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Minnesota Farm Business Management Education  
and  
North Dakota Farm Business Management Education

RED RIVER VALLEY AVERAGES  
2016 ANNUAL REPORT

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2016 Red River Valley Report  
Minnesota and North Dakota Farm Business Management Education

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## INTRODUCTION

This report summarizes the individual farm records of farms in the Red River Valley that are enrolled in Farm Management Education programs. The current financial status of farm operators and net returns from each crop enterprise is reported. In addition to the average of all farms, the averages for the high and low net income groups are also presented. To insure anonymity, only averages of five or more farms are reported. Regional averages reports can be used by producers for comparison purposes to identify and study the areas that may need management improvement. A review of the comparative information may reveal how certain aspects of the business or enterprises excel and help answer why they are profitable. The data contained in this report should also be useful to instructors, extension agents, bankers and agricultural consultants.

The Red River Valley averages reports are divided into two major categories. Explanatory notes precede the farm operators' reports and the crop reports.

The 2016 Red River Valley Report is based upon data generated by individual farm analysis completed by farm/ranch families enrolled in the Farm and Ranch Business Management Education programs in Minnesota and North Dakota. The tables in this report were created using FINPACK and RankEm Central copyrighted software of the Center for Farm Financial Management, University of Minnesota.

You may contact Ron Dvergsten, Northland Community and Technical College, Highway 1 East, Thief River Falls, MN 56701, phone: (218) 683-8747, to order a copy of this report. This report and regional reports for north central, south central and western North Dakota can be ordered for \$5 per copy from Farm Business Management, PO Box 6022, Bismarck, ND 58506-6022, phone: (701) 224-8390. A state average book for North Dakota farms is also available. The reports are available online at [www.ndfarmmanagement.com](http://www.ndfarmmanagement.com).

## **EXPLANATORY NOTES FOR THE FARM OPERATORS' REPORTS**

The tables include the same number of farms, which were all of the farms whose records were judged to be of sufficient quality to be included in the overall report. However, the balance sheets include only sole proprietors. Partnerships and corporations are excluded because some debt is held outside of the business causing potential misinterpretations of the financial statement. The number of farms included in each of the crop tables varies because all farms do not have the same enterprises. Also, some farmers' records were complete enough to be included in the whole-farm tables, but at times, these same farmers' crop records were not complete enough to include in the respective crop and livestock tables.

Rounding of individual items for the report may have caused minor discrepancies with the printed totals which are calculated before rounding.

### **Farm Income Statement**

This statement is a summary of income, expenses, or resultant profit or loss from farming operations during the calendar year.

The first section of the table lists cash farm income from all sources. There are three possible sources of cash income from crops. The first is income from cash sales. The second is income from crops stored under government loan programs when the loan is treated as income for the year in which the crop was stored. If the crop value has not been entered as income when it was stored, then it would be treated as cash income in the year it was sold. The third is Net Government Sales, which refers to the difference between income credited in the year a crop was stored and the actual cash income received at the time it was sold. There are two categories of cash income from livestock sales. "Raised" steer, hogs, and lambs refer to animals raised from birth to market weight on the farm. "Finished" animals refers to those purchased as feeders and fed to market weight. Government payments are grouped as "Direct, CCP & ACRE pymts;" "LDP payments" which are loan deficiency payments that may be received on production when local prices are below the county loan rate for the crop; "Other government payments" which refers to all other government payments such as disaster payments but not including CRP payments; and CRP payments.

The second section of the income statement lists cash expenses. "Hired labor" includes only labor which was hired and paid. "Interest" includes only interest actually paid. No opportunity charges on farm equity capital or unpaid labor are included.

The difference between "Gross Cash Farm Income" and "Total cash expense" is the "Net cash farm income." This is net farm income on a cash basis.

The last two sections of the income statement deal with the non-cash changes in the farm business. The "Inventory Changes" and "Depreciation" sections are used to convert the cash income statement (Net Cash Farm Income) derived from the first two sections into an accrual income statement. The final adjustment is for "Gain or loss on capital sales." The bottom line, labeled "Net farm income," represents the return to the operators and family's unpaid labor, management, and equity capital (net worth). In other words, it represents the return to all of the resources that are owned by the farm family and hence, not purchased or paid a wage. However, it does not include any debt forgiveness or asset repossessions.

### **Inventory Changes**

This is the detailed statement of inventory changes that is summarized in the income statement. It includes beginning and ending inventories and the calculated changes.

## Depreciation

This is the detailed statement of depreciation and other capital adjustments that is summarized in the income statement. It includes beginning and ending inventories, and capital sales and purchases.

## Profitability Measures

This table shows profitability when capital assets are valued at cost. Various measures of performance are calculated. In the previous tables no opportunity costs are used. In this table, opportunity costs for labor, capital, and management are used. The measures and their components are described below.

**"Rate of return on assets"** is the "Return on farm assets" divided by "Average farm assets."

**"Rate of return on equity"** is the "Return of farm equity" divided by "Average farm equity."

**"Operating profit margin"** is the "Return on farm assets" divided by "Value of farm production."

**"Asset turnover rate"** is the "Value of farm production" divided by "Average farm assets."

**"Farm interest expense"** is the accrual interest cost, usually it will be different from the cash interest expense.

**"Value of operator's labor and management"** is an opportunity cost for unpaid operator's labor and management that is used in the calculation of several financial performance measures. A value of \$20,000 per full time operator plus 5% of value of farm production is used.

**"Return of farm assets"** is calculated by adding "Farm interest expense" to "Net farm income" and then subtracting the "Value of operator's labor and management."

**"Average farm assets"** is the average of beginning and ending total farm assets.

**"Return on farm equity"** is calculated by subtracting the "Value of operator's labor and management" from "Net farm income."

**"Average farm equity"** is the average of beginning and ending farm net worth.

**"Value of farm production"** is gross cash farm income minus purchased feed and feeder livestock and adjusted for inventory changes in crops, market livestock, accounts receivable and breeding livestock.

## Liquidity & Repayment Capacity Measures

The table shows several measures of liquidity and repayment capacity. Calculation of repayment capacity starts with net farm income from operations and adds back the non-cash expense of depreciation. Personal income is also added. Family living expenses, personal debt payments, income taxes paid, and interest on term debt are subtracted to determine the capital debt repayment capacity.

## Balance Sheets

The ending balance sheet statements and solvency measures are for all farms; in previous Red River Valley reports they were presented for sole proprietors only. Current assets are valued at market price at the time of the inventory which is December 31. In balance sheet at cost values, intermediate and long-term assets that are depreciable are valued at cost remaining (amount remaining to be depreciated, plus salvage value). Raised breeding livestock is valued at conservative market replacement costs. Land is valued at cost or conservative market value. In balance sheet at market values, the intermediate and long term assets are listed at market value, and deferred income tax liabilities are estimated.

## Statement of Cash Flows

This statement organizes cash inflows and outflows by the following three categories: Operating activities, investing activities, and financing activities.

## Financial Standards Measures

The Farm Financial Standards Task Force recommended the use of these financial measures to evaluate a farm's financial position and financial performance. These measures are grouped by: Liquidity, Solvency, Profitability, Repayment Capacity, and Efficiency.

### Liquidity

Liquidity is the ability of the farm business to meet financial obligations in a timely manner, without disrupting normal business operations.

**Current Ratio:** The current ratio shows the value of current assets relative to current liabilities. It measures the extent current farm assets, if liquidated, would cover liabilities that are due during the next 12 months. The higher the ratio, the safer the short term position.

**Working Capital:** Working capital shows the dollar amount that current assets can or cannot cover current liabilities. It approximates the amount of capital available to purchase crop and livestock inputs and equipment necessary to produce farm products. The amount of working capital considered adequate must be related to the size of the farm business.

**Working Capital to Gross Revenues:** Measures operating capital available against the size of the business.

### Solvency

Solvency is important in evaluating the risk position of the farm and family and in considering future borrowing capacity. Solvency measures the ability of the business to pay off all debts if liquidated.

**Farm Debt To Asset Ratio:** The farm debt to asset ratio measures the financial position or solvency of the farm or ranch by comparing the total liabilities to the total assets. It measures the portion of the farm assets that have debt against them. A higher ratio is considered an indicator of greater financial risk.

**Farm Equity To Asset Ratio:** The farm equity to asset ratio measures the farm equity relative to the value of the farm assets. It measures the proportion of the farm assets financed by the owner's equity whereas the debt to asset ratio measured the proportion of farm assets financed by debt.

**Farm Debt To Equity Ratio:** The farm debt to equity ratio measures the amount of farm debt relative to the amount of farm equity. It measures the amount of debt the farm has for every dollar of equity.

### Profitability

Profitability is the measure of the value of goods produced by the business in relation to the cost of resources used in the production. Profitability calculated on a cost basis does not consider changes in market valuation of capital assets such as machinery and breeding livestock.

**Rate of Return on Assets:** Rate of return on assets is, in effect, the interest rate your farm earned in the past year on all money invested in the business. If assets are valued at market value, the rate of return on investment can be looked at as the "opportunity cost" of investing money in the farm instead of alternative investments. If assets are valued at cost (cost less depreciation), the rate of return represents the actual return on the average dollar invested in the business.

**Rate of Return on Equity:** Rate of return on equity is, in effect, the interest rate your investment in the business earned in the past year. If assets are valued at market value, this return can be compared with returns available if the assets were liquidated and invested in alternative investments. If assets are valued at cost, this represents the actual return to the amount of equity capital you have invested in the farm business.

If your return on assets is higher than your average interest rate, your return on equity will be still higher, reflecting the fact that there are residual returns to equity capital after paying all interest expense. This is positive use of financial leverage. If your return on assets is lower than your average interest rate, your return on equity will be still lower, reflecting the fact that borrowed capital did not earn enough to pay its interest cost. This is negative financial leverage. Profitability becomes a key concern when substantial debt capital is used in the business.

**Operating Profit Margin:** The operating profit margin is a measure of the profit margin from the employment of assets. It measures how effectively you are employing assets relative to the value of output produced. Low prices, high operating expenses, or production problems are all possible causes of a low operating profit margin.

**Net Farm Income:** Net farm income represents the returns to labor, management, and equity capital invested in the business. Without income from other sources, or appreciation of capital asset values, net farm income must cover family living expenses and taxes, or net worth will decrease.

**EBITDA:** This factor stands for: Earnings Before Interest, Taxes, Depreciation and Amortization. This represents a measure of earnings available for debt repayment.

### **Repayment Capacity**

Repayment capacity shows the borrower's ability to repay term debts (longer than one year) on time. This includes non-farm income, and is therefore not a measure of business performance alone.

**Capital Debt Repayment Capacity:** Measures the amount generated from farm and non-farm sources, to cover debt repayment and capital replacement.

**Capital Debt Repayment Margin:** The amount of money remaining after all operating expenses, taxes, family living costs, and scheduled debt payments have been made. It is the money left, after paying all expenses, which is available for purchasing/financing new machinery, equipment, land or livestock.

**Replacement Margin:** The replacement margin is the amount of income remaining after paying principal and interest on term loans and unfunded (cash) capital purchases.

**Term Debt Coverage Ratio:** The term debt coverage ratio measures the ability of the business to cover all term debt payments. A number less than 100 percent indicates that the business, plus non-farm income, is not generating sufficient cash to meet all of the debt payments, after family living expenses and taxes have been paid. A number greater than 100 indicates the business is generating sufficient cash to pay all term debt obligations with some surplus margin remaining.

**Replacement Margin Coverage Ratio:** This represents the ability to term debt and unfunded capital purchases. A ratio under 1.0 indicated that you did not generate enough income to cover term debt payments and unfunded capital purchases.

### **Efficiency**

These measures reflect the relationships between expense and income items to revenue and the efficiency of the farm business with regard to the use of cash and capital assets.

**Asset Turnover:** Asset turnover is a measure of how efficiently assets are used in the business. A farm with good operating profit margin and asset turnover will show a strong rate of return on farm assets. If operating profit margin is low, the asset turnover rate must be strong, or vice versa, to maintain the rate of return on assets.



**Operating Expense Ratio:** This ratio indicates the percent of the gross farm income, which is used to pay the operating expenses. Operating expenses do not include interest or depreciation expense.

**Depreciation Expense Ratio:** This ratio indicates the percent of the gross farm income, which is used to cover the depreciation expense.

**Interest Expense Ratio:** This ratio indicates the percent of the gross farm income, which is used to pay farm interest expenses.

**Net Farm Income Ratio:** The ratio indicates the percent of the gross farm income, which remains after all expenses.

### **Crop Production and Marketing Summary**

This table contains three sections. The first section reports averages for total acres owned, crop land by tenure and total pasture acres. The next two sections show average price received and average yields for major crops. These tables are sorted on the basis of "Net farm income."

