102	325,043	485,094	469,587	438,289	140,733	394,701	263,406	251,480	225,793
Region										
Red River Valley	1,022,895	440,101	692,602	643,234	631,888	210,437	513,534	350,540	306,868	276,831
North Central	644,383	321,240	441,556	427,093	387,133	126,127	340,149	232,560	215,467	172,274
South Central	732,426	292,607	468,594	449,492	398,423	142,107	429,445	261,072	260,452	228,127
West	664,907	329,341	477,352	454,088	445,350	140,733	360,151	270,792	253,564	215,661
Farm Enterprise										
Crop	804,072	346,615	540,740	527,542	476,350	146,481	410,056	272,241	257,737	225,861
Livestock	613,563	312,935	425,141	391,146	388,618	133,111	333,998	223,776	215,607	224,552
Mixed	593,772	265,487	428,485	399,949	383,432	150,643	365,240	270,877	246,586	242,295
Farm Sales										
\$99,999 or less	341,937	166,074	235,651	255,278	244,335	79,680	223,776	139,819	167,162	122,925
\$100,000-\$249,999	613,621	339,262	448,886	441,609	436,671	154,803	350,651	252,456	252,381	224,552
\$250,000 or over	1,051,915	608,004	809,167	793,929	810,458	253,771	542,356	410,056	343,214	354,220
Farm Size*										
1,600 acres or less	519,253	220,615	359,580	354,828	291,635	91,576	304,478	204,076	193,448	163,385
1,601 acres or over	854,228	425,141	625,067	603,664	528,231	196,396	473,279	318,994	294,726	254,365
Cropland Tenure										
Full tenant	504,403	154,026	328,540	324,847	285,465	71,024	299,449	154,803	167,181	128,130
1-20 percent owned	757,122	369,787	485,094	476,100	408,936	182,432	456,481	312,810	238,058	233,540
21-40 percent owned	793,561	404,574	528,608	536,000	522,952	215,105	423,440	317,124	281,344	255,021
41 percent or over owned	743,500	354,727	538,207	500,916	518,368	154,658	375,746	260,340	257,737	237,886
Net Farm Income**										
Negative	645,975	300,697	441,396	357,673	328,333	174,659	429,530	315,202	251,052	237,657
\$0-\$24,999	648,320	299,147	419,986	354,137	333,228	136,293	378,753	237,015	227,626	170,094
\$25,000-\$49,999	691,625	312,935	474,595	449,492	379,101	107,095	331,188	232,351	225,337	209,426
\$50,000 or more	1,106,386	560,519	742,106	695,295	662,061	162,642	462,583	292,822	277,820	239,166
Debt-to-Asset Ratio										
0-40 percent	856,059	359,580	594,606	626,271	533,273	56,869	203,265	118,430	103,627	100,375
41-70 percent	759,678	357,948	528,608	513,004	490,970	201,827	434,712	303,130	277,467	265,277
71 percent or more	549,675	281,753	406,243	354,137	326,595	248,240	462,797	344,781	307,237	272,332
Farmer Age										
34 years or younger	500,048	201,142	339,262	321,256	319,704	91,576	305,018	207,232	175,584	160,642
35-44 years	774,464	357,948	519,947	492,193	493,364	154,803	428,238	303,319	261,705	239,209
45 years or older	760,986	359,580	525,013	504,206	490,188	172,119	387,561	269,776	260,452	236,824

*Farm size categories in 1995 were: 1,200 acres or less, and 1,201 acres or over.

**Net Farm Income categories in 1995 were: negative; 0-19,999; 20,000-39,999; and 40,000 or more.

TABLE 5. SOLVENCY MEASURES, QUARTILE VALUES FOR 1997, MEDIAN VALUES FOR 1995 AND 1996, NORTH DAKOTA FARM BUSINESS MANAGEMENT EDUCATION PROGRAM PARTICIPANTS

