



MINNESOTA STATE

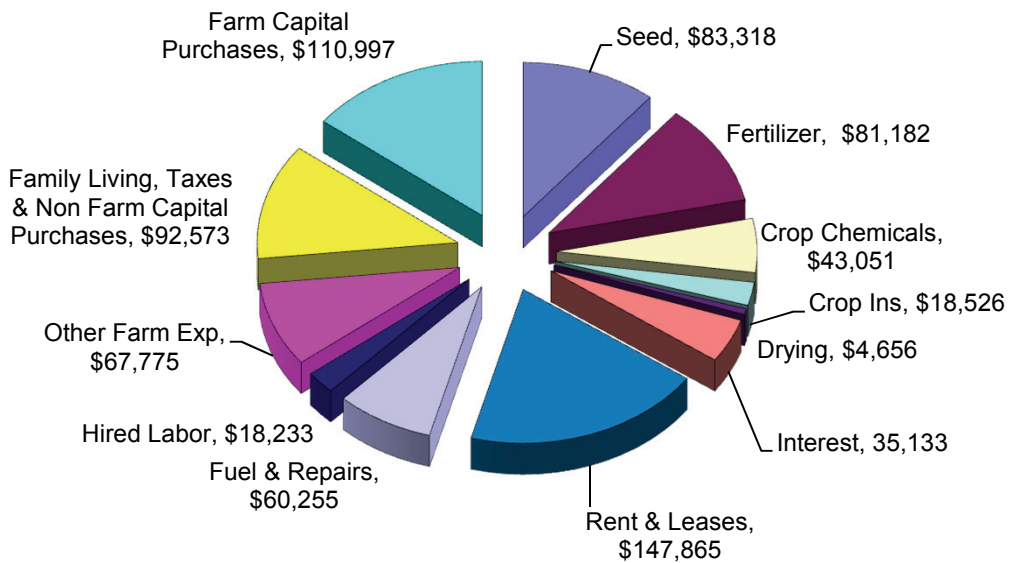
# Farm Business Management Program Database

## Crop Farm Sort - 2016

*Financial Summary by Gross Farm Income & Crop Acres  
Corn & Soybean Enterprise Data  
Selected Precision Technology and Tillage Data*

*April, 2017*

### Average Dollars Spent by a Crop Farm totals \$763,564 in 2016



In cooperation with the Center for Farm Financial Management University of Minnesota  
Compiled by Aaron Brudelic & DelRay Lecy

Contact: Keith Olander @ [kolander@clcmn.edu](mailto:kolander@clcmn.edu) or Brad Schoesser @ [brad.schloesser@southcentral.edu](mailto:brad.schloesser@southcentral.edu)  
Farm Business Management Website: [agcentric.org](http://agcentric.org) or [centerofagriculture.org](http://centerofagriculture.org)

**Financial Summary  
Statewide Special Sort for Crops  
Farm Business Management Database  
Brief Overview**

Despite a second consecutive year of record crop yields, incomes for Minnesota farmers improved only slightly in 2016 from near record lows in 2015. A third consecutive year of declining prices kept income levels below break-even for many producers. Crop farm incomes improved slightly, but the median crop producer did not earn enough to meet family living

Bumper crops across the state filled elevators and farm storage bins this fall, but the big crop also weighed on prices. For producers participating in the Minnesota State Farm Business Management program, the average corn yield averaged just under 200 bushels per acre, up 19% from the ten-year average for these farms. But the average price received for corn declined by 9%. The story was similar for soybeans, wheat and most other crop commodities.

The median crop farm earned just under \$43,705 compared to \$24,294 last year. Including off-farm earnings, the average crop farm family made a modest improvement in their net worth.

The median net farm income for crop producers for the last five years was: \$43,705 (2016), \$24,294 (2015); \$13,908 (2014); \$44,124 (2013); and \$247,567 (2012).

With outstanding yields across the state, the downward spiral in prices that began in 2014 continued.