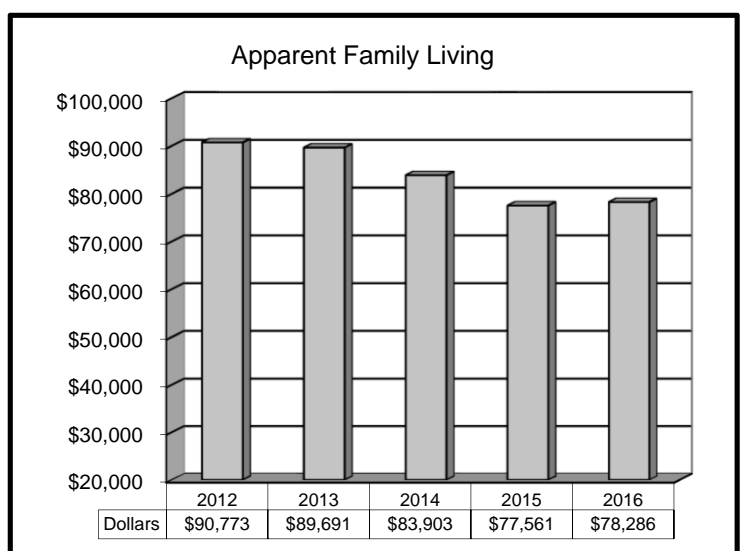
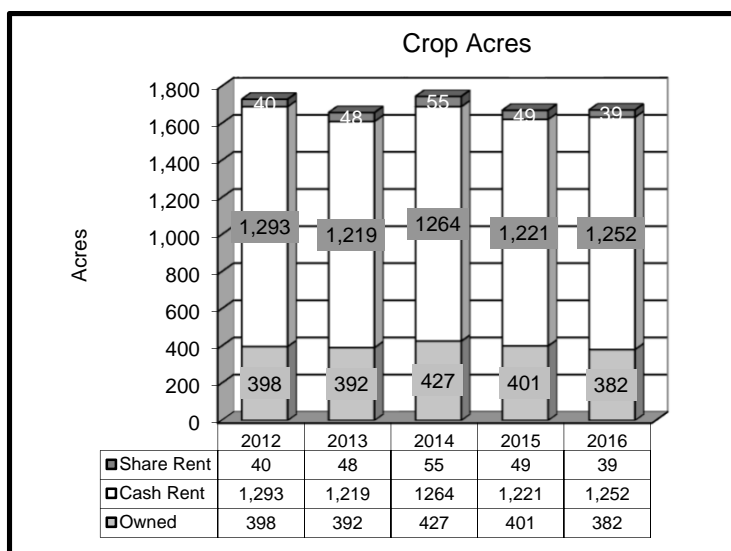
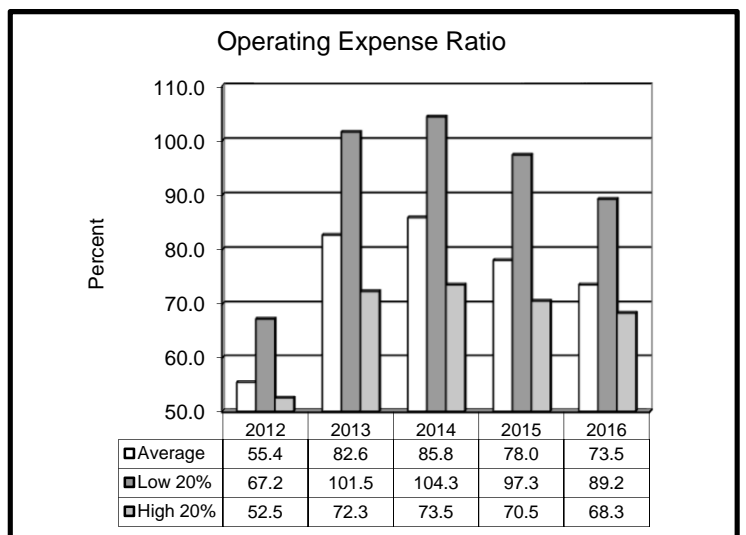
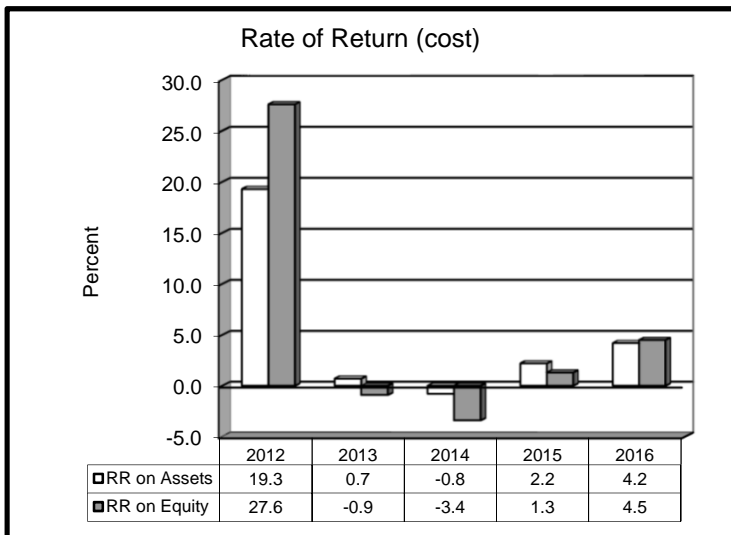
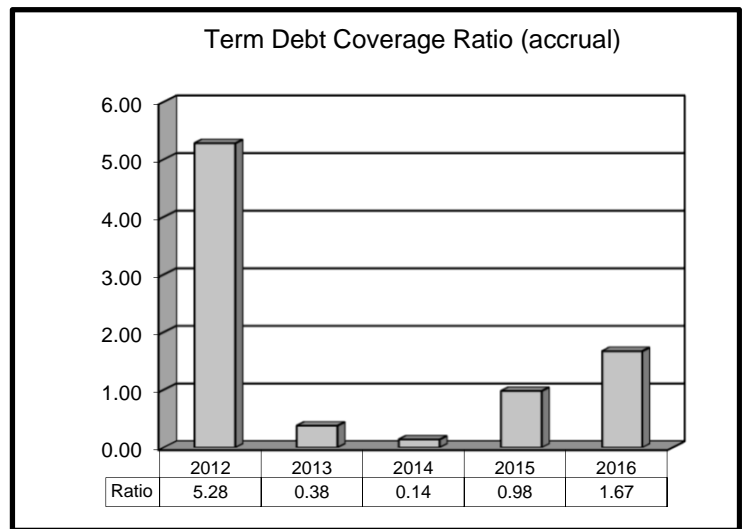
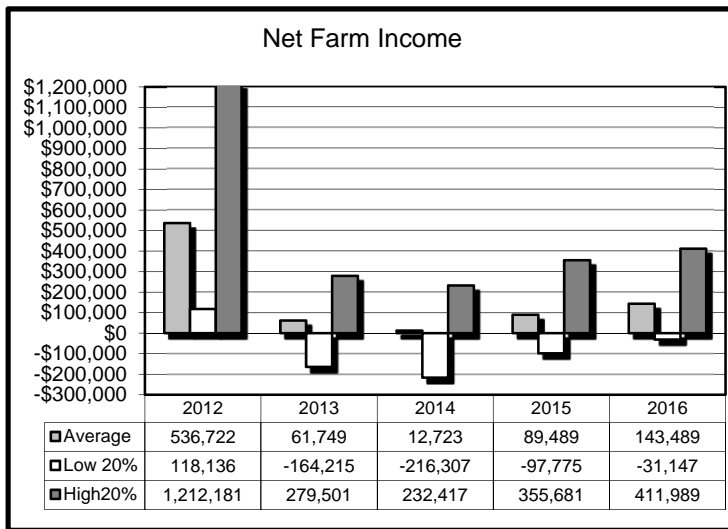
### **Operator and Labor Information**

This table reports the average for the number of operators per farm, the operator's age, and the number of years farming.

### **Nonfarm Summary**

This table also reports nonfarm income. The figure reported is the average over all farms not just those reporting nonfarm income.

## Five Year Trend of Financial Measures Red River Valley Farm Business Management Education



**Farm Income Statement**  
**Minnesota and North Dakota Farm Business Management Education**  
**Red River Valley, 2016**  
**(Farms Sorted By Net Farm Income)**

	<u>Avg. Of All Farms</u>	<u>Low 20%</u>	<u>40 - 60%</u>	<u>High 20%</u>
Number of farms	240	48	48	48
<b>Cash Farm Income</b>				
Barley	4,784	1,354	6,870	5,650
Barley, Malting	226	1,132	-	-
Beans, Black Turtle	3,356	-	-	11,899
Beans, Cranberry	270	-	-	-
Beans, Light Red Kidney	397	-	1,985	-
Beans, Navy	2,428	1,954	4,105	5,368
Beans, Pink	387	-	-	-
Beans, Pinto	2,700	1,177	-	6,027
Canola	610	-	-	1,074
Corn	212,473	170,494	193,030	371,239
Corn, Ear	208	-	1,042	-
Hay, Alfalfa	1,660	387	3,154	2,810
Potatoes	15,910	949	-	78,603
Rye	79	-	-	394
Soybeans	281,382	210,827	239,426	489,324
Soybeans Seed	6,963	16,016	11,343	-
Straw	4,488	517	19,465	1,165
Sudex	175	-	-	-
Sugar Beets	154,103	118,871	77,739	319,684
Sunflowers	4,328	6,064	4,536	8,134
Sunflowers, Confectionary	417	-	-	-
Wheat, Durum	679	2,246	1,149	-
Wheat, Spring	92,660	71,567	71,170	167,355
Rented Out	146	-	-	729
Soybeans, Organic	1,177	1,414	865	3,604
Soybeans, Food	14,453	3,196	15,089	37,491
Corn, Organic	318	-	1,592	-
Rye, Organic	134	672	-	-
Wheat, Spring, Organic	136	-	680	-
Corn, Blue, Organic	495	2,475	-	-
Other Crops	835	783	-	-
Miscellaneous crop income	32	52	41	67
Beef Cow-Calf, Beef Calves	236	341	-	-
Beef Backgrounding	133	-	-	-
Beef Finishing	3,445	16,598	628	-
Hogs, Farrow To Finish, Raised Hog	2,185	29	-	10,608
Cull breeding livestock	56	-	282	-
Misc. livestock income	95	24	451	-
Crop government payments	27,401	22,108	22,989	51,404
CRP payments	1,011	382	747	2,508
Other government payments	7,163	6,219	5,292	10,835
Custom work income	9,261	13,001	8,599	12,356
Patronage dividends, cash	12,918	8,406	9,860	25,405
Crop insurance income	19,346	16,816	30,718	30,091
Property insurance income	1,557	105	1,459	5,165
Sale of resale items	1,150	3,449	-	951
Other farm income	38,594	19,028	35,625	67,674
Gross Cash Farm Income	932,961	718,656	769,928	1,727,612

**Farm Income Statement (continued)**  
**Minnesota and North Dakota Farm Business Management Education**  
**Red River Valley, 2016**  
**(Farms Sorted By Net Farm Income)**

	<u>Avg. Of All Farms</u>	<u>Low 20%</u>	<u>40 - 60%</u>	<u>High 20%</u>
Number of farms	240	48	48	48
<b>Cash Farm Expense</b>				
Seed	117,814	99,072	96,911	202,018
Fertilizer	101,485	79,360	86,978	181,683
Crop chemicals	64,697	46,764	58,220	119,983
Crop insurance	31,576	28,734	24,889	51,989
Drying expense	3,276	1,645	1,956	6,382
Storage	955	423	729	2,516
Irrigation energy	674	-	-	3,169
Crop custom hire	6,460	5,859	1,142	17,127
Hauling and trucking	2,361	2,036	2,057	4,752
Crop marketing	599	84	699	1,504
Crop miscellaneous	2,045	2,514	2,530	3,165
Consultants	2,770	1,166	2,300	4,797
Feeder livestock purchase	3,478	15,968	1,373	-
Purchased feed	1,180	1,573	1,148	2,705
Veterinary	101	318	80	43
Supplies	135	62	76	289
Livestock marketing	146	-	20	638
Interest	39,279	39,268	34,443	64,451
Fuel & oil	29,222	25,304	24,791	47,870
Repairs	58,798	55,895	49,452	97,471
Custom hire	5,434	3,306	5,045	7,516
Hired labor	39,996	39,662	27,448	76,188
Land rent	164,808	128,817	138,808	317,233
Stock/quota lease	9,659	7,459	4,397	24,646
Machinery leases	12,077	11,177	13,189	19,559
Building leases	3,182	431	3,973	8,692
Real estate taxes	10,975	9,542	9,801	20,334
Farm insurance	14,223	11,863	11,845	24,108
Utilities	8,972	8,260	8,893	13,716
Dues & professional fees	7,959	7,571	6,620	13,307
Purchase of resale items	7,107	7,786	11,780	10,688
Miscellaneous	8,282	9,769	8,267	10,257
Total cash expense	759,723	651,689	639,859	1,358,794
Net cash farm income	173,237	66,966	130,069	368,818
<b>Inventory Changes</b>				
Prepays and supplies	-7,195	-16,082	1,285	-12,114
Accounts receivable	5,647	-2,723	18,225	1,741
Hedging accounts	836	-1,627	299	7,097
Other current assets	713	484	-78	4,369
Crops and feed	43,221	-15,943	17,255	167,484
Market livestock	278	2,233	18	-1,144
Breeding livestock	-58	154	34	-270
Other assets	4,712	1,519	355	13,620
Accounts payable	886	1,870	4,841	-6,094
Accrued interest	-998	-735	994	-1,823
Total inventory change	48,043	-30,850	43,227	172,867
Net operating profit	221,280	36,117	173,296	541,684
<b>Depreciation</b>				
Machinery and equipment	-66,731	-57,096	-57,436	-108,783
Titled vehicles	-4,981	-5,598	-3,966	-5,728
Buildings and improvements	-5,409	-2,736	-3,300	-14,359
Total depreciation	-77,122	-65,430	-64,701	-128,870
Net farm income from operations	144,158	-29,313	108,594	412,814
Gain or loss on capital sales	-670	-1,833	44	-825
Net farm income	143,489	-31,147	108,638	411,989