Farm Group	1997					1997					1997				
	Upper Quartile	Lower Quartile	Median	1996 Median	1995 Median	Upper Quartile	Lower Quartile	Median	1996 Median	1995 Median	Upper Quartile	Lower Quartile	Median	1996 Median	1995 Median
	Debt-to-Asset (%)					Equity-to-Asset (%)					Debt-to-Equity				
All Farms	37.4	75.6	58.6	55.6	51.5	62.6	24.4	41.4	44.4	48.5	0.6	3.1	1.4	1.3	1.1
Region															
Red River Valley	38.9	72.7	55.3	52.8	52.9	61.1	27.3	44.7	47.2	47.1	0.6	2.7	1.2	1.1	1.1
North Central	32.0	74.8	56.0	53.1	45.4	68.0	25.2	44.0	46.9	54.6	0.5	3.0	1.3	1.1	0.8
South Central	38.6	80.4	63.5	57.6	56.0	61.4	19.6	36.5	42.4	44.0	0.6	4.1	1.7	1.4	1.3
West	40.5	74.5	58.6	56.0	49.8	59.5	25.5	41.4	44.0	50.2	0.7	2.9	1.4	1.3	1.0
Farm Enterprise															
Crop	35.7	74.8	56.7	51.3	49.2	64.3	25.2	43.3	48.7	50.8	0.6	3.0	1.3	1.1	1.0
Livestock	37.4	73.7	59.2	67.7	56.5	62.6	26.3	40.8	32.3	43.5	0.6	2.8	1.5	2.1	1.3
Mixed	48.9	86.3	64.2	63.2	57.4	51.1	13.7	35.8	36.8	42.6	1.0	6.3	1.8	1.7	1.3
Farm Sales															
\$99,999 or less	45.0	85.7	64.4	66.4	55.9	55.0	14.3	35.6	33.6	44.1	0.8	6.0	1.8	2.0	1.3
\$100,000-\$249,999	37.3	77.0	58.5	55.8	51.3	62.7	23.0	41.5	44.2	48.7	0.6	3.3	1.4	1.3	1.1
\$250,000 or over	35.7	68.6	55.1	47.1	49.1	64.3	31.4	44.9	52.9	50.9	0.6	2.2	1.2	0.9	1.0
Farm Size*															
1,600 acres or less	37.2	78.8	61.7	57.8	55.4	62.8	21.2	38.3	42.2	44.6	0.6	3.7	1.6	1.4	1.2
1,601 acres or over	37.4	73.8	57.4	53.2	50.4	62.6	26.2	42.6	46.8	49.6	0.6	2.8	1.3	1.1	1.0
Cropland Tenure															
Full tenant	31.4	76.2	56.8	57.9	49.0	68.6	23.8	43.2	42.1	51.0	0.5	3.2	1.3	1.4	1.0
1-20 percent owned	43.3	76.3	62.5	52.6	59.0	56.7	23.7	37.5	47.4	41.0	0.8	3.2	1.7	1.1	1.4
21-40 percent owned	39.7	77.2	60.6	58.5	49.9	60.3	22.8	39.4	41.5	50.1	0.7	3.4	1.5	1.4	1.0
41 percent or over owned	31.2	70.2	55.3	53.5	50.4	68.8	29.8	44.7	46.5	49.6	0.5	2.4	1.2	1.2	1.0
Net Farm Income**															
Negative	55.9	90.1	73.2	74.2	70.7	44.1	9.9	26.8	25.8	29.3	1.3	9.1	2.7	2.9	2.4
\$0-\$24,999	43.9	74.7	60.1	64.1	54.4	56.1	25.3	39.9	35.9	45.6	0.8	3.0	1.5	1.8	1.2
\$25,000-\$49,999	31.4	66.6	48.1	52.6	53.9	68.6	33.4	51.9	47.4	46.1	0.5	2.0	0.9	1.1	1.2
\$50,000 or more	23.2	58.2	40.9	44.7	40.6	76.8	41.8	59.1	55.3	59.4	0.3	1.4	0.7	0.8	0.7
Debt-to-Asset Ratio															
0-40 percent	12.9	33.9	26.0	22.8	23.3	87.1	66.1	74.0	77.2	76.7	0.1	0.5	0.4	0.3	0.3
41-70 percent	51.0	63.7	57.8	55.5	55.5	49.0	36.3	42.2	44.5	44.5	1.0	1.8	1.4	1.2	1.2
71 percent	76.1	95.6	84.0	84.5	83.4	23.9	4.4	16.0	15.5	16.6	3.2	21.7	5.3	5.5	5.0
Farmer Age															
34 years or younger	38.6	77.2	65.5	61.5	56.5	61.4	22.8	34.5	38.5	43.5	0.6	3.4	1.9	1.6	1.3
35-44 years	38.9	75.2	57.8	53.1	51.6	61.1	24.8	42.2	46.9	48.4	0.6	3.0	1.4	1.1	1.1
45 years or older	35.7	74.8	57.0	55.4	49.9	64.3	25.2	43.0	44.6	50.1	0.6	3.0	1.3	1.2	1.0

*Farm size categories in 1995 were: 1,200 acres or less, and 1,201 acres or over.