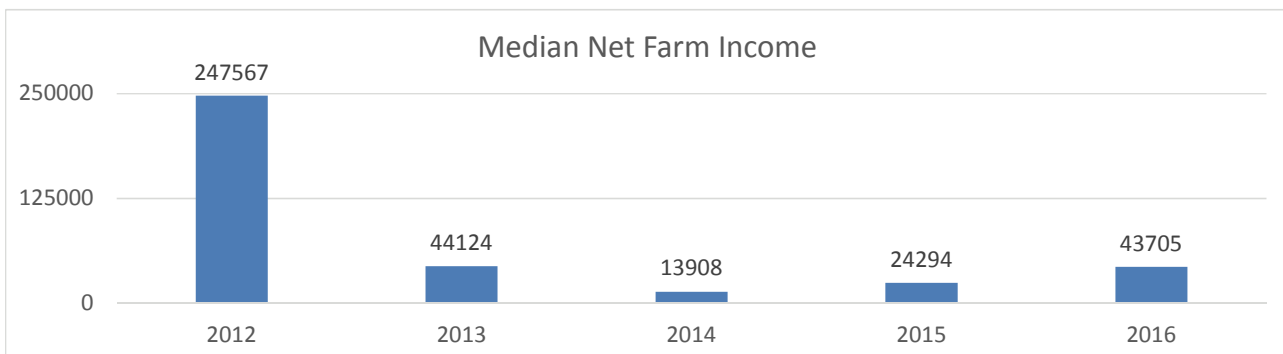
- The average price received for corn sold by participating producers declined to \$3.43 per bushel in 2016, down from \$3.76 the year before.
- Soybean yields averaged just under 56 bushels per acre compared to a ten-year average of just under 44 bushels. The average producer sold soybeans for \$9.08 per bushel compared to \$9.40 the previous year.
- Wheat yielded 67 bushels per acre, up from the ten-year average of 58.5. Wheat sold for \$4.79 per bushel, compared to \$5.25 in 2015.

Like any business, every farm has a different cost structure and some farms are doing better than others. The average farm's balance sheet is still strong, but there are obvious signs of financial stress.

Farmer/lender mediation requests are up. Many farms have already restructured debt to lengthen terms and free up cash flow. Some farms will have to make major adjustments in the coming year in order to continue farming.

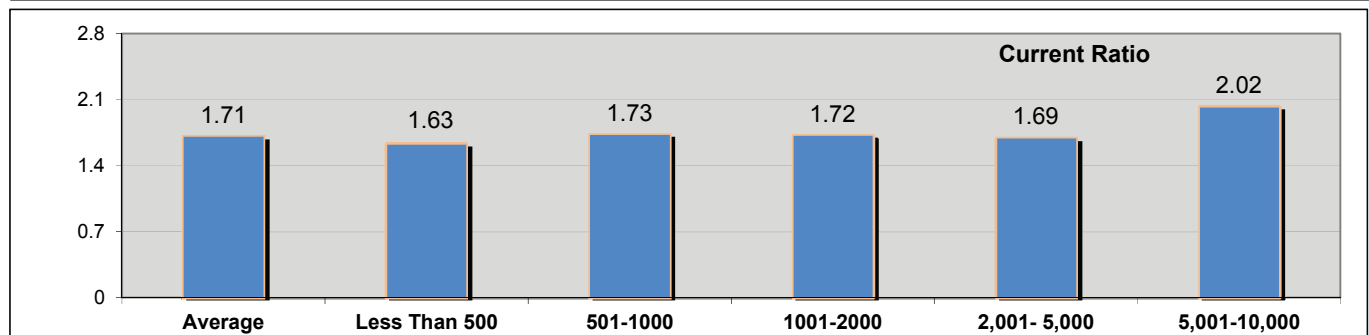
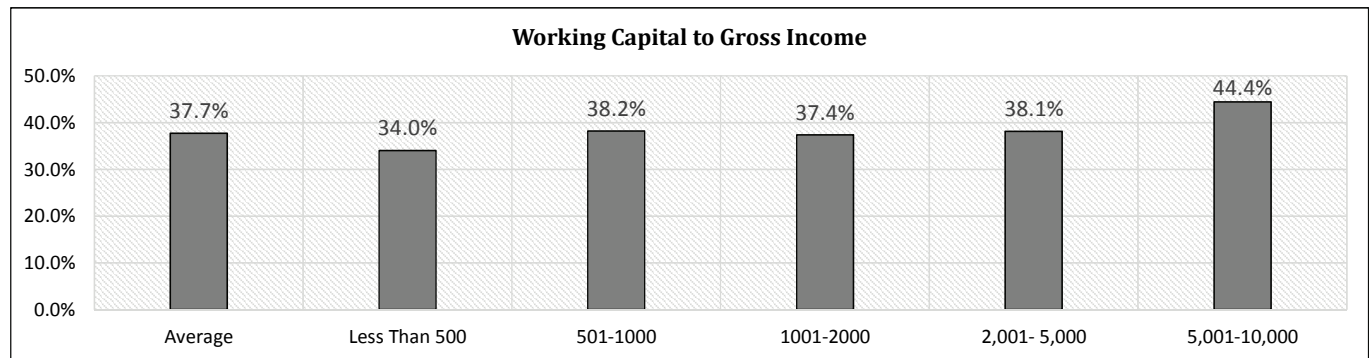
Looking forward, there are some areas of optimism. Costs have decreased as land rental rates and other inputs have adjusted to lower price conditions. Lower fertilizer and fuel prices, in particular, will help.