**Inventory Changes**  
**Minnesota and North Dakota Farm Business Management Education**  
**Red River Valley, 2016**  
**(Farms Sorted By Net Farm Income)**

	<u>Avg. Of All Farms</u>	<u>Low 20%</u>	<u>40 - 60%</u>	<u>High 20%</u>
Number of farms	240	48	48	48
Net cash farm income	173,237	66,966	130,069	368,818
<b>Crops and Feed</b>				
Ending inventory	563,502	368,591	400,943	1,201,304
Beginning inventory	520,281	384,534	383,689	1,033,821
Inventory change	43,221	-15,943	17,255	167,484
<b>Market Livestock</b>				
Ending inventory	4,745	15,000	3,531	3,690
Beginning inventory	4,467	12,767	3,513	4,834
Inventory change	278	2,233	18	-1,144
<b>Accts Receivable</b>				
Ending inventory	75,580	60,245	83,781	104,203
Beginning inventory	69,933	62,968	65,556	102,462
Inventory change	5,647	-2,723	18,225	1,741
<b>Prepaid Expenses and Supplies</b>				
Ending inventory	77,911	33,107	53,237	180,247
Beginning inventory	85,106	49,189	51,952	192,361
Inventory change	-7,195	-16,082	1,285	-12,114
<b>Hedging Activities</b>				
Ending inventory	6,718	1,825	3,632	18,718
Withdrawals	4,748	3,469	2,297	11,915
Beginning inventory	8,164	3,341	3,630	19,494
Deposits	2,465	3,580	2,000	4,042
Gain or loss	836	-1,627	299	7,097
<b>Other Current Assets</b>				
Ending inventory	1,990	1,244	260	5,583
Beginning inventory	1,277	759	339	1,213
Inventory change	713	484	-78	4,369
<b>Breeding Livestock</b>				
Ending inventory	1,354	1,528	2,524	254
Capital sales	165	-	787	-
Beginning inventory	1,459	1,374	2,984	524
Capital purchases	118	-	292	-
Depreciation, capital adjust	-58	154	34	-270
<b>Other Capital Assets</b>				
Ending inventory	275,744	176,613	192,675	545,746
Capital sales	5,266	-	69	2,274
Beginning inventory	261,365	161,620	188,441	509,090
Capital purchases	14,933	13,474	3,949	25,310
Depreciation, capital adjust	4,712	1,519	355	13,620
<b>Accounts Payable</b>				
Beginning inventory	29,463	25,030	32,514	42,996
Ending inventory	28,577	23,159	27,673	49,090
Inventory change	886	1,870	4,841	-6,094
<b>Accrued Interest</b>				
Beginning inventory	18,030	17,855	18,715	26,281
Ending inventory	19,029	18,589	17,721	28,104
Inventory change	-998	-735	994	-1,823
Total inventory change	48,043	-30,850	43,227	172,867
Net operating profit	221,280	36,117	173,296	541,684

**Depreciation**  
**Minnesota and North Dakota Farm Business Management Education**  
**Red River Valley, 2016**  
**(Farms Sorted By Net Farm Income)**

	<u>Avg. Of All Farms</u>	<u>Low 20%</u>	<u>40 - 60%</u>	<u>High 20%</u>
Number of farms	240	48	48	48
Net operating profit	221,280	36,117	173,296	541,684
<b>Machinery and Equipment</b>				
Ending inventory	663,705	542,934	575,222	1,100,880
Capital sales	17,067	11,490	14,392	29,025
Beginning inventory	687,581	587,101	586,377	1,121,784
Capital purchases	59,921	24,420	60,673	116,903
Depreciation, capital adjust.	-66,731	-57,096	-57,436	-108,783
<b>Titled Vehicles</b>				
Ending inventory	44,633	54,385	35,582	45,257
Capital sales	795	1,344	792	1,839
Beginning inventory	46,000	55,994	35,686	48,534
Capital purchases	4,409	5,333	4,653	4,290
Depreciation, capital adjust.	-4,981	-5,598	-3,966	-5,728
<b>Buildings and Improvements</b>				
Ending inventory	209,677	211,526	148,596	382,283
Capital sales	-	-	-	-
Beginning inventory	207,117	208,354	149,738	374,371
Capital purchases	7,969	5,907	2,157	22,272
Depreciation, capital adjust.	-5,409	-2,736	-3,300	-14,359
Total depreciation, capital adj.	-77,122	-65,430	-64,701	-128,870
Net farm income from operations	144,158	-29,313	108,594	412,814
Gain or loss on capital sales	-670	-1,833	44	-825
Net farm income	143,489	-31,147	108,638	411,989

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**Profitability Measures**  
**Minnesota and North Dakota Farm Business Management Education**  
**Red River Valley, 2016**  
**(Farms Sorted By Net Farm Income)**

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	<u>Avg. Of All Farms</u>	<u>Low 20%</u>	<u>40 - 60%</u>	<u>High 20%</u>
Number of farms	240	48	48	48
<b>Profitability (assets valued at cost)</b>				
Net farm income from operations	144,158	-29,313	108,594	412,814
Rate of return on assets	4.2 %	-2.3 %	3.9 %	7.3 %
Rate of return on equity	4.5 %	-8.1 %	4.1 %	9.2 %
Operating profit margin	11.6 %	-7.2 %	10.5 %	19.0 %
Asset turnover rate	36.3 %	32.3 %	37.1 %	38.4 %
Farm interest expense	40,277	40,003	33,449	66,274
Value of operator lbr and mgmt.	71,210	59,633	59,046	117,607
Return on farm assets	113,225	-48,943	82,998	361,481
Average farm assets	2,689,454	2,094,795	2,135,191	4,961,458
Return on farm equity	72,948	-88,946	49,549	295,207
Average farm equity	1,625,092	1,096,568	1,222,094	3,218,755
Value of farm production	975,492	677,426	791,734	1,903,291

**Liquidity & Repayment Capacity Measures**  
**Minnesota and North Dakota Farm Business Management Education**  
**Red River Valley, 2016**  
**(Farms Sorted By Net Farm Income)**

	<u>Avg. Of All Farms</u>	<u>Low 20%</u>	<u>40 - 60%</u>	<u>High 20%</u>
Number of farms	240	48	48	48
<b>Liquidity</b>				
Current ratio	1.85	1.35	1.55	2.31
Working capital	358,955	132,158	206,834	896,113
Working capital to gross inc	36.4 %	18.8 %	25.7 %	46.8 %
Current assets	780,356	510,835	584,263	1,578,506
Current liabilities	421,401	378,677	377,430	682,393
Gross revenues (accrual)	987,257	702,753	806,035	1,916,685
<b>Repayment capacity</b>				
Net farm income from operations	144,158	-29,313	108,594	412,814
Depreciation	77,122	65,430	64,701	128,870
Personal income	25,385	30,009	33,098	12,694
Family living/owner withdrawals	-78,603	-60,240	-76,541	-107,201
Cash discrepancy	206	363	362	170
Payments on personal debt	-4,764	-2,652	-4,900	-8,628
Income taxes paid	-19,850	-9,569	-14,643	-43,083
Interest on term debt	26,848	28,369	24,729	42,472
Capital debt repayment capacity	170,296	22,034	135,039	437,939
Scheduled term debt payments	-101,911	-91,514	-86,609	-167,445
Capital debt repayment margin	68,385	-69,481	48,431	270,494
Cash replacement allowance	-44,872	-39,778	-38,165	-73,169
Replacement margin	23,513	-109,258	10,265	197,325
Term debt coverage ratio	1.67	0.24	1.56	2.62
Replacement coverage ratio	1.16	0.17	1.08	1.82



**Balance Sheet at Cost Values**  
**Minnesota and North Dakota Farm Business Management Education**  
**Red River Valley, 2016**  
**(Farms Sorted By Net Farm Income)**

	<u>Avg. Of All Farms</u>	<u>Low 20%</u>	<u>40 - 60%</u>	<u>High 20%</u>
Number of farms	240	48	48	48
<b>Assets</b>				
<b>Current Farm Assets</b>				
Cash and checking balance	49,909	30,823	38,879	64,761
Prepaid expenses & supplies	77,911	33,107	53,237	180,247
Growing crops	1,099	-	-	4,052
Accounts receivable	75,580	60,245	83,781	104,203
Hedging accounts	6,718	1,825	3,632	18,718
Crops held for sale or feed	563,502	368,591	400,943	1,201,304
Market livestock held for sale	4,745	15,000	3,531	3,690
Other current assets	892	1,244	260	1,531
Total current farm assets	780,356	510,835	584,263	1,578,506
<b>Intermediate Farm Assets</b>				
Breeding livestock	1,354	1,528	2,524	254
Machinery and equipment	663,705	542,934	575,222	1,100,880
Titled vehicles	44,633	54,385	35,582	45,257
Other intermediate assets	196,202	110,156	123,772	408,130
Total intermediate farm assets	905,893	709,003	737,101	1,554,520
<b>Long Term Farm Assets</b>				
Farm land	739,914	562,700	624,448	1,409,087
Buildings and improvements	209,677	211,526	148,596	382,283
Other long-term assets	79,542	66,457	68,903	137,616
Total long-term farm assets	1,029,133	840,683	841,946	1,928,987
Total Farm Assets	2,715,382	2,060,521	2,163,310	5,062,013
Total Nonfarm Assets	316,084	204,310	295,616	564,935
Total Assets	3,031,465	2,264,831	2,458,927	5,626,948
<b>Liabilities</b>				
<b>Current Farm Liabilities</b>				
Accrued interest	19,029	18,589	17,721	28,104
Accounts payable	28,577	23,159	27,673	49,090
Current notes	304,555	282,767	271,243	488,977
Principal due on term debt	69,241	54,161	60,792	116,222
Total current farm liabilities	421,401	378,677	377,430	682,393
Total intermediate farm liabs	156,983	163,935	128,376	226,138
Total long term farm liabilities	482,630	449,045	406,961	826,907
Total farm liabilities	1,061,014	991,656	912,767	1,735,438
Total nonfarm liabilities	68,881	39,411	77,155	111,882
Total liabilities	1,129,895	1,031,067	989,922	1,847,320
Net worth (farm and nonfarm)	1,901,570	1,233,764	1,469,004	3,779,628
Net worth change	79,111	-46,860	67,388	267,566
Percent net worth change	4 %	-4 %	5 %	8 %
<b>Ratio Analysis</b>				
Current farm liabilities / assets	54 %	74 %	65 %	43 %
Intermediate farm liab. / assets	17 %	23 %	17 %	15 %
Long term farm liab. / assets	47 %	53 %	48 %	43 %
Total debt to asset ratio	37 %	46 %	40 %	33 %

**Balance Sheet at Market Values**  
**Minnesota and North Dakota Farm Business Management Education**  
**Red River Valley, 2016**  
**(Farms Sorted By Net Farm Income)**

	<u>Avg. Of</u> <u>All Farms</u>	<u>Low 20%</u>	<u>40 - 60%</u>	<u>High 20%</u>
Number of farms	240	48	48	48
<b>Assets</b>				
<b>Current Farm Assets</b>				
Cash and checking balance	49,909	30,823	38,879	64,761
Prepaid expenses & supplies	77,911	33,107	53,237	180,247
Growing crops	1,099	-	-	4,052
Accounts receivable	75,580	60,245	83,781	104,203
Hedging accounts	6,718	1,825	3,632	18,718
Crops held for sale or feed	563,502	368,591	400,943	1,201,304
Market livestock held for sale	4,745	15,000	3,531	3,690
Other current assets	892	1,244	260	1,531
Total current farm assets	780,356	510,835	584,263	1,578,506
<b>Intermediate Farm Assets</b>				
Breeding livestock	1,671	1,707	3,650	254
Machinery and equipment	826,607	680,633	715,494	1,360,059
Titled vehicles	54,175	61,592	43,684	61,685
Other intermediate assets	256,578	205,757	142,455	478,756
Total intermediate farm assets	1,139,030	949,689	905,283	1,900,755
<b>Long Term Farm Assets</b>				
Farm land	1,338,528	1,124,530	1,283,698	2,441,425
Buildings and improvements	236,610	231,941	180,852	426,563
Other long-term assets	91,664	73,546	83,416	166,152
Total long-term farm assets	1,666,801	1,430,017	1,547,966	3,034,141
Total Farm Assets	3,586,187	2,890,540	3,037,512	6,513,401
Total Nonfarm Assets	375,060	216,222	336,286	694,046
Total Assets	3,961,248	3,106,762	3,373,798	7,207,448
<b>Liabilities</b>				
<b>Current Farm Liabilities</b>				
Accrued interest	19,029	18,589	17,721	28,104
Accounts payable	28,577	23,159	27,673	49,090
Current notes	304,555	282,767	271,243	488,977
Principal due on term debt	69,241	54,161	60,792	116,222
Total current farm liabilities	421,401	378,677	377,430	682,393
Total intermediate farm liabs	156,983	163,935	128,376	226,138
Total long term farm liabilities	482,630	449,045	406,961	826,907
Total farm liabilities	1,061,014	991,656	912,767	1,735,438
Total nonfarm liabilities	68,881	39,411	77,155	111,882
Total liabs excluding deferreds	1,129,895	1,031,067	989,922	1,847,320
Total deferred liabilities	281,587	216,296	182,520	624,788
Total liabilities	1,411,482	1,247,363	1,172,442	2,472,108
Retained earnings	1,901,570	1,233,764	1,469,004	3,779,628
Market valuation equity	648,196	625,635	732,352	955,711
Net worth (farm and nonfarm)	2,549,766	1,859,399	2,201,356	4,735,339
Net worth excluding deferreds	2,831,353	2,075,695	2,383,876	5,360,128
Net worth change	85,182	-38,577	73,089	249,887
Percent net worth change	3 %	-2 %	3 %	6 %
<b>Ratio Analysis</b>				
Current farm liabilities / assets	54 %	74 %	65 %	43 %
Intermediate farm liab. / assets	14 %	17 %	14 %	12 %
Long term farm liab. / assets	29 %	31 %	26 %	27 %
Total debt to asset ratio	36 %	40 %	35 %	34 %
Debt to assets excl deferreds	29 %	33 %	29 %	26 %