**Net Farm Income categories in 1995 were: negative; 0-19,999; 20,000-39,999; and 40,000 or more.

TABLE 6. RATE OF RETURN ON ASSETS AND RATE OF RETURN ON EQUITY PROFITABILITY MEASURES, QUARTILE VALUES FOR 1997, MEDIAN VALUES FOR 1995 AND 1996, NORTH DAKOTA FARM BUSINESS MANAGEMENT EDUCATION PROGRAM PARTICIPANTS

Farm Group	1997			1996 Median	1995 Median	1997			1996 Median	1995 Median
	Upper Quartile	Lower Quartile	Median			Upper Quartile	Lower Quartile	Median		
	Return on Farm Assets(%)					Return on Equity(%)				
All Farms	7.1	-1.7	2.5	6.5	4.7	6.1	-13.6	-1.4	4.9	2.2
Region										
Red River Valley	10.0	0.7	5.0	12.5	8.5	13.2	-6.1	1.9	18.9	8.6
North Central	6.7	-0.2	3.1	4.9	4.8	6.6	-9.9	-0.2	1.4	3.1
South Central	6.0	-3.5	1.1	7.1	2.1	1.9	-22.8	-4.4	6.3	-1.4
West	6.6	-2.5	2.3	3.6	4.5	5.6	-15.1	-1.9	0.0	3.2
Farm Enterprise										
Crop	7.4	-1.7	2.7	9.1	7.0	6.5	-11.7	-0.7	9.9	6.6
Livestock	6.7	-0.3	2.0	1.1	0.5	6.6	-14.5	-2.4	-6.0	-3.4
Mixed	5.8	-2.7	1.9	2.7	3.1	2.8	-21.8	-3.0	0.0	-1.2
Farm Sales										
\$99,999 or less	4.5	-6.4	-0.4	-0.6	-1.6	0.0	-25.9	-6.1	-8.7	-7.3
\$100,000-\$249,999	6.3	-1.4	2.1	6.5	5.2	5.0	-13.9	-1.9	5.5	2.9
\$250,000 or over	8.6	0.0	4.8	12.1	9.0	9.5	-8.4	1.1	15.9	9.3
Farm Size*										
1,600 acres or less	6.9	-4.7	1.7	6.0	2.8	5.0	-19.1	-2.9	3.4	-0.7
1,601 acres or over	7.2	-0.4	3.2	7.0	6.1	6.6	-10.7	-0.7	5.9	4.8
Cropland Tenure										
Full tenant	9.2	-5.7	1.3	9.8	3.4	9.5	-15.3	0.0	10.3	0.0
1-20 percent owned	9.1	-1.0	4.1	10.6	6.4	9.3	-13.6	-0.5	12.7	4.4
21-40 percent owned	6.0	-0.9	3.0	8.3	7.7	4.1	-10.7	-1.9	8.7	8.5
41 percent or over owned	5.6	-1.6	2.0	3.7	3.7	4.0	-12.5	-2.4	0.3	0.0
Net Farm Income**										
Negative	-1.3	-9.8	-4.4	-5.8	-6.5	-10.7	-50.9	-23.9	-19.2	-25.7
\$0-\$24,999	3.5	0.0	1.9	2.5	1.3	-0.9	-8.7	-4.8	-3.6	-3.4
\$25,000-\$49,999	9.8	4.9	6.7	7.2	5.5	14.0	2.8	5.9	7.4	3.5
\$50,000 or more	12.9	7.6	10.5	13.7	12.4	18.9	7.5	13.2	19.4	16.1
Debt-to-Asset Ratio										
0-40 percent	7.4	-0.2	4.1	8.1	6.3	7.7	-2.1	2.8	8.5	6.4
41-70 percent	7.4	-0.5	2.7	7.0	5.7	7.8	-10.7	-3.3	6.5	3.5
71 percent or more	5.6	-5.0	0.6	3.8	-0.1	0.0	-47.9	-12.1	0.0	-9.2
Farmer Age										
34 years or younger	10.0	-2.1	4.5	7.2	4.4	12.9	-15.5	-0.2	6.9	1.7
35-44 years	7.6	-1.1	3.3	8.7	6.2	7.8	-10.0	0.0	10.0	6.0
45 years or older	5.1	-2.0	1.4	4.2	3.6	2.1	-15.1	-3.4	1.0	0.0