This special sort report for crops provides summary financial information from 1075 crop producers in the Minnesota State Farm Business Management (FBM) Database, which is about half of the 2103 total producers in the state FBM database. Selected data is also include from 1229 corn enterprises and 1129 soybean enterprises on rented land.



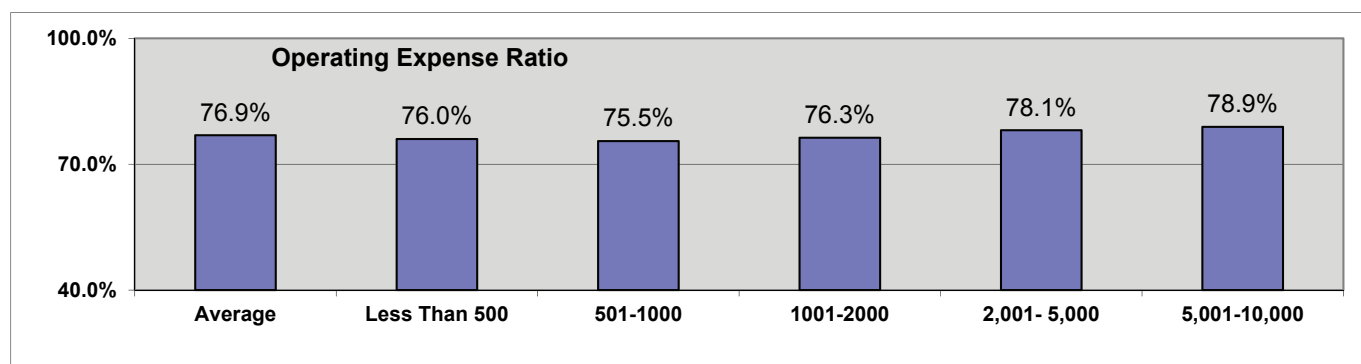
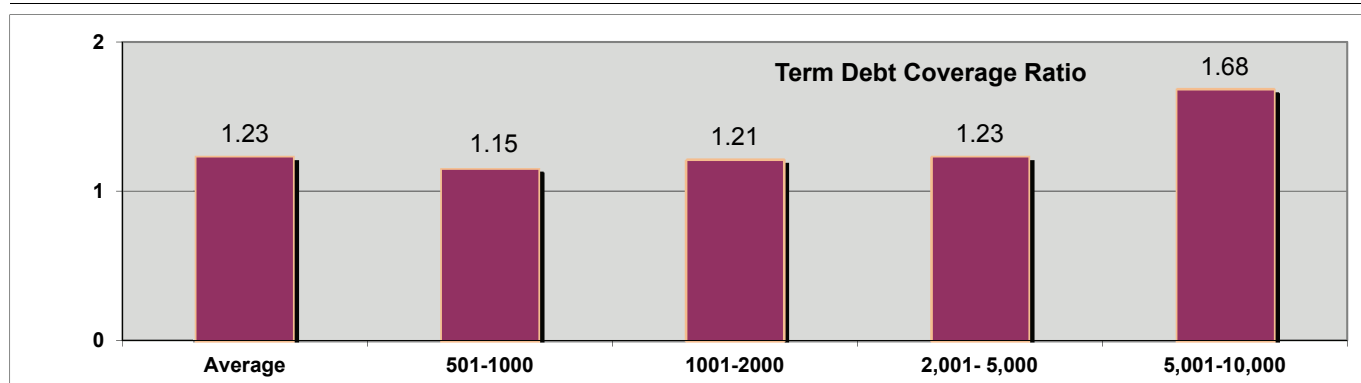
**Financial Summary**  
**Statewide Special Sort for Crops**  
**Farm Business Management Database**  
**(Farms Sorted By Total Crop Acres)**