**Statement Of Cash Flows**  
**Minnesota and North Dakota Farm Business Management Education**  
**Red River Valley, 2016**  
**(Farms Sorted By Net Farm Income)**

	<u>Avg. Of All Farms</u>	<u>Low 20%</u>	<u>40 - 60%</u>	<u>High 20%</u>
Number of farms	240	48	48	48
Beginning cash (farm & nonfarm)	72,596	64,043	55,235	105,154
<b>Cash Provided By Operating Activities</b>				
Gross cash farm income	932,961	718,656	769,928	1,727,612
Total cash farm expense	-759,723	-651,689	-639,859	-1,358,794
Net cash from hedging transactions	2,282	-111	297	7,873
Cash provided by operating	175,520	66,855	130,366	376,690
<b>Cash Provided By Investing Activities</b>				
Sale of breeding livestock	165	-	787	-
Sale of machinery & equipment	16,498	9,657	14,436	28,728
Sale of titled vehicles	800	1,344	792	1,839
Sale of farm land	524	225	-	2,396
Sale of farm buildings	-	-	-	-
Sale of other farm assets	5,266	-	69	2,274
Sale of nonfarm assets	10,248	5,136	13,825	23,319
Purchase of breeding livestock	-118	-	-292	-
Purchase of machinery & equip.	-59,921	-24,420	-60,673	-116,903
Purchase of titled vehicles	-4,409	-5,333	-4,653	-4,290
Purchase of farm land	-29,003	-18,682	-36,607	-38,677
Purchase of farm buildings	-7,969	-5,907	-2,157	-22,272
Purchase of other farm assets	-14,933	-13,474	-3,949	-25,310
Purchase of nonfarm assets	-19,933	-5,198	-16,429	-47,495
Cash provided by investing	-102,786	-56,653	-94,852	-196,392
<b>Cash Provided By Financing Activities</b>				
Money borrowed	526,868	556,898	451,488	755,682
Principal payments	-540,645	-567,774	-445,155	-813,439
Personal income	25,385	30,009	33,098	12,694
Family living/owner withdrawals	-78,286	-60,240	-76,541	-107,201
Income and social security tax	-20,436	-9,488	-15,466	-46,690
Capital contributions	6,198	16,806	828	2,357
Capital distributions	-5,579	-	-	-2,729
Dividends paid	-316	-	-	-
Cash gifts and inheritances	6,425	687	8,926	6,941
Gifts given	-2,559	-19	-1,667	-10,938
Other cash flows	-	-	-	-
Cash provided by financing	-82,945	-33,121	-44,489	-203,322
Net change in cash balance	-10,211	-22,918	-8,976	-23,024
Ending cash (farm & nonfarm)	62,591	41,488	46,621	82,299
Discrepancy	-206	-363	-362	-170

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**Financial Standards Measures**  
**Minnesota and North Dakota Farm Business Management Education**  
**Red River Valley, 2016**  
**(Farms Sorted By Net Farm Income)**

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	<u>Avg. Of All Farms</u>	<u>Low 20%</u>	<u>40 - 60%</u>	<u>High 20%</u>
Number of farms	240	48	48	48
<b>Liquidity</b>				
Current ratio	1.85	1.35	1.55	2.31
Working capital	358,955	132,158	206,834	896,113
Working capital to gross inc	36.4 %	18.8 %	25.7 %	46.8 %
<b>Solvency (market)</b>				
Farm debt to asset ratio	37 %	42 %	36 %	36 %
Farm equity to asset ratio	63 %	58 %	64 %	64 %
Farm debt to equity ratio	0.59	0.72	0.56	0.56
<b>Profitability (cost)</b>				
Rate of return on farm assets	4.2 %	-2.3 %	3.9 %	7.3 %
Rate of return on farm equity	4.5 %	-8.1 %	4.1 %	9.2 %
Operating profit margin	11.6 %	-7.2 %	10.5 %	19.0 %
Net farm income	143,489	-31,147	108,638	411,989
EBITDA	261,557	76,120	206,745	607,958
<b>Repayment Capacity</b>				
Capital debt repayment capacity	170,296	22,034	135,039	437,939
Capital debt repayment margin	68,385	-69,481	48,431	270,494
Replacement margin	23,513	-109,258	10,265	197,325
Term debt coverage ratio	1.67	0.24	1.56	2.62
Replacement coverage ratio	1.16	0.17	1.08	1.82
<b>Efficiency</b>				
Asset turnover rate (cost)	36.3 %	32.3 %	37.1 %	38.4 %
Operating expense ratio	73.5 %	89.2 %	74.4 %	68.3 %
Depreciation expense ratio	7.8 %	9.3 %	8.0 %	6.7 %
Interest expense ratio	4.1 %	5.7 %	4.1 %	3.5 %
Net farm income ratio	14.5 %	-4.4 %	13.5 %	21.5 %

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**Crop Production and Marketing Summary**  
**Minnesota and North Dakota Farm Business Management Education**  
**Red River Valley, 2016**  
**(Farms Sorted By Net Farm Income)**

	<u>Avg. Of All Farms</u>	<u>Low 20%</u>	<u>40 - 60%</u>	<u>High 20%</u>
Number of farms	240	48	48	48
<b>Acreage Summary</b>				
Total acres owned	440	370	404	777
Total crop acres	1,673	1,301	1,404	2,941
Crop acres owned	382	311	336	644
Crop acres cash rented	1,252	965	1,050	2,270
Crop acres share rented	39	25	18	27
Total pasture acres	2	5	1	-
Percent crop acres owned	23 %	24 %	24 %	22 %
Mach invest/crop acre cost	429	468	439	394
Mach invest/crop acre market	532	578	542	489
<b>Average Price Received (Cash Sales Only)</b>				
Soybeans per bushel	8.86	8.95	8.84	8.99
Wheat, Spring per bushel	4.78	4.94	4.77	4.77
Corn per bushel	3.33	3.16	3.32	3.36
Sunflowers per cwt	19.32	-	-	-
Barley per bushel	4.83	-	-	-
Soybeans, Food per bushel	12.22	-	-	-
Hay, Alfalfa per ton	70.56	-	-	-
Beans, Pinto per cwt	23.24	-	-	-
Beans, Black Turtle per cwt	29.04	-	-	-
Beans, Navy per cwt	27.36	-	-	-
<b>Average Yield Per Acre</b>				
Soybeans (bushel)	46.99	44.53	46.24	48.42
Corn (bushel)	190.25	189.03	184.82	191.12
Wheat, Spring (bushel)	69.19	60.40	68.64	74.29
Sugar Beets (ton)	32.29	26.71	32.40	35.18
Soybeans, Food (bushel)	41.72	-	35.65	46.21
Barley (bushel)	69.22	-	-	-
Hay, Alfalfa (ton)	3.37	3.85	-	-
Sunflowers (cwt)	21.50	-	-	-
Beans, Pinto (cwt)	14.02	-	-	-
Beans, Navy (cwt)	19.70	-	-	-

**Operator and Labor Information**  
**Minnesota and North Dakota Farm Business Management Education**  
**Red River Valley, 2016**  
**(Farms Sorted By Net Farm Income)**

	<u>Avg. Of All Farms</u>	<u>Low 20%</u>	<u>40 - 60%</u>	<u>High 20%</u>
Number of farms	240	48	48	48
<b>Operator Information</b>				
Average number of operators	1.1	1.1	1.0	1.3
Average age of operators	47.9	45.8	47.2	49.8
Average number of years farming	24.1	21.6	22.5	27.0
<b>Results Per Operator</b>				
Working capital	320,937	119,623	198,560	705,138
Total assets (market)	3,541,703	2,812,080	3,238,846	5,671,434
Total liabilities	1,261,989	1,129,048	1,125,544	1,945,266
Net worth (market)	2,279,715	1,683,032	2,113,302	3,726,169
Net worth excl deferred liabs	2,531,478	1,878,811	2,288,521	4,217,805
Gross farm income	882,694	636,095	773,794	1,508,211
Total farm expense	753,804	662,628	669,543	1,183,374
Net farm income from operations	128,890	-26,533	104,250	324,837
Net nonfarm income	22,696	27,162	31,774	9,989
Family living & tax withdrawals	87,841	62,858	87,189	118,122
Total acres owned	393.5	334.7	387.5	611.5
Total crop acres	1,496.2	1,177.3	1,348.0	2,314.5
Crop acres owned	341.9	281.9	322.3	506.5
Crop acres cash rented	1,119.2	873.1	1,008.2	1,786.5
Crop acres share rented	35.0	22.3	17.5	21.6
Total pasture acres	1.6	4.3	1.2	-
<b>Labor Analysis</b>				
Number of farms	240	48	48	48
Total unpaid labor hours	1,861	1,568	1,866	2,387
Total hired labor hours	1,687	1,768	1,165	3,239
Total labor hours per farm	3,548	3,335	3,031	5,626
Unpaid hours per operator	1,664	1,419	1,791	1,878

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**Nonfarm Summary**  
**Minnesota and North Dakota Farm Business Management Education**  
**Red River Valley, 2016**  
**(Farms Sorted By Net Farm Income)**

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	<u>Avg. Of All Farms</u>	<u>Low 20%</u>	<u>40 - 60%</u>	<u>High 20%</u>
Number of farms	240	48	48	48
<b>Nonfarm Income</b>				
Personal wages & salary	18,991	26,153	21,356	6,902
Net nonfarm business income	1,900	418	5,208	810
Personal rental income	206	-	471	210
Personal interest income	172	24	171	448
Personal cash dividends	45	178	0	8
Tax refunds	830	783	1,404	526
Other nonfarm income	3,242	2,452	4,487	3,790
Total nonfarm income	25,385	30,009	33,098	12,694
Gifts and inheritances	6,425	687	8,926	6,941

**Financial Summary**  
**Minnesota and North Dakota Farm Business Management Education**  
**Red River Valley, 2016**  
**(Farms Sorted By Gross Farm Income)**