*Farm size categories in 1995 were: 1,200 acres or less, and 1,201 acres or over.

**Net Farm Income categories in 1995 were: negative; 0-19,999; 20,000-39,999; and 40,000 or more.

TABLE 7. OPERATING PROFIT MARGIN AND NET FARM INCOME PROFITABILITY MEASURES, QUARTILE VALUES FOR 1997, MEDIAN VALUES FOR 1995 AND 1996, NORTH DAKOTA FARM BUSINESS MANAGEMENT PROGRAM PARTICIPANTS.

Farm Group	1997					1997				
	Upper Quartile	Lower Quartile	Median	1996 Median	1995 Median	Upper Quartile	Lower Quartile	Median	1996 Median	1995 Median
	Operating Profit Margin(%)					Net Farm Income(\$)				
All Farms	19.1	-5.3	8.3	17.3	14.5	38,790	-4,325	14,290	31,063	23,463
Region										
Red River Valley	20.0	1.4	11.6	23.3	17.8	62,879	3,224	28,199	64,696	52,182
North Central	20.3	-1.0	10.3	14.6	15.5	39,317	447	16,051	24,376	26,297
South Central	14.1	-13.1	2.4	17.4	7.5	30,820	-13,560	6,453	31,253	11,844
West	20.2	-8.9	9.8	13.3	19.4	33,580	-3,491	13,007	20,882	27,589
Farm Enterprise										
Crop	18.3	-5.8	8.1	20.2	17.0	42,407	-5,344	16,947	47,669	37,971
Livestock	25.5	-0.9	11.9	5.8	2.8	34,832	2,270	15,569	7,904	8,094
Mixed	19.4	-15.8	7.1	11.6	10.7	29,729	-5,066	8,393	14,437	12,538
Farm Sales										
\$99,999 or less	16.6	-24.0	-0.6	-2.6	-4.9	17,872	-5,850	4,890	5,035	7,226
\$100,000-\$249,999	19.8	-4.6	7.3	17.5	15.5	33,823	-2,632	13,528	32,460	27,924
\$250,000 or over	19.2	0.0	11.3	24.1	20.7	65,683	-7,635	32,361	80,050	71,688
Farm Size*										
1,600 acres or less	18.2	-15.8	4.9	13.8	9.1	32,034	-4,975	11,511	25,914	13,007
1,601 acres or over	19.4	-1.0	9.8	18.9	17.1	43,173	-3,927	17,403	40,364	34,253
Cropland Tenure										
Full tenant	14.1	-10.3	3.6	15.8	5.9	36,146	-5,816	16,510	31,977	15,683
1-20 percent owned	19.6	-1.7	8.2	19.3	14.0	45,826	-7,469	19,292	51,916	30,874
21-40 percent owned	17.8	-1.8	8.4	18.2	19.8	36,133	-7,899	11,078	35,274	44,811
41 percent or over owned	22.1	-7.8	9.2	15.1	15.7	37,577	-2,736	10,279	22,528	18,638
Net Farm Income**										
Negative	-3.5	-31.6	-16.7	-20.3	-23.9	-7,635	-31,659	-16,890	-11,742	-14,925
\$0-\$24,999	11.7	0.1	5.8	7.9	4.3	17,403	5,234	10,136	13,847	11,105
\$25,000-\$49,999	23.3	12.4	19.1	19.4	16.0	42,376	29,781	36,036	33,663	29,143
\$50,000 or more	32.2	18.3	23.0	28.4	27.3	97,066	59,441	70,199	83,050	75,393
Debt-to-Asset Ratio										
0-40 percent	22.3	-0.5	12.4	23.2	19.4	55,384	13,031	31,201	52,330	45,692
41-70 percent	19.8	-1.7	9.3	18.7	16.3	37,327	359	13,995	33,515	26,172
71 percent or more	12.7	-18.0	1.3	9.3	-0.3	19,448	-18,289	725	13,605	2,110
Farmer Age										
34 years or younger	20.9	-5.8	10.9	14.1	12.3	36,510	-229	19,537	27,395	18,655
35-44 years	19.1	-3.5	9.6	20.0	16.3	47,326	-2,200	19,036	45,611	33,195
45 years or older	17.4	-8.1	4.9	14.0	13.3	29,781	-12,343	9,262	24,210	15,417