	Avg. Of All Farms	Less Than 500	501 - 1,000	1,001 - 2,000	2,001 - 5,000	5,001 - 10,000
Number of farms	1075	378	306	234	146	10
<b>Income Statement</b>						
Gross cash farm income	671,863	191,446	496,446	885,212	1,717,041	3,365,966
Total cash farm expense	561,994	166,119	410,089	723,889	1,448,632	2,901,306
Net cash farm income	109,869	25,327	86,357	161,323	268,410	464,660
Average net farm income	73,709	20,635	56,784	98,941	175,863	437,510
Median net farm income	43,705	14,701	52,387	91,071	184,628	419,430
<b>Profitability (cost)</b>						
Rate of return on assets	2.6%	1.6%	2.2%	2.7%	2.9%	4.2%
Rate of return on equity	1.7%	-0.7%	0.9%	2.1%	2.1%	4.8%
Operating profit margin	8.0%	5.9%	7.5%	8.6%	7.9%	9.7%
Asset turnover rate	32.7%	26.6%	29.8%	32.1%	36.1%	43.1%
<b>Liquidity &amp; Repayment (end of year)</b>						
Current ratio	1.71	1.63	1.73	1.72	1.69	2.02
Working capital	263,477	68,696	195,514	341,514	682,247	1,606,076
Working Capital to Gross Income	37.7%	34.0%	38.2%	37.4%	38.1%	44.4%
Term debt coverage ratio	1.23	1.30	1.15	1.21	1.23	1.68
Replacement coverage ratio	0.89	0.94	0.80	0.86	0.91	1.10
Term debt to EBITDA	3.33	5.14	3.45	3.01	3.02	2.60
<b>Solvency (end of year at market)</b>						
Total assets	3,245,936	1,397,592	2,762,512	4,155,503	6,862,111	12,357,387
Total liabilities	1,318,667	547,406	1,030,511	1,653,585	3,057,581	5,135,433
Net worth	1,927,269	850,186	1,732,001	2,501,918	3,804,531	7,221,954
Farm debt to asset ratio	43%	43%	41%	42%	46%	42%
<b>Nonfarm Information</b>						
Net nonfarm income	39,452	52,712	39,497	31,459	19,982	10,935
Farms reporting living expenses	264	94	96	55	19	-
Total family living expense	61,207	52,604	58,292	73,535	82,813	-
Total living, invest, cap. purch	85,536	70,486	78,827	105,793	135,247	-



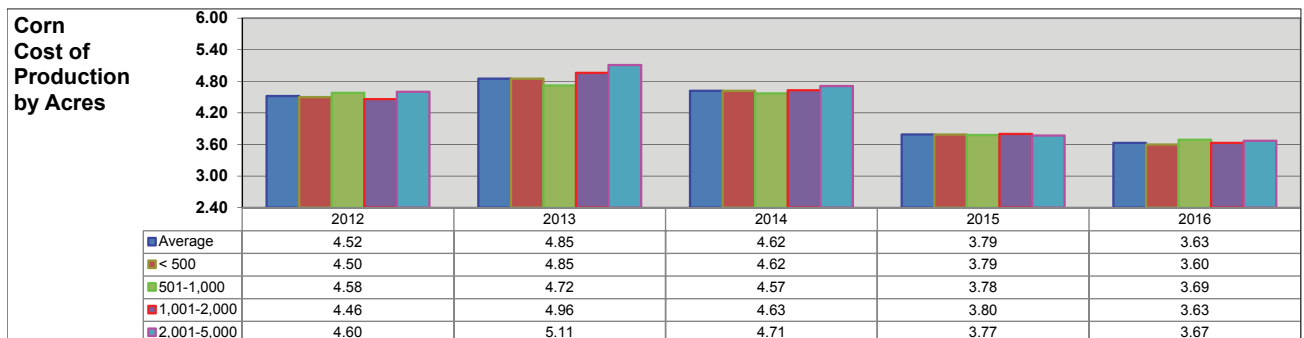
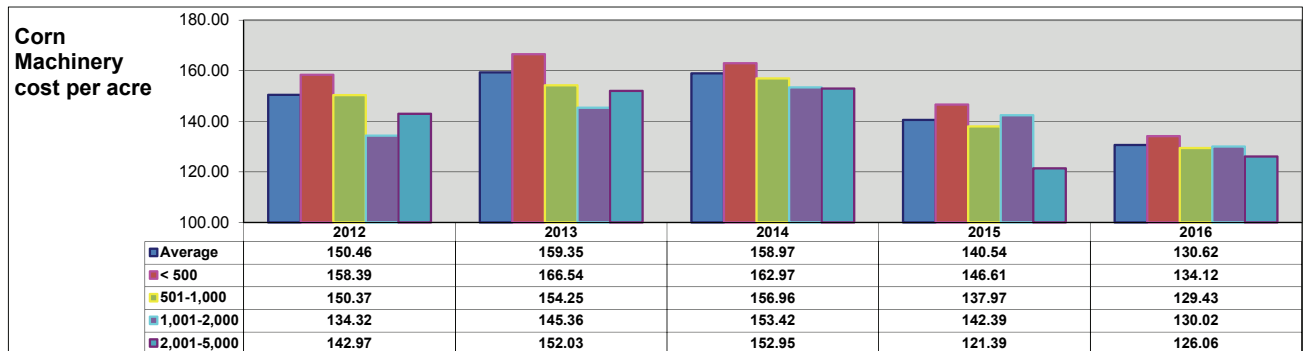
**Financial Standards Measures  
Statewide Special Sort for Crops  
Farm Business Management Database  
(Farms Sorted By Total Crop Acres)**