	<u>Avg. Of</u> <u>All Farms</u>	<u>Less than</u> <u>100,000</u>	<u>100,001 -</u> <u>250,000</u>	<u>250,001 -</u> <u>500,000</u>	<u>500,001 -</u> <u>1,000,000</u>	<u>1,000,001-</u> <u>2,000,000</u>	<u>Over</u> <u>2,000,000</u>
Number of farms	240	7	20	49	86	56	22
<b>Income Statement</b>							
Gross cash farm income	932,961	58,775	167,573	382,278	723,298	1,396,789	2,772,374
Total cash farm expense	759,723	55,232	132,556	327,182	573,188	1,111,876	2,350,215
Net cash farm income	173,237	3,543	35,017	55,095	150,110	284,914	422,159
Inventory change	48,043	14,180	5,759	50,898	41,986	13,882	201,529
Depreciation	-77,122	-6,900	-8,218	-38,555	-62,700	-114,076	-210,314
Net farm income from operations	144,158	10,823	32,558	67,438	129,396	184,720	413,374
Gain or loss on capital sales	-670	-	-	-776	-980	21	-1,800
Average net farm income	143,489	10,823	32,558	66,663	128,416	184,741	411,574
Median net farm income	106,733	7,901	48,136	64,261	135,282	164,116	432,052
<b>Profitability (cost)</b>							
Rate of return on assets	4.2 %	1.4 %	3.2 %	3.8 %	4.5 %	3.4 %	5.2 %
Rate of return on equity	4.5 %	1.3 %	3.3 %	3.7 %	5.0 %	3.2 %	6.1 %
Operating profit margin	11.6 %	4.9 %	9.1 %	10.6 %	13.4 %	9.1 %	13.3 %
Asset turnover rate	36.3 %	29.4 %	35.3 %	35.5 %	33.7 %	36.8 %	39.0 %
<b>Liquidity &amp; Repayment (end of year)</b>							
Current assets	780,356	50,225	145,522	343,868	631,251	1,147,770	2,209,597
Current liabilities	421,401	22,241	82,061	195,512	327,805	598,461	1,275,190
Current ratio	1.85	2.26	1.77	1.76	1.93	1.92	1.73
Working capital	358,955	27,984	63,461	148,355	303,446	549,309	934,407
Working capital to gross inc	36.4 %	40.1 %	35.5 %	33.8 %	40.1 %	38.0 %	31.4 %
Term debt coverage ratio	1.67	2.07	1.87	1.70	1.86	1.42	1.76
Replacement coverage ratio	1.16	1.57	1.14	1.18	1.24	0.99	1.27
Term debt to EBITDA	2.38	4.22	2.77	2.05	2.14	2.35	2.76
<b>Solvency (end of year at cost)</b>							
Number of farms	240	7	20	49	86	56	22
Total assets	3,031,465	402,041	641,250	1,457,297	2,549,622	4,278,078	8,257,497
Total liabilities	1,129,895	149,447	264,318	494,864	876,792	1,577,747	3,492,549
Net worth	1,901,570	252,594	376,932	962,434	1,672,831	2,700,330	4,764,948
Net worth change	79,111	23,105	24,031	63,027	87,519	46,656	232,568
Farm debt to asset ratio	39 %	44 %	43 %	35 %	36 %	39 %	44 %
Total debt to asset ratio	37 %	37 %	41 %	34 %	34 %	37 %	42 %
Change in earned net worth %	4 %	10 %	7 %	7 %	6 %	2 %	5 %
<b>Solvency (end of year at market)</b>							
Number of farms	240	7	20	49	86	56	22
Total assets	3,961,248	435,052	857,671	1,949,700	3,312,348	5,507,943	10,984,481
Total liabilities	1,411,482	152,711	317,579	596,268	1,073,882	1,975,078	4,507,259
Net worth	2,549,766	282,341	540,092	1,353,432	2,238,466	3,532,865	6,477,222
Total net worth change	85,182	32,040	26,366	61,525	92,164	73,719	210,138
Farm debt to asset ratio	37 %	40 %	38 %	31 %	34 %	37 %	43 %
Total debt to asset ratio	36 %	35 %	37 %	31 %	32 %	36 %	41 %
Change in total net worth %	3 %	13 %	5 %	5 %	4 %	2 %	3 %
<b>Nonfarm Information</b>							
Net nonfarm income	25,385	58,477	31,362	36,480	24,507	15,181	14,109
<b>Crop Acres</b>							
Total crop acres	1,673	144	348	866	1,347	2,462	4,432
Total crop acres owned	382	21	86	221	338	522	947
Total crop acres cash rented	1,252	122	258	559	981	1,898	3,471
Total crop acres share rented	39	-	3	87	29	41	14
Machinery value per crop acre	429	448	279	432	441	429	426



**Financial Summary**  
**Minnesota and North Dakota Farm Business Management Education**  
**Red River Valley, 2016**  
**(Farms Sorted By Age of Operator)**

	<u>Avg. Of All Farms</u>	<u>Less Than 31</u>	<u>31 - 40</u>	<u>41 - 50</u>	<u>51 - 60</u>	<u>Over 60</u>
Number of farms	240	22	49	45	81	43
<b>Income Statement</b>						
Gross cash farm income	932,961	382,553	824,894	865,099	1,211,956	883,179
Total cash farm expense	759,723	342,400	676,918	710,693	977,268	709,115
Net cash farm income	173,237	40,153	147,977	154,406	234,688	174,063
Inventory change	48,043	51,542	47,818	75,077	50,267	14,026
Depreciation	-77,122	-18,077	-52,941	-69,699	-104,425	-91,221
Net farm income from operations	144,158	73,618	142,853	159,784	180,531	96,868
Gain or loss on capital sales	-670	-	-1,271	-1,111	-453	-273
Average net farm income	143,489	73,618	141,582	158,673	180,078	96,595
Median net farm income	106,733	45,547	99,346	146,412	134,260	94,352
<b>Profitability (cost)</b>						
Rate of return on assets	4.2 %	8.1 %	6.4 %	5.5 %	3.9 %	1.8 %
Rate of return on equity	4.5 %	15.0 %	8.8 %	6.8 %	4.0 %	0.9 %
Operating profit margin	11.6 %	12.1 %	14.4 %	13.8 %	11.5 %	6.3 %
Asset turnover rate	36.3 %	67.4 %	44.8 %	40.0 %	33.9 %	29.2 %
<b>Liquidity &amp; Repayment (end of year)</b>						
Current assets	780,356	262,820	546,870	742,663	1,053,546	836,037
Current liabilities	421,401	182,290	367,719	398,967	548,345	389,260
Current ratio	1.85	1.44	1.49	1.86	1.92	2.15
Working capital	358,955	80,530	179,151	343,696	505,201	446,778
Working capital to gross inc	36.4 %	19.0 %	20.5 %	36.0 %	39.8 %	49.5 %
Term debt coverage ratio	1.67	2.50	1.86	1.98	1.57	1.33
Replacement coverage ratio	1.16	2.21	1.43	1.49	1.06	0.82
Term debt to EBITDA	2.38	1.78	2.61	2.20	2.42	2.31
<b>Solvency (end of year at cost)</b>						
Number of farms	240	22	49	45	81	43
Total assets	3,031,465	798,266	2,221,619	2,634,390	4,124,910	3,452,681
Total liabilities	1,129,895	448,063	1,090,907	1,083,805	1,444,155	979,423
Net worth	1,901,570	350,203	1,130,712	1,550,584	2,680,754	2,473,258
Net worth change	79,111	71,735	98,817	103,144	91,478	11,979
Farm debt to asset ratio	39 %	55 %	50 %	42 %	37 %	31 %
Total debt to asset ratio	37 %	56 %	49 %	41 %	35 %	28 %
Change in earned net worth %	4 %	26 %	10 %	7 %	4 %	0 %
<b>Solvency (end of year at market)</b>						
Number of farms	240	22	49	45	81	43
Total assets	3,961,248	839,120	2,518,290	3,326,927	5,483,716	4,998,833
Total liabilities	1,411,482	472,796	1,247,373	1,344,136	1,849,351	1,324,402
Net worth	2,549,766	366,323	1,270,917	1,982,791	3,634,365	3,674,431
Total net worth change	85,182	69,872	92,244	93,440	95,809	56,309
Farm debt to asset ratio	37 %	55 %	51 %	41 %	36 %	29 %
Total debt to asset ratio	36 %	56 %	50 %	40 %	34 %	26 %
Change in total net worth %	3 %	24 %	8 %	5 %	3 %	2 %
<b>Nonfarm Information</b>						
Net nonfarm income	25,385	29,965	23,630	20,072	28,204	25,290
<b>Crop Acres</b>						
Total crop acres	1,673	751	1,363	1,643	2,120	1,690
Total crop acres owned	382	27	232	273	532	569
Total crop acres cash rented	1,252	703	1,113	1,327	1,547	1,056
Total crop acres share rented	39	20	18	43	42	65
Machinery value per crop acre	429	228	372	370	463	510

## EXPLANATORY NOTES FOR CROPS TABLES

The "Crop Enterprise Analysis" tables show the average physical production, gross return, direct costs, overhead costs, and net returns per acre. The "Net Return per Acre" is the "Gross Return per Acre" minus the direct and overhead costs. "Net Return" represents the return to the operators and family's unpaid labor, management, and equity. It represents the return to all of the resources which are owned by the farm family and hence, not purchased or paid a wage. Net returns are also calculated after a charge for unpaid operator labor and management and after an allocation of direct government payments. The last section of each crop table contains breakeven yield measures which provide useful standards or goals for the individual managers.

There are potentially three tables for each crop depending on the farmer's tenure on the land. The crop tables may be for (1) owned land, (2) cash rented land, and (3) share rented land. Individual farms may have data in all three tables if all three land tenure categories are represented in that farm business. When there are less than five farms with a particular crop and tenure, that table is not included in the report. Farms may be classified into the low 20%, the mid 20%, or the high 20% on the basis of net return per acre. The classification is done separately for each table, i.e., an individual farm may be in the low 20% for one crop, the high 20% for a second, and the middle 20% for a third crop. When there are less than 25 total farms with any particular crop and farmer's tenure, only overall averages are presented.

Several cost items, such as "utilities," "hired labor," and "interest paid," are listed under both "direct" and "overhead" costs because some of these costs are specific to that crop whereas others are general overhead costs of the farm. For example, "Machinery leases" as direct expense refers to machinery leased and used only in that crop enterprise; the most common example is the lease of equipment that is crop specific. However, cost of leasing machinery that is used for the entire farm operation is listed as an overhead cost. Interest payments are likewise divided into those incurred directly for a specific crop and those that are not. "Land Rent" is listed as a direct cost for each crop enterprise on cash rented land. In the case of double cropping, one-half of the rent is charged to each crop.

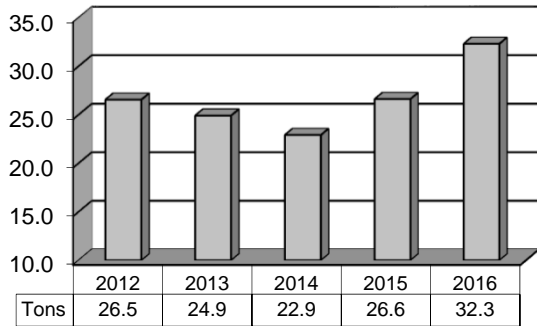
"Total direct expense per unit" and "Total dir & ovhd exp per unit" are calculated by dividing "Total direct expense per acre" and "Total dir & ovhd expenses per acre," respectively, by "Yield per acre." "With labor & management" is the breakeven yield after direct, overhead and a labor and management charge are considered. "Total exp less govt & oth income" is the breakeven yield after all costs (including a labor and management charge) are reduced by government payments and miscellaneous income.

In the last section of the crop table, "machinery cost per acre" is the sum of fuel, repairs, all custom hire and machinery leases, machinery depreciation and interest on intermediate debt.

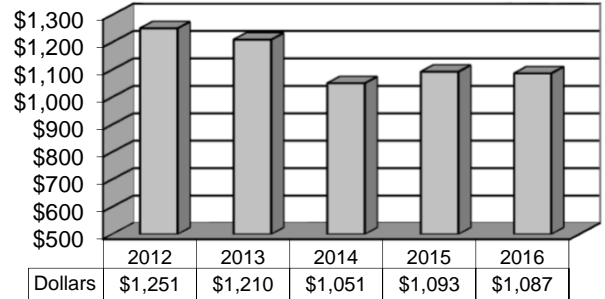
Rounding of individual items for the report may have caused minor discrepancies with the calculated totals.

## Five Year Crop History of Yields and Cost of Production Red River Valley Farm Business Management Education

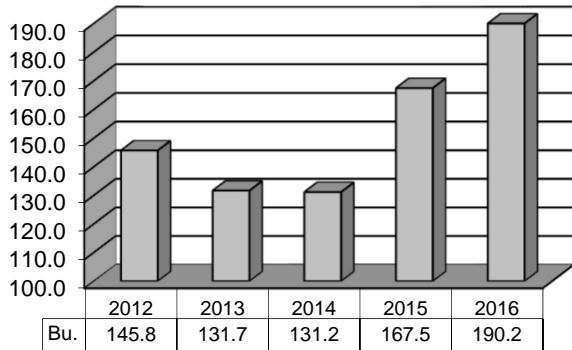
**Sugar Beet Yields**



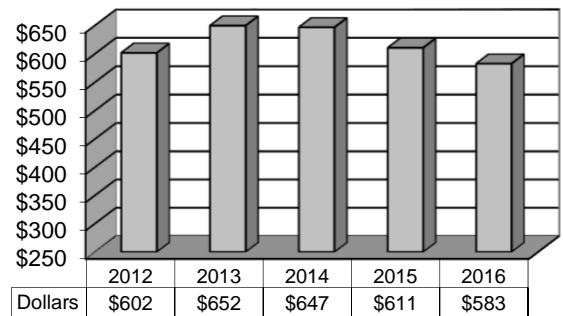
**Sugar Beet Total Listed Cost  
(cash rented land)**



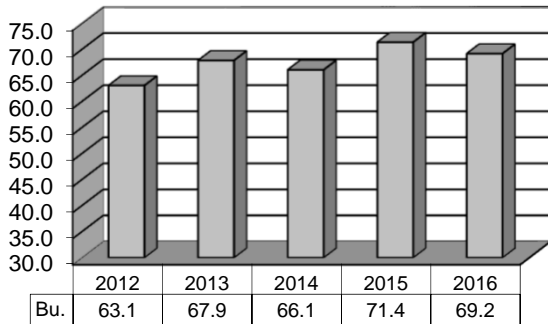
**Corn Yields**



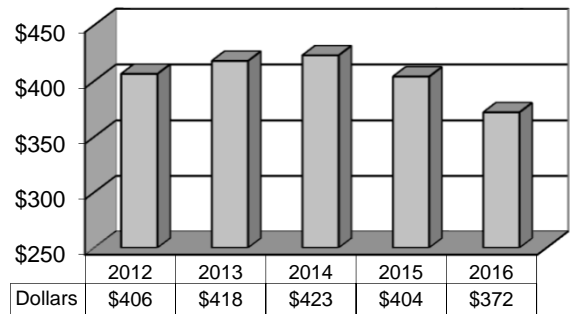
**Corn Total Listed Cost  
(cash rented land)**