*Farm size categories in 1995 were: 1,200 acres or less, and 1,201 acres or over.

**Net Farm Income categories in 1995 were: negative; 0-19,999; 20,000-39,999; and 40,000 or more.

TABLE 8. REPAYMENT CAPACITY MEASURES, QUARTILE VALUES FOR 1997, MEDIAN VALUES FOR 1995 AND 1996, NORTH DAKOTA FARM BUSINESS MANAGEMENT EDUCATION PROGRAM PARTICIPANTS

Farm Group	1997					1997				
	Upper Quartile	Lower Quartile	Median	1996 Median	1995 Median	Upper Quartile	Lower Quartile	Median	1996 Median	1995 Median
	Term Debt Coverage Ratio					Term Debt and Capital Repayment Margin(\$)				
All Farms	1.6	0.0	0.7	1.2	1.1	14,129	-33,471	-8,995	5,024	1,652
Region										
Red River Valley	1.7	0.2	0.8	1.8	1.5	17,658	-41,000	-7,719	30,510	17,375
North Central	1.7	0.1	0.8	0.9	1.0	12,065	-29,156	-8,192	-4,618	-530
South Central	1.5	-0.1	0.5	1.3	0.8	10,391	-41,097	-15,347	9,127	-7,003
West	1.5	0.3	0.9	0.9	1.1	14,307	-21,487	-1,968	-1,852	2,932
Farm Enterprise										
Crop	1.5	-0.1	0.5	1.6	1.3	11,614	-41,097	-14,621	15,319	8,892
Livestock	2.4	0.6	1.2	0.7	0.6	22,552	-17,282	3,954	-7,367	-8,115
Mixed	1.3	0.1	0.8	0.9	1.0	8,667	-23,622	-7,071	-1,793	57
Farm Sales										
\$99,999 or less	1.8	0.1	1.0	0.7	0.8	10,391	-14,816	707	-6,607	-3,828
\$100,000-\$249,999	1.5	0.0	0.7	1.1	1.0	10,352	-31,391	-12,105	2,895	-530
\$250,000 or over	1.7	-0.1	0.6	2.1	1.7	23,752	-56,141	-15,042	43,388	32,617
Farm Size*										
1,600 acres or less	1.7	0.1	0.8	1.3	1.1	12,065	-23,528	-6,213	5,407	1,894
1,601 acres or over	1.5	0.0	0.7	1.1	1.0	15,215	-41,215	-13,349	3,727	1,144
Cropland Tenure										
Full tenant	2.0	-0.1	0.6	1.6	1.0	11,614	-26,807	-7,783	6,197	228
1-20 percent owned	1.6	-0.1	0.6	1.4	1.0	15,480	-48,855	-18,305	11,599	-407
21-40 percent owned	1.3	0.0	0.6	1.2	1.4	7,712	-41,215	-16,533	7,916	12,117
41 percent or over owned	1.6	0.3	0.9	0.9	1.0	14,720	-25,131	-1,687	-1,713	423
Net Farm Income**										
Negative	0.4	-0.6	-0.1	0.1	0.0	-17,530	-66,562	-37,474	-26,823	-30,409
\$0-\$24,999	1.2	0.2	0.6	0.9	0.8	4,490	-27,963	-11,882	-4,272	-4,067
\$25,000-\$49,999	2.4	0.7	1.3	1.3	1.2	20,627	-6,213	8,667	6,209	5,499
\$50,000 or more	4.5	1.2	2.1	2.5	2.3	62,535	11,423	31,242	47,539	38,837
Debt-to-Asset Ratio										
0-40 percent	3.6	0.5	1.6	2.8	2.4	37,240	-11,371	8,682	26,160	18,690
41-70 percent	1.4	0.0	0.7	1.1	1.1	12,065	-37,285	-11,358	3,489	2,838
71 percent or more	1.0	-0.1	0.4	0.8	0.2	1,166	-45,028	-22,496	-5,427	-20,780
Farmer Age										
34 years or younger	2.0	0.1	1.1	1.2	1.1	14,307	-15,347	4,590	3,577	1,700
35-44 years	1.8	0.1	0.8	1.3	1.2	18,876	-30,432	-7,071	11,759	9,784
45 years or older	1.2	0.0	0.6	0.9	0.8	5,534	-39,944	-16,786	-1,091	-4,734