	Avg. Of All Farms	Less Than 500	501 - 1,000	1001 2,000	2001 - 5,000	5001 - 10,000
Number of farms	1075	378	306	234	146	10
<b>Liquidity</b>						
Current ratio	1.71	1.63	1.73	1.72	1.69	2.02
Working capital	263,477	68,696	195,514	341,514	682,247	1,606,076
Working capital to gross inc	37.7%	34.0%	38.2%	37.4%	38.1%	44.4%
<b>Solvency (market)</b>						
Farm debt to asset ratio	43%	43%	41%	42%	46%	42%
Farm equity to asset ratio	57%	57%	59%	58%	54%	58%
Farm debt to equity ratio	0.76	0.77	0.68	0.73	0.86	0.73
<b>Profitability (cost)</b>						
Rate of return on farm assets	2.6%	1.6%	2.2%	2.7%	2.9%	4.2%
Rate of return on farm equity	1.7%	-0.7%	0.9%	2.1%	2.1%	4.8%
Operating profit margin	8.0%	5.9%	7.5%	8.6%	7.9%	9.7%
Net farm income	73,709	20,635	56,784	98,941	175,863	437,510
EBITDA	161,736	48,490	125,197	216,537	392,847	765,461
<b>Repayment Capacity</b>						
Capital debt repayment	110,554	43,248	81,333	146,691	254,591	488,731
Capital debt repayment	20,989	9,871	10,701	25,398	46,884	198,342
Replacement margin	-14,261	-2,586	-20,319	-22,978	-25,749	44,797
Term debt coverage ratio	1.23	1.30	1.15	1.21	1.23	1.68
Replacement coverage ratio	0.89	0.94	0.80	0.86	0.91	1.10
<b>Efficiency</b>						
Asset turnover rate (cost)	32.7%	26.6%	29.8%	32.1%	36.1%	43.1%
Operating expense ratio	76.9%	76.0%	75.5%	76.3%	78.1%	78.9%
Depreciation expense ratio	7.9%	7.7%	8.5%	8.3%	7.7%	5.7%
Interest expense ratio	5.0%	7.1%	5.5%	4.7%	4.6%	3.3%
Net farm income ratio	10.5%	10.2%	11.1%	10.8%	9.8%	12.1%