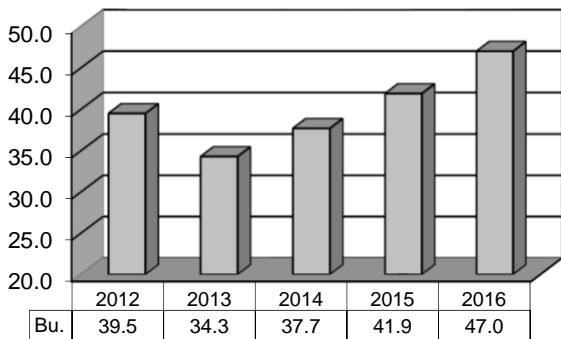
**Spring Wheat Yields**



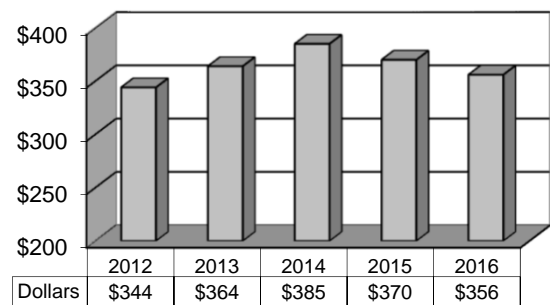
**Spring Wheat Total Listed Cost  
(cash rented land)**



**Soybeans Yields**



**Soybeans Total Listed Cost  
(cash rented land)**



**Crop Enterprise Analysis**  
**Minnesota and North Dakota Farm Business Management Education**  
**Red River Valley, 2016**  
**(Farms Sorted By Return to Overhead)**

**Barley on Cash Rent**

	<u>Avg. Of All Farms</u>
Number of farms	12
Acres	163.09
Yield per acre (bu.)	72.01
Operators share of yield %	100.00
Value per bu.	4.46
Total product return per acre	321.26
Crop insurance per acre	47.73
Other crop income per acre	2.27
Gross return per acre	371.27
<b>Direct Expenses</b>	
Seed	17.47
Fertilizer	55.13
Crop chemicals	33.92
Crop insurance	19.45
Fuel & oil	13.44
Repairs	31.37
Custom hire	9.16
Land rent	129.58
Operating interest	4.91
Miscellaneous	3.27
Total direct expenses per acre	317.72
Return over direct exp per acre	53.55
<b>Overhead Expenses</b>	
Hired labor	21.25
Machinery leases	3.26
Farm insurance	7.26
Utilities	4.68
Dues & professional fees	2.64
Interest	2.50
Mach & bldg depreciation	28.22
Miscellaneous	4.55
Total overhead expenses per acre	74.36
Total dir & ovhd expenses per acre	392.07
Net return per acre	-20.80
Government payments	15.96
Net return with govt pmts	-4.84
Labor & management charge	34.01
Net return over lbr & mgt	-38.85
<b>Cost of Production</b>	
Total direct expense per bu.	4.41
Total dir & ovhd exp per bu.	5.44
Less govt & other income	4.53
With labor & management	5.00
Net value per unit	4.46
Machinery cost per acre	86.79
Est. labor hours per acre	1.98

**Crop Enterprise Analysis**  
**Minnesota and North Dakota Farm Business Management Education**  
**Red River Valley, 2016**  
**(Farms Sorted By Return to Overhead)**

**Corn on Owned Land**

	<u>Avg. Of</u> <u>All Farms</u>	<u>Low 20%</u>	<u>40 - 60%</u>	<u>High 20%</u>
Number of farms	78	15	15	16
Acres	246.84	231.07	279.14	290.70
Yield per acre (bu.)	192.45	177.80	192.92	202.59
Operators share of yield %	100.00	100.00	100.00	100.00
Value per bu.	3.13	3.05	3.11	3.22
Total product return per acre	601.57	541.78	599.10	652.22
Hedging gains/losses per acre	4.59	-	-	19.01
Crop insurance per acre	5.33	1.11	-	12.64
Other crop income per acre	1.78	-	-	7.36
Gross return per acre	613.27	542.89	599.10	691.23
<b>Direct Expenses</b>				
Seed	94.61	108.99	93.96	87.72
Fertilizer	115.70	133.01	112.87	110.97
Crop chemicals	29.22	39.13	29.08	24.43
Crop insurance	21.51	25.22	17.44	16.88
Drying expense	9.15	11.97	6.43	10.47
Fuel & oil	20.25	19.86	22.17	19.58
Repairs	40.47	42.77	49.03	34.20
Custom hire	3.06	4.51	1.10	5.13
Hired labor	1.18	2.35	0.63	2.47
Machinery leases	1.43	-	2.90	-
Operating interest	7.22	5.97	9.14	5.50
Miscellaneous	2.30	2.70	0.45	4.79
Total direct expenses per acre	346.10	396.45	345.22	322.12
Return over direct exp per acre	267.17	146.44	253.88	369.11
<b>Overhead Expenses</b>				
Hired labor	21.78	19.97	23.03	20.99
Machinery leases	5.68	3.95	4.39	7.13
Building leases	2.52	0.56	0.82	7.39
RE & pers. property taxes	25.96	23.27	23.07	27.96
Farm insurance	9.02	13.28	8.66	8.00
Utilities	6.45	8.87	5.74	5.14
Dues & professional fees	5.32	6.25	5.07	6.05
Interest	48.15	31.00	50.08	53.97
Mach & bldg depreciation	61.64	63.24	69.19	60.77
Miscellaneous	6.23	7.53	5.48	5.47
Total overhead expenses per acre	192.74	177.92	195.53	202.87
Total dir & ovhd expenses per acre	538.84	574.37	540.75	524.99
Net return per acre	74.43	-31.48	58.36	166.24
Government payments	19.18	20.80	18.51	24.43
Net return with govt pmnts	93.60	-10.69	76.86	190.67
Labor & management charge	50.50	46.40	47.27	50.92
Net return over lbr & mgt	43.10	-57.08	29.60	139.75
<b>Cost of Production</b>				
Total direct expense per bu.	1.80	2.23	1.79	1.59
Total dir & ovhd exp per bu.	2.80	3.23	2.80	2.59
Less govt & other income	2.64	3.11	2.71	2.28
With labor & management	2.90	3.37	2.95	2.53
Net value per unit	3.15	3.05	3.11	3.31
Machinery cost per acre	133.29	133.81	150.28	126.47
Est. labor hours per acre	2.32	2.54	2.23	2.14

**Crop Enterprise Analysis**  
**Minnesota and North Dakota Farm Business Management Education**  
**Red River Valley, 2016**  
**(Farms Sorted By Return to Overhead)**

**Corn on Cash Rent**

	<u>Avg. Of</u> <u>All Farms</u>	<u>Low 20%</u>	<u>40 - 60%</u>	<u>High 20%</u>
Number of farms	133	26	26	27
Acres	532.83	344.57	627.80	495.67
Yield per acre (bu.)	189.71	171.09	193.21	196.01
Operators share of yield %	100.00	100.00	100.00	100.00
Value per bu.	3.14	3.02	3.14	3.18
Total product return per acre	595.75	517.27	606.41	623.34
Hedging gains/losses per acre	3.28	0.50	0.86	17.68
Crop insurance per acre	8.52	9.77	0.07	26.62
Other crop income per acre	2.72	-	2.54	2.63
Gross return per acre	610.27	527.55	609.88	670.27
<b>Direct Expenses</b>				
Seed	95.26	104.62	96.66	87.46
Fertilizer	115.87	116.97	116.85	115.07
Crop chemicals	25.73	23.52	26.52	22.44
Crop insurance	19.28	22.97	21.03	18.82
Drying expense	8.22	11.32	7.56	8.00
Fuel & oil	18.37	20.82	17.97	17.93
Repairs	34.43	41.67	35.22	40.89
Custom hire	4.90	7.40	4.80	1.29
Land rent	141.60	134.76	138.10	120.31
Machinery leases	1.63	0.58	0.17	-
Operating interest	9.81	11.15	9.71	5.61
Miscellaneous	3.58	4.77	1.57	2.73
Total direct expenses per acre	478.70	500.55	476.18	440.54
Return over direct exp per acre	131.57	26.99	133.70	229.72
<b>Overhead Expenses</b>				
Custom hire	0.52	-	0.17	1.16
Hired labor	18.73	19.19	21.31	30.90
Machinery leases	7.44	4.12	5.56	8.38
Building leases	3.17	1.58	0.41	0.95
Farm insurance	7.36	9.21	7.58	8.14
Utilities	4.91	6.73	4.78	6.12
Dues & professional fees	4.59	4.59	8.59	4.44
Interest	5.26	5.33	4.22	5.94
Mach & bldg depreciation	47.33	43.17	48.49	53.01
Miscellaneous	5.21	5.36	5.35	6.32
Total overhead expenses per acre	103.99	99.28	106.30	124.21
Total dir & ovhd expenses per acre	582.69	599.83	582.48	564.75
Net return per acre	27.58	-72.28	27.40	105.51
Government payments	19.09	19.35	20.08	16.90
Net return with govt pmts	46.68	-52.93	47.48	122.41
Labor & management charge	43.06	43.87	41.42	48.17
Net return over lbr & mgt	3.62	-96.80	6.06	74.24
<b>Cost of Production</b>				
Total direct expense per bu.	2.52	2.93	2.46	2.25
Total dir & ovhd exp per bu.	3.07	3.51	3.01	2.88
Less govt & other income	2.89	3.33	2.89	2.56
With labor & management	3.12	3.59	3.11	2.80
Net value per unit	3.16	3.03	3.14	3.27
Machinery cost per acre	116.36	119.33	114.31	123.00
Est. labor hours per acre	2.12	2.33	2.18	2.46

**Crop Enterprise Analysis**  
**Minnesota and North Dakota Farm Business Management Education**  
**Red River Valley, 2016**  
**(Farms Sorted By Return to Overhead)**

**Hay, Alfalfa on Cash Rent**

	<b>Avg. Of All Farms</b>
Number of farms	7
Acres	145.31
Yield per acre (ton)	3.18
Operators share of yield %	100.00
Value per ton	97.20
Total product return per acre	308.68
Gross return per acre	308.68
<b>Direct Expenses</b>	
Fertilizer	6.16
Crop chemicals	2.37
Crop insurance	1.56
Fuel & oil	16.64
Repairs	43.11
Land rent	129.64
Machinery leases	50.73
Operating interest	14.47
Miscellaneous	0.25
Total direct expenses per acre	264.93
Return over direct exp per acre	43.76
<b>Overhead Expenses</b>	
Hired labor	21.74
Machinery leases	2.06
Farm insurance	6.45
Utilities	5.09
Dues & professional fees	4.16
Interest	3.29
Mach & bldg depreciation	28.73
Miscellaneous	11.88
Total overhead expenses per acre	83.41
Total dir & ovhd expenses per acre	348.34
Net return per acre	-39.66
Government payments	8.72
Net return with govt pmts	-30.93
Labor & management charge	40.09
Net return over lbr & mgt	-71.02
<b>Cost of Production</b>	
Total direct expense per ton	83.42
Total dir & ovhd exp per ton	109.69
Less govt & other income	106.94
With labor & management	119.56
Net value per unit	97.20
Machinery cost per acre	142.51
Est. labor hours per acre	2.18

**Crop Enterprise Analysis**  
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**(Farms Sorted By Return to Overhead)**

**Soybeans on Owned Land**

	<u>Avg. Of</u> <u>All Farms</u>	<u>Low 20%</u>	<u>40 - 60%</u>	<u>High 20%</u>
Number of farms	122	24	25	25
Acres	251.93	275.96	275.59	250.29
Yield per acre (bu.)	47.58	39.39	49.48	51.56
Operators share of yield %	100.00	100.00	100.00	100.00
Value per bu.	9.27	9.09	9.25	9.40
Total product return per acre	441.23	358.03	457.49	484.82
Hedging gains/losses per acre	-0.01	-0.33	-	0.16
Crop insurance per acre	12.72	12.72	3.65	33.82
Other crop income per acre	1.97	0.82	0.30	7.08
Gross return per acre	455.91	371.23	461.44	525.87
<b>Direct Expenses</b>				
Seed	62.45	64.36	64.63	58.76
Fertilizer	12.96	17.88	9.63	11.41
Crop chemicals	29.30	24.50	32.49	28.46
Crop insurance	18.69	20.59	19.41	16.54
Fuel & oil	11.56	12.26	10.47	11.35
Repairs	22.97	25.18	22.21	20.36
Custom hire	4.83	7.64	2.71	2.20
Machinery leases	0.99	2.14	1.07	0.16
Operating interest	4.69	5.85	3.90	2.59
Miscellaneous	2.64	2.52	2.27	2.60
Total direct expenses per acre	171.10	182.92	168.79	154.43
Return over direct exp per acre	284.81	188.31	292.65	371.44
<b>Overhead Expenses</b>				
Hired labor	11.99	8.33	12.94	13.29
Machinery leases	2.29	2.03	1.54	2.24
Building leases	1.19	1.85	0.43	1.25
RE & pers. property taxes	23.74	19.97	22.46	26.21
Farm insurance	7.27	7.76	7.19	7.10
Utilities	5.06	5.02	4.40	5.00
Dues & professional fees	3.97	3.70	3.98	4.28
Interest	45.83	37.49	36.03	50.92
Mach & bldg depreciation	35.87	34.43	35.32	47.25
Miscellaneous	3.83	2.58	3.56	5.07
Total overhead expenses per acre	141.04	123.16	127.85	162.61
Total dir & ovhd expenses per acre	312.14	306.08	296.64	317.04
Net return per acre	143.77	65.15	164.80	208.82
Government payments	17.27	17.70	15.48	18.98
Net return with govt pmnts	161.04	82.85	180.28	227.81
Labor & management charge	30.12	29.89	27.93	33.38
Net return over lbr & mgt	130.91	52.96	152.35	194.42
<b>Cost of Production</b>				
Total direct expense per bu.	3.60	4.64	3.41	3.00
Total dir & ovhd exp per bu.	6.56	7.77	5.99	6.15
Less govt & other income	5.89	6.99	5.60	4.98
With labor & management	6.52	7.74	6.17	5.63
Net value per unit	9.27	9.08	9.25	9.41
Machinery cost per acre	79.72	82.67	74.11	83.66
Est. labor hours per acre	1.39	1.40	1.44	1.34