*Farm size categories in 1995 were: 1,200 acres or less, and 1,201 acres or over.

**Net Farm Income categories in 1995 were: negative; 0-19,999; 20,000-39,999; and 40,000 or more.

TABLE 9. ASSET TURNOVER AND OPERATING EXPENSE AND DEPRECIATION EXPENSE EFFICIENCY MEASURES (AS A PERCENTAGE OF GROSS FARM INCOME), QUARTILE VALUES FOR 1997, MEDIAN VALUES FOR 1995 AND 1996, FARM BUSINESS MANAGEMENT EDUCATION PROGRAM PARTICIPANTS

Farm Group	1997					1997					1997				
	Upper Quartile	Lower Quartile	Median	1996 Median	1995 Median	Upper Quartile	Lower Quartile	Median	1996 Median	1995 Median	Upper Quartile	Lower Quartile	Median	1996 Median	1995 Median
	Asset Turnover					Operating Expense(%)					Depreciation Expense (%)				
All Farms	.49	.24	.34	.39	.36	63.4	84.6	73.3	66.0	67.4	2.4	10.8	6.0	5.6	5.7
Region															
Red River Valley	.61	.35	.47	.54	.48	68.1	84.4	75.5	64.9	70.2	2.2	6.7	4.5	4.4	4.0
North Central	.46	.24	.33	.34	.36	61.4	82.0	71.3	66.2	65.4	1.6	8.8	4.6	4.5	4.7
South Central	.49	.24	.34	.42	.35	65.9	86.4	76.6	65.9	70.8	3.6	12.5	7.9	7.6	7.9
West	.34	.19	.27	.29	.28	58.1	81.2	67.8	66.7	62.3	4.3	14.4	8.8	6.9	6.8
Farm Enterprise															
Crop	.57	.28	.40	.47	.45	67.3	86.3	76.5	65.0	67.2	2.5	9.1	5.4	5.0	4.6
Livestock	.32	.17	.23	.22	.21	55.3	74.5	63.9	68.9	68.6	3.8	18.1	9.6	9.2	9.8
Mixed	.36	.19	.27	.28	.29	58.1	82.7	69.4	69.1	71.7	2.0	11.9	6.2	6.4	7.8
Farm Sales															
\$99,999 or less	.39	.17	.24	.22	.24	54.4	83.4	66.3	71.1	67.3	2.1	13.0	7.5	7.8	8.8
\$100,000-\$249,999	.44	.24	.33	.40	.37	63.4	83.5	72.4	65.8	66.9	2.3	11.2	6.2	5.0	5.8
\$250,000 or over	.58	.29	.42	.50	.46	68.2	86.3	76.9	65.6	69.2	2.6	8.8	5.4	5.2	4.5
Farm Size*															
1,600 acres or less	.51	.22	.33	.40	.34	62.6	85.1	73.4	65.9	69.2	2.4	10.9	5.8	5.4	6.0
1,601 acres or over	.47	.25	.34	.38	.37	63.7	84.0	73.2	66.0	67.2	2.4	10.6	6.1	5.9	5.6
Cropland Tenure															
Full tenant	.76	.39	.54	.61	.61	68.7	88.1	79.2	71.3	73.2	1.4	9.1	4.5	4.5	4.8
1-20 percent owned	.59	.36	.46	.54	.50	67.8	86.5	77.3	67.9	71.1	2.1	8.2	4.5	3.7	4.4
21-40 percent owned	.42	.27	.33	.40	.41	66.9	84.8	76.1	66.4	65.1	2.8	9.1	6.3	5.6	5.6
41 percent or over owned	.29	.18	.23	.25	.24	57.4	75.2	65.9	63.6	65.0	3.4	8.7	14.7	7.6	7.2
Net Farm Income**															
Negative	.45	.19	.28	.19	.26	82.2	98.5	89.5	86.6	90.2	4.8	16.7	9.0	10.4	11.7
\$0-\$24,999	.44	.22	.30	.33	.30	63.7	76.6	73.3	69.1	72.6	2.3	11.2	5.5	6.3	6.6
\$25,000-\$49,999	.50	.28	.38	.40	.38	54.4	73.6	67.0	64.3	66.4	2.0	8.8	4.7	4.9	5.0
\$50,000 or more	.58	.30	.42	.49	.44	56.6	70.7	66.0	59.6	60.6	1.3	7.0	4.7	4.3	4.0
Debt-to-Asset Ratio															
0-40 percent	.44	.21	.30	.35	.33	59.8	78.9	69.0	59.9	62.3	2.6	10.4	6.8	6.3	5.6
41-70 percent	.45	.24	.34	.40	.39	63.7	83.5	71.6	65.6	67.1	2.0	10.2	5.5	5.6	5.3
71 percent or more	.58	.27	.41	.40	.38	67.6	89.7	79.6	74.5	75.3	2.5	12.5	5.8	5.2	6.3
Farmer Age															
34 years or younger	.61	.30	.45	.49	.48	56.8	83.6	72.4	67.2	67.4	1.5	9.3	4.7	3.4	4.4
35-44 years	.54	.27	.38	.44	.38	65.0	84.0	73.3	65.6	67.1	2.2	9.9	5.7	5.2	5.7
45 years or older	.38	.19	.28	.29	.29	63.4	84.6	73.4	66.7	68.3	2.9	12.2	7.7	7.0	6.7