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**Soybeans on Cash Rent**

	<u>Avg. Of</u> <u>All Farms</u>	<u>Low 20%</u>	<u>40 - 60%</u>	<u>High 20%</u>
Number of farms	169	33	34	34
Acres	617.75	514.39	670.56	619.80
Yield per acre (bu.)	46.89	41.49	46.80	51.58
Operators share of yield %	100.00	100.00	100.00	100.00
Value per bu.	9.23	9.16	9.14	9.32
Total product return per acre	433.05	380.11	427.95	480.75
Hedging gains/losses per acre	-0.17	-3.40	1.05	-0.03
Crop insurance per acre	9.92	7.46	9.41	18.94
Other crop income per acre	2.19	2.33	1.09	6.28
Gross return per acre	444.98	386.50	439.49	505.94
<b>Direct Expenses</b>				
Seed	61.51	64.27	58.97	61.97
Fertilizer	11.75	14.67	11.49	10.45
Crop chemicals	29.67	30.68	31.03	23.96
Crop insurance	18.08	17.44	17.19	19.64
Fuel & oil	10.85	11.60	11.32	10.64
Repairs	19.59	20.05	20.53	17.32
Custom hire	4.28	3.86	2.52	5.23
Land rent	125.85	146.54	124.32	107.70
Machinery leases	1.69	4.37	2.25	1.05
Operating interest	5.26	6.54	5.55	4.82
Miscellaneous	2.44	3.63	1.66	2.32
Total direct expenses per acre	290.99	323.65	286.81	265.11
Return over direct exp per acre	153.99	62.85	152.68	240.83
<b>Overhead Expenses</b>				
Hired labor	11.52	8.51	10.45	17.57
Machinery leases	3.32	2.89	3.99	5.14
Building leases	0.89	2.61	0.54	0.33
Farm insurance	6.44	6.09	6.97	6.58
Utilities	3.69	3.48	3.63	3.87
Dues & professional fees	4.06	3.21	5.01	5.76
Interest	3.28	3.83	3.81	2.61
Mach & bldg depreciation	28.55	26.29	30.74	29.54
Miscellaneous	3.16	3.29	2.61	4.52
Total overhead expenses per acre	64.92	60.19	67.75	75.92
Total dir & ovhd expenses per acre	355.91	383.84	354.57	341.03
Net return per acre	89.07	2.66	84.93	164.91
Government payments	17.67	16.47	17.67	17.92
Net return with govt pmnts	106.74	19.12	102.60	182.83
Labor & management charge	27.50	24.67	26.81	27.13
Net return over lbr & mgt	79.24	-5.54	75.79	155.70
<b>Cost of Production</b>				
Total direct expense per bu.	6.21	7.80	6.13	5.14
Total dir & ovhd exp per bu.	7.59	9.25	7.58	6.61
Less govt & other income	6.96	8.70	6.95	5.78
With labor & management	7.54	9.29	7.52	6.30
Net value per unit	9.23	9.08	9.17	9.32
Machinery cost per acre	69.90	70.47	73.32	70.20
Est. labor hours per acre	1.42	1.30	1.33	1.63

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**Soybeans Seed on Cash Rent**

	<u>Avg. Of All Farms</u>
Number of farms	9
Acres	366.04
Yield per acre (bu.)	44.14
Operators share of yield %	100.00
Value per bu.	10.77
Total product return per acre	475.55
Crop insurance per acre	32.02
Other crop income per acre	0.91
Gross return per acre	508.47
<b>Direct Expenses</b>	
Seed	56.39
Fertilizer	15.43
Crop chemicals	35.68
Crop insurance	17.70
Fuel & oil	11.76
Repairs	25.56
Custom hire	1.67
Land rent	139.78
Machinery leases	4.28
Operating interest	4.94
Miscellaneous	1.89
Total direct expenses per acre	315.08
Return over direct exp per acre	193.39
<b>Overhead Expenses</b>	
Hired labor	24.04
Machinery leases	0.94
Farm insurance	4.42
Utilities	3.49
Dues & professional fees	2.03
Interest	2.37
Mach & bldg depreciation	30.61
Miscellaneous	4.82
Total overhead expenses per acre	72.71
Total dir & ovhd expenses per acre	387.78
Net return per acre	120.69
Government payments	8.11
Net return with govt pmts	128.80
Labor & management charge	32.40
Net return over lbr & mgt	96.39
<b>Cost of Production</b>	
Total direct expense per bu.	7.14
Total dir & ovhd exp per bu.	8.79
Less govt & other income	7.86
With labor & management	8.59
Net value per unit	10.77
Machinery cost per acre	75.58
Est. labor hours per acre	1.81

**Crop Enterprise Analysis**  
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**Soybeans, Food on Cash Rent**

	<u>Avg. Of</u> <u>All Farms</u>
Number of farms	18
Acres	516.87
Yield per acre (bu.)	41.53
Operators share of yield %	100.00
Value per bu.	12.12
Total product return per acre	503.37
Hedging gains/losses per acre	5.22
Crop insurance per acre	11.76
Other crop income per acre	1.55
Gross return per acre	521.90
<b>Direct Expenses</b>	
Seed	36.50
Fertilizer	17.18
Crop chemicals	35.24
Crop insurance	16.78
Fuel & oil	9.76
Repairs	21.63
Custom hire	2.48
Hired labor	1.09
Land rent	139.36
Operating interest	7.12
Miscellaneous	2.82
Total direct expenses per acre	289.96
Return over direct exp per acre	231.95
<b>Overhead Expenses</b>	
Hired labor	9.73
Machinery leases	3.82
Building leases	2.89
Farm insurance	6.45
Utilities	3.46
Dues & professional fees	4.79
Interest	3.34
Mach & bldg depreciation	26.64
Miscellaneous	4.28
Total overhead expenses per acre	65.39
Total dir & ovhd expenses per acre	355.35
Net return per acre	166.55
Government payments	15.52
Net return with govt pmts	182.07
Labor & management charge	27.04
Net return over lbr & mgt	155.03
<b>Cost of Production</b>	
Total direct expense per bu.	6.98
Total dir & ovhd exp per bu.	8.56
Less govt & other income	7.74
With labor & management	8.39
Net value per unit	12.25
Machinery cost per acre	65.62
Est. labor hours per acre	1.15

**Crop Enterprise Analysis**  
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**Sugar Beets on Owned Land, Excluding Joint Venture**

	<u>Avg. Of</u> <u>All Farms</u>	<u>Low 20%</u>	<u>40 - 60%</u>	<u>High 20%</u>
Number of farms	30	6	6	6
Acres	134.37	97.42	164.22	121.02
Yield per acre (ton)	32.83	27.86	33.08	36.80
Operators share of yield %	100.00	100.00	100.00	100.00
Value per ton	33.90	31.83	34.46	37.20
Total product return per acre	1,112.76	886.81	1,139.89	1,369.19
Crop insurance per acre	16.55	8.65	18.92	-
Other crop income per acre	7.02	20.35	7.23	-
Gross return per acre	1,136.33	915.81	1,166.05	1,369.19
<b>Direct Expenses</b>				
Seed	221.34	215.70	237.02	219.58
Fertilizer	89.91	127.17	84.83	82.71
Crop chemicals	89.29	103.28	74.68	99.58
Crop insurance	26.19	35.06	25.47	22.84
Fuel & oil	45.91	50.33	47.94	48.92
Repairs	89.55	99.62	88.44	79.92
Custom hire	17.46	6.48	22.41	10.54
Hired labor	38.14	40.82	46.97	46.65
Machinery leases	1.86	-	4.17	2.76
Hauling and trucking	15.77	-	5.05	11.68
Operating interest	17.27	19.31	18.51	12.53
Miscellaneous	7.28	2.23	2.91	7.64
Total direct expenses per acre	659.97	699.99	658.40	645.35
Return over direct exp per acre	476.36	215.81	507.65	723.84
<b>Overhead Expenses</b>				
Hired labor	51.38	26.31	52.80	79.22
Machinery leases	5.66	10.59	3.48	7.84
Building leases	3.46	1.96	1.72	3.23
RE & pers. property taxes	25.17	31.03	25.52	27.10
Farm insurance	18.68	13.24	18.58	20.47
Utilities	11.89	6.04	11.76	13.91
Dues & professional fees	7.94	2.97	6.90	10.76
Interest	58.82	39.03	64.29	79.08
Mach & bldg depreciation	113.73	117.96	139.73	110.86
Miscellaneous	9.01	11.58	9.68	7.00
Total overhead expenses per acre	305.75	260.71	334.47	359.48
Total dir & ovhd expenses per acre	965.71	960.70	992.87	1,004.83
Net return per acre	170.62	-44.90	173.18	364.36
Government payments	18.86	14.92	19.53	14.56
Net return with govt pmts	189.47	-29.97	192.71	378.92
Labor & management charge	103.23	99.75	94.84	158.93
Net return over lbr & mgt	86.24	-129.72	97.88	219.99
<b>Cost of Production</b>				
Total direct expense per ton	20.10	25.13	19.90	17.54
Total dir & ovhd exp per ton	29.42	34.48	30.01	27.30
Less govt & other income	28.12	32.91	28.63	26.91
With labor & management	31.27	36.49	31.50	31.23
Net value per unit	33.90	31.83	34.46	37.20
Machinery cost per acre	277.62	292.15	298.30	267.48
Est. labor hours per acre	4.74	3.88	4.14	6.28

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**Sugar Beets on Owned Land, Including Joint Venture**

	<u>Avg. Of All Farms</u>
Number of farms	20
Acres	127.51
Yield per acre (ton)	33.62
Operators share of yield %	100.00
Value per ton	33.64
Total product return per acre	1,131.09
Crop insurance per acre	14.72
Other crop income per acre	4.97
Gross return per acre	1,150.77
<b>Direct Expenses</b>	
Seed	227.10
Fertilizer	83.83
Crop chemicals	88.35
Crop insurance	32.01
Fuel & oil	45.80
Repairs	96.92
Custom hire	17.47
Hired labor	33.26
Stock/quota lease	112.20
Machinery leases	3.37
Hauling and trucking	13.96
Operating interest	23.59
Miscellaneous	2.81
Total direct expenses per acre	780.66
Return over direct exp per acre	370.11
<b>Overhead Expenses</b>	
Hired labor	50.56
Machinery leases	16.48
Building leases	1.48
RE & pers. property taxes	27.88
Farm insurance	13.90
Utilities	9.92
Dues & professional fees	8.41
Interest	77.93
Mach & bldg depreciation	100.84
Miscellaneous	9.72
Total overhead expenses per acre	317.12
Total dir & ovhd expenses per acre	1,097.78
Net return per acre	52.99
Government payments	11.92
Net return with govt pmts	64.91
Labor & management charge	95.52
Net return over lbr & mgt	-30.61
<b>Cost of Production</b>	
Total direct expense per ton	23.22
Total dir & ovhd exp per ton	32.65
Less govt & other income	31.71
With labor & management	34.55
Net value per unit	33.64
Machinery cost per acre	283.80
Est. labor hours per acre	5.35

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**Sugar Beets on Cash Rent, Excluding Joint Venture**

	<u>Avg. Of</u> <u>All Farms</u>	<u>Low 20%</u>	<u>40 - 60%</u>	<u>High 20%</u>
Number of farms	49	9	10	10
Acres	231.87	263.20	228.30	212.74
Yield per acre (ton)	31.72	27.24	30.04	38.20
Operators share of yield %	100.00	100.00	100.00	100.00
Value per ton	34.53	31.88	36.02	37.52
Total product return per acre	1,095.11	868.22	1,081.96	1,433.00
Crop insurance per acre	15.22	3.71	39.76	6.79
Other crop income per acre	11.47	15.89	2.70	3.82
Gross return per acre	1,121.81	887.83	1,124.42	1,443.61
<b>Direct Expenses</b>				
Seed	218.48	215.19	223.66	215.37
Fertilizer	91.67	112.31	83.38	92.57
Crop chemicals	97.34	98.85	100.96	96.10
Crop insurance	30.03	35.47	31.31	19.88
Fuel & oil	43.66	45.59	38.54	38.53
Repairs	93.35	106.67	93.03	83.87
Custom hire	12.05	11.49	9.55	3.09
Hired labor	37.58	32.35	37.37	42.34
Land rent	133.44	139.09	142.79	124.46
Machinery leases	1.01	-	-	5.37
Hauling and trucking	10.16	10.33	18.34	5.65
Operating interest	11.03	14.05	12.22	8.67
Miscellaneous	5.27	1.98	2.83	10.03
Total direct expenses per acre	785.06	823.38	793.99	745.93
Return over direct exp per acre	336.75	64.45	330.44	697.68
<b>Overhead Expenses</b>				
Custom hire	2.63	4.92	-	-
Hired labor	60.11	47.43	100.19	52.51
Machinery leases	5.21	13.39	4.12	1.67
Building leases	1.56	1.07	0.80	1.73
Farm insurance	16.31	10.56	18.93	21.15
Utilities	10.38	6.68	12.72	14.56
Dues & professional fees	6.41	3.63	7.24	7.86
Interest	8.41	11.65	8.15	4.81
Mach & bldg depreciation	114.12	97.96	122.32	125.72
Miscellaneous	8.45	7.56	7.31	7.33
Total overhead expenses per acre	233.59	204.84	281.78	237.33
Total dir & ovhd expenses per acre	1,018.65	1,028.22	1,075.76	983.26
Net return per acre	103.16	-140.39	48.66	460.34
Government payments	14.54	12.80	7.31	14.46
Net return with govt pmts	117.70	-127.59	55.97	474.80
Labor & management charge	119.22	110.83	122.66	165.63
Net return over lbr & mgt	-1.53	-238.41	-66.69	309.17
<b>Cost of Production</b>				
Total direct expense per ton	24.75	30.23	26.43	19.53
Total dir & ovhd exp per ton	32.12	37.75	35.81	25.74
Less govt & other income	30.82	36.56	34.15	25.09
With labor & management	34.58	40.63	38.24	29.42
Net value per unit	34.53	31.88	36.02	37.52
Machinery cost per acre	272.39	287.17	271.17	243.60
Est. labor hours per acre	5.45	4.92	6.30	5.27

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**Sugar Beets on Cash Rent, Including Joint Venture**

	<u>Avg. Of</u> <u>All Farms</u>	<u>Low 20%</u>	<u>40 - 60%</u>	<u>High 20%</u>
Number of farms	40	8	8	8
Acres	309.74	311.60	429.19	236.93
Yield per acre (ton)	31.90	22.41	33.39	37.56
Operators share of yield %	100.00	100.00	100.00	100.00
Value per ton	34.85	34.65	34.82	37.01
Total product return per acre	1,111.93	776.58	1,162.59	1,390.14
Crop insurance per acre	17.80	79.26	5.97	-
Other crop income per acre	5.25	17.34	-	-
Gross return per acre	1,134.99	873.18	1,168.56	1,390.14
<b>Direct Expenses</b>				
Seed	224.34	232.04	224.32	222.40
Fertilizer	88.11	95.48	87.49	88.22
Crop chemicals	85.92	82.93	81.44	87.19
Crop insurance	29.38	34.86	26.91	17.74
Fuel & oil	46.66	46.23	49.06	51.21
Repairs	78.27	68.54	79.92	85.79
Custom hire	15.76	15.84	8.07	1.59
Hired labor	31.54	35.11	33.99	46.06
Land rent	137.90	137.74	139.27	117.15
Stock/quota lease	143.42	172.36	151.19	131.52
Machinery leases	2.22	-	3.85	5.70
Hauling and trucking	17.61	30.11	-	-
Operating interest	22.13	21.56	19.38	23.87
Miscellaneous	3.95	2.41	2.46	4.46
Total direct expenses per acre	927.21	975.22	907.35	882.90
Return over direct exp per acre	207.78	-102.03	261.21	507.24
<b>Overhead Expenses</b>				
Custom hire	1.95	1.38	-	-
Hired labor	47.97	40.84	58.20	37.62
Machinery leases	10.45	8.28	11.43	0.70
Building leases	4.54	-	9.97	0.26
Farm insurance	14.22	19.00	14.14	11.34
Utilities	8.71	12.54	6.39	10.60
Dues & professional fees	10.23	7.56	9.77	11.03
Interest	12.18	16.51	8.68	13.06
Mach & bldg depreciation	102.78	112.91	105.75	116.46
Miscellaneous	8.98	3.42	10.25	4.09
Total overhead expenses per acre	222.02	222.44	234.59	205.16
Total dir & ovhd expenses per acre	1,149.23	1,197.65	1,141.94	1,088.05
Net return per acre	-14.24	-324.47	26.62	302.09
Government payments	15.76	23.63	11.25	14.74
Net return with govt pmts	1.51	-300.84	37.87	316.83
Labor & management charge	92.51	82.15	92.61	113.70
Net return over lbr & mgt	-91.00	-382.99	-54.74	203.12
<b>Cost of Production</b>				
Total direct expense per ton	29.06	43.51	27.17	23.50
Total dir & ovhd exp per ton	36.02	53.44	34.20	28.97
Less govt & other income	34.80	48.08	33.68	28.57
With labor & management	37.70	51.74	36.46	31.60
Net value per unit	34.85	34.65	34.82	37.01
Machinery cost per acre	262.06	262.48	259.65	257.63
Est. labor hours per acre	5.08	5.01	5.14	5.47

**Crop Enterprise Analysis**  
**Minnesota and North Dakota Farm Business Management Education**  
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**Sunflowers on Cash Rent**

	<u>Avg. Of All Farms</u>
Number of farms	8
Acres	316.19
Yield per acre (cwt.)	21.71
Operators share of yield %	100.00
Value per cwt.	19.39
Total product return per acre	421.03
Crop insurance per acre	46.11
Other crop income per acre	8.17
Gross return per acre	475.31
<b>Direct Expenses</b>	
Seed	35.44
Fertilizer	42.09
Crop chemicals	30.84
Crop insurance	18.72
Fuel & oil	12.00
Repairs	20.79
Custom hire	8.85
Land rent	124.58
Operating interest	5.79
Miscellaneous	1.75
Total direct expenses per acre	300.87
Return over direct exp per acre	174.44
<b>Overhead Expenses</b>	
Hired labor	5.49
Machinery leases	1.46
Farm insurance	5.32
Utilities	4.68
Dues & professional fees	1.80
Interest	5.10
Mach & bldg depreciation	30.05
Miscellaneous	5.06
Total overhead expenses per acre	58.97
Total dir & ovhd expenses per acre	359.83
Net return per acre	115.48
Government payments	22.86
Net return with govt pmts	138.33
Labor & management charge	37.82
Net return over lbr & mgt	100.51
<b>Cost of Production</b>	
Total direct expense per cwt.	13.86
Total dir & ovhd exp per cwt.	16.57
Less govt & other income	13.02
With labor & management	14.76
Net value per unit	19.39
Machinery cost per acre	74.01
Est. labor hours per acre	1.54



**Crop Enterprise Analysis**  
**Minnesota and North Dakota Farm Business Management Education**  
**Red River Valley, 2016**  
**(Farms Sorted By Return to Overhead)**

**Wheat, Spring on Owned Land**

	<u>Avg. Of</u> <u>All Farms</u>	<u>Low 20%</u>	<u>40 - 60%</u>	<u>High 20%</u>
Number of farms	72	14	15	15
Acres	229.10	224.29	217.80	165.00
Yield per acre (bu.)	72.73	60.56	73.93	78.34
Operators share of yield %	100.00	100.00	100.00	100.00
Value per bu.	4.95	4.72	4.92	5.16
Total product return per acre	359.75	286.07	363.78	404.24
Hedging gains/losses per acre	0.12	-	-	-
Crop insurance per acre	7.15	8.61	0.86	32.67
Other crop income per acre	2.20	-	1.29	7.62
Gross return per acre	369.21	294.68	365.93	444.53
<b>Direct Expenses</b>				
Seed	19.56	19.89	19.28	16.83
Fertilizer	82.48	85.91	85.48	72.60
Crop chemicals	28.09	29.08	28.79	24.47
Crop insurance	14.04	14.28	13.20	13.37
Fuel & oil	12.29	13.03	11.66	11.15
Repairs	21.86	25.62	17.06	22.22
Custom hire	7.34	7.25	4.75	5.35
Machinery leases	1.00	1.12	3.03	1.22
Operating interest	4.80	6.01	3.52	5.26
Miscellaneous	3.62	4.97	2.93	4.54
Total direct expenses per acre	195.07	207.15	189.72	177.01
Return over direct exp per acre	174.15	87.53	176.21	267.52
<b>Overhead Expenses</b>				
Hired labor	14.66	8.35	14.52	12.51
Machinery leases	1.84	1.96	0.42	4.86
Building leases	1.08	0.93	1.20	1.91
RE & pers. property taxes	23.21	16.28	23.72	23.46
Farm insurance	7.21	8.26	5.27	6.60
Utilities	4.44	4.39	5.47	3.22
Dues & professional fees	4.12	2.99	2.64	3.34
Interest	35.41	30.97	42.29	43.81
Mach & bldg depreciation	33.35	33.62	29.16	30.87
Miscellaneous	3.07	3.55	2.72	1.77
Total overhead expenses per acre	128.38	111.31	127.42	132.34
Total dir & ovhd expenses per acre	323.45	318.47	317.13	309.35
Net return per acre	45.76	-23.78	48.79	135.18
Government payments	16.64	19.91	22.49	16.36
Net return with govt pmnts	62.40	-3.88	71.29	151.54
Labor & management charge	30.61	31.45	31.06	32.38
Net return over lbr & mgt	31.79	-35.33	40.23	119.16
<b>Cost of Production</b>				
Total direct expense per bu.	2.68	3.42	2.57	2.26
Total dir & ovhd exp per bu.	4.45	5.26	4.29	3.95
Less govt & other income	4.09	4.79	3.96	3.23
With labor & management	4.51	5.31	4.38	3.64
Net value per unit	4.95	4.72	4.92	5.16
Machinery cost per acre	77.48	83.47	63.10	76.23
Est. labor hours per acre	1.52	1.45	1.36	1.23

**Crop Enterprise Analysis**  
**Minnesota and North Dakota Farm Business Management Education**  
**Red River Valley, 2016**  
**(Farms Sorted By Return to Overhead)**

**Wheat, Spring on Cash Rent**

	<u>Avg. Of</u> <u>All Farms</u>	<u>Low 20%</u>	<u>40 - 60%</u>	<u>High 20%</u>
Number of farms	104	20	21	21
Acres	434.86	407.58	527.78	435.06
Yield per acre (bu.)	68.44	55.17	73.45	70.98
Operators share of yield %	100.00	100.00	100.00	100.00
Value per bu.	5.00	4.92	5.02	5.20
Total product return per acre	341.90	271.58	369.04	369.30
Hedging gains/losses per acre	1.90	-	-	0.66
Crop insurance per acre	11.09	18.22	5.24	26.41
Other crop income per acre	1.96	-	1.50	1.29
Gross return per acre	356.85	289.80	375.78	397.66
<b>Direct Expenses</b>				
Seed	18.71	18.23	18.39	17.54
Fertilizer	80.21	78.00	87.58	72.81
Crop chemicals	24.64	28.54	25.13	22.34
Crop insurance	13.49	14.45	13.61	13.78
Fuel & oil	11.79	12.15	12.11	14.26
Repairs	21.22	24.25	22.23	21.35
Custom hire	5.53	5.71	7.51	2.38
Land rent	120.27	130.14	128.54	95.64
Machinery leases	2.10	2.32	2.29	1.94
Operating interest	4.85	6.29	4.65	6.48
Miscellaneous	4.38	6.51	4.40	3.23
Total direct expenses per acre	307.18	326.61	326.45	271.76
Return over direct exp per acre	49.67	-36.81	49.33	125.90
<b>Overhead Expenses</b>				
Hired labor	12.77	13.56	14.40	14.87
Machinery leases	1.61	2.35	1.64	0.79
Building leases	1.13	1.79	1.51	0.51
Farm insurance	6.76	7.69	6.43	7.86
Utilities	3.60	3.68	3.22	4.11
Dues & professional fees	3.72	4.38	3.86	3.50
Interest	3.50	5.41	3.18	3.15
Mach & bldg depreciation	28.53	22.28	30.61	30.41
Miscellaneous	3.24	7.06	2.40	1.82
Total overhead expenses per acre	64.86	68.21	67.25	67.02
Total dir & ovhd expenses per acre	372.03	394.82	393.71	338.78
Net return per acre	-15.18	-105.03	-17.92	58.88
Government payments	15.33	13.25	12.21	16.79
Net return with govt pmnts	0.15	-91.78	-5.72	75.67
Labor & management charge	28.17	27.62	30.51	28.37
Net return over lbr & mgt	-28.01	-119.40	-36.22	47.30
<b>Cost of Production</b>				
Total direct expense per bu.	4.49	5.92	4.44	3.83
Total dir & ovhd exp per bu.	5.44	7.16	5.36	4.77
Less govt & other income	4.99	6.59	5.10	4.14
With labor & management	5.40	7.09	5.52	4.54
Net value per unit	5.02	4.92	5.02	5.21
Machinery cost per acre	72.20	74.22	76.90	72.05
Est. labor hours per acre	1.45	1.57	1.38	1.59