*Farm size categories in 1995 were: 1,200 acres or less, and 1,201 acres or over.

**Net Farm Income categories in 1995 were: negative; 0-19,999; 20,000-39,999; and 40,000 or more.

TABLE 10. INTEREST EXPENSE AND FARM INCOME EFFICIENCY MEASURES (AS A PERCENTAGE OF GROSS FARM INCOME), QUARTILE VALUES FOR 1997, MEDIAN VALUES FOR 1995 AND 1996, NORTH DAKOTA FARM BUSINESS MANAGEMENT EDUCATION PROGRAM PARTICIPANTS

Farm Group	1997					1997				
	Upper Quartile	Lower Quartile	Median	1996 Median	1995 Median	Upper Quartile	Lower Quartile	Median	1996 Median	1995 Median
	Interest Expense(%)					Net Farm Income (%)				
All Farms	6.3	14.8	9.9	8.9	8.8	19.8	-2.7	8.1	18.0	16.2
Region										
Red River Valley	5.5	11.2	7.8	6.4	7.0	19.5	1.7	11.1	22.2	18.6
North Central	6.2	14.9	10.2	9.5	8.4	21.9	0.6	11.5	19.3	19.4
South Central	6.1	15.4	10.9	8.2	8.9	14.6	-8.7	3.7	17.3	10.5
West	7.1	17.4	10.6	11.7	10.3	21.3	-1.6	10.3	14.3	18.3
Farm Enterprise										
Crop	5.7	13.8	9.1	7.2	7.5	18.6	-3.0	8.0	20.3	19.4
Livestock	7.2	17.4	10.5	12.9	12.7	23.9	2.7	12.9	9.4	6.1
Mixed	7.8	20.2	11.4	11.5	10.1	21.4	-5.2	6.7	12.2	8.4
Farm Sales										
\$99,999 or less	6.7	22.6	12.0	13.3	12.5	23.9	-8.1	7.0	7.6	11.2
\$100,000-\$249,999	6.6	14.9	10.6	9.5	8.9	21.1	-2.0	8.1	17.6	16.5
\$250,000 or over	5.5	12.2	8.4	6.2	6.3	18.5	-2.0	8.6	21.1	18.5
Farm Size*										
1,600 acres or less	6.3	14.4	9.6	8.6	9.2	21.7	-5.3	8.6	18.0	14.8
1,601 acres or over	6.3	14.9	9.9	9.1	8.5	18.7	-2.0	7.8	18.0	17.0
Cropland Tenure										
Full tenant	3.0	9.8	6.5	5.9	5.5	18.6	-3.0	7.9	17.3	13.7
1-20 percent owned	6.3	11.8	8.9	6.6	7.5	20.4	-2.8	8.3	20.5	16.8
21-40 percent owned	7.5	15.8	11.7	9.3	8.8	16.6	-2.7	8.1	17.3	18.7
41 percent or over owned	8.0	19.9	12.5	12.0	11.4	21.8	-2.2	8.4	16.3	15.1
Net Farm Income**										
Negative	9.0	20.4	13.3	14.6	13.7	-5.2	-24.3	-12.1	-13.2	-15.8
\$0-\$24,999	7.6	16.5	11.4	11.4	9.7	11.9	3.6	7.3	11.0	9.2
\$25,000-\$49,999	5.1	10.9	7.8	8.1	8.6	28.5	13.9	20.2	19.6	17.8
\$50,000 or more	2.9	9.2	5.8	5.9	6.0	30.5	18.6	24.3	28.2	28.0
Debt-to-Asset Ratio										
0-40 percent	2.1	8.1	4.7	4.0	4.0	28.4	8.3	17.5	28.2	24.6
41-70 percent	7.8	15.5	10.9	9.9	9.2	18.7	0.1	8.1	18.4	16.4
71 percent or more	9.5	18.9	13.2	11.3	12.1	10.3	-13.8	0.3	7.9	1.8
Farmer Age										
34 years or younger	5.0	12.9	8.7	7.8	7.3	27.4	-0.7	12.3	17.5	19.1
35-44 years	6.0	13.3	9.0	7.9	8.0	19.0	-1.6	8.6	20.1	16.8
45 years or older	7.2	17.0	11.7	10.0	10.1	17.2	-6.5	6.7	15.2	12.7

*Farm size categories in 1995 were: 1,200 acres or less, and 1,201 acres or over.

**Net Farm Income categories in 1995 were: negative; 0-19,999; 20,000-39,999; and 40,000 or more.

REFERENCES

- Swenson, Andrew L. and Cole R. Gustafson. 1997. *Financial Characteristics of North Dakota Farms, 1994-1996*. Agricultural Economic Report No. 379, Department of Agricultural Economics, North Dakota State University, Fargo. Website <http://agecon.lib.umn.edu/ndsu/aer/379.html>
- Swenson, Andrew L. and Cole R. Gustafson. 1996. *Financial Characteristics of North Dakota Farms, 1993-1995*. Agricultural Economic Report No. 358, Department of Agricultural Economics, North Dakota State University, Fargo. Website <http://agecon.lib.umn.edu/ndsu/aer/358.pdf>
- Swenson, Andrew L. and Cole R. Gustafson. 1995. *Financial Characteristics of North Dakota Farms, 1992-1994*. Agricultural Economics Report No. 341, Department of Agricultural Economics, North Dakota State University, Fargo. Website <http://agecon.lib.umn.edu/ndsu/aer/341.pdf>
- Miller, Lynn H., Peter J. Barry, and Paul N. Ellinger. 1995. *Financial Characteristics of Illinois Farms 1993-94*. The Center for Farm and Rural Business Finance, University of Illinois, Urbana, University of Arkansas, Fayetteville.
- North Dakota Agricultural Statistics Service. 1995. *North Dakota Agricultural Statistics*. North Dakota State University and the USDA.
- Baltezore, James F., Cole R. Gustafson, and Andrew L. Swenson. 1993. *Financial Benchmarks of North Dakota Farm Operators: 1992 Update*. Agricultural Economics Report No. 311, Department of Agricultural Economics, North Dakota State University, Fargo.
- Baltezore, James F., Cole R. Gustafson, and Andrew Swenson. 1993. *Financial Benchmarks of North Dakota Farm Operators in 1991*. Agricultural Economics Report No. 298, Department of Agricultural Economics, North Dakota State University, Fargo.
- Farm Financial Standards Task Force. 1991. *Financial Guidelines for Agricultural Producers: Recommendations of the Farm Financial Standards Task Force*. American Bankers Association, Agricultural Bankers Division, Washington, DC.