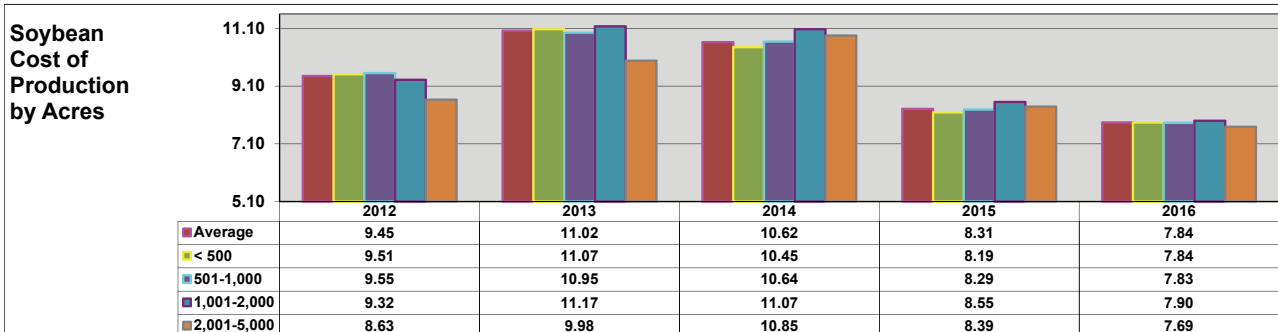
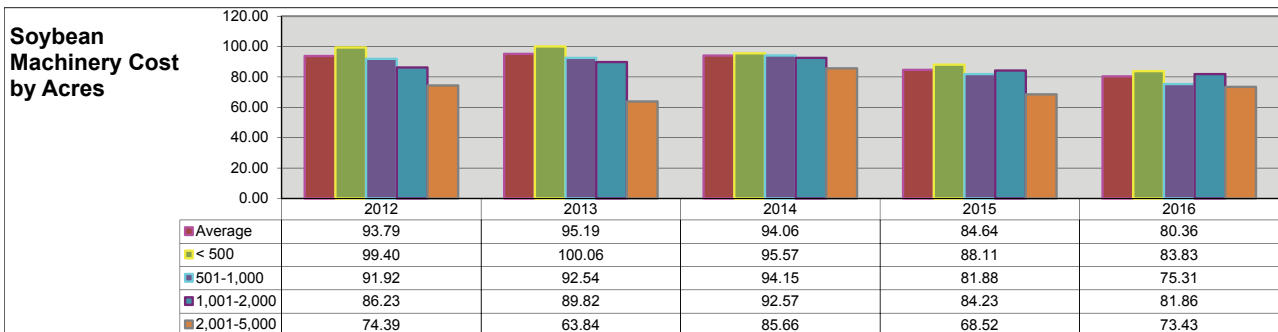
**Crop Enterprise Analysis for Corn on Rented Acres  
Statewide Special Sort for Crops  
Farm Business Management Database  
(Farms Sorted By Total Crop Acres)**

	<b>Avg. Of All Farms</b>	<b>Less Than 500</b>	<b>501 1,000</b>	<b>1,001 2,000</b>	<b>2,001 5,000</b>
Number of farms	1229	980	170	60	18
Yield per acre (bu.)	199.65	195.52	200.55	202.52	206.97
Value per bu.	3.31	3.26	3.31	3.33	3.46
Gross return per acre	676.10	652.39	677.17	695.41	727.61
Direct Expenses					
Seed	113.96	114.21	116.21	113.01	112.52
Fertilizer	130.44	126.22	137.68	134.00	121.72
Crop chemicals	35.18	35.85	35.43	34.38	34.71
Crop insurance	18.74	17.98	18.73	20.86	18.72
Drying expense	9.92	10.04	10.96	8.35	9.71
Storage	2.00	2.18	1.93	0.86	3.82
Fuel & oil	20.65	20.77	20.26	21.56	20.08
Repairs	39.55	43.14	39.67	36.41	32.37
Custom hire	9.68	12.91	7.51	6.35	8.95
Hired labor	4.15	2.25	3.64	4.03	12.26
Land rent	205.71	183.37	208.81	219.87	250.16
Machinery leases	4.76	2.27	3.95	5.29	15.87
Utilities	1.21	1.12	1.08	1.00	2.41
Hauling and trucking	2.06	1.84	2.02	1.66	4.03
Marketing	1.70	1.51	1.50	2.62	1.43
Operating interest	13.16	11.22	12.92	15.48	17.02
Miscellaneous	2.58	2.55	2.87	3.54	2.49
Total direct expenses per acre	615.60	589.71	625.18	629.28	668.28
Return over direct exp per acre	60.50	62.68	52.00	66.13	59.33
Total overhead expenses per acre	104.01	100.25	106.83	114.05	94.40
Total dir & ovhd expenses per acre	719.61	689.96	732.00	743.32	762.68
Net return per acre	<b>-43.51</b>	<b>-37.57</b>	<b>-54.83</b>	<b>-47.91</b>	<b>-35.07</b>
Cost of Production					
Total direct expense per bu.	3.08	3.02	3.12	3.11	3.23
Total dir & ovhd exp per bu.	3.60	3.53	3.65	3.67	3.68
Less govt & other income	3.40	3.33	3.45	3.43	3.46
With labor & management	3.63	3.60	3.69	3.63	3.67
Net value per unit	3.32	3.26	3.32	3.35	3.47
Machinery cost per acre	130.62	134.12	129.43	130.02	126.06



**Crop Enterprise Analysis for Soybeans on Rented Acres**  
**Statewide Special Sort for Crops**  
**Farm Business Management Database**  
**(Farms Sorted By Total Crop Acres)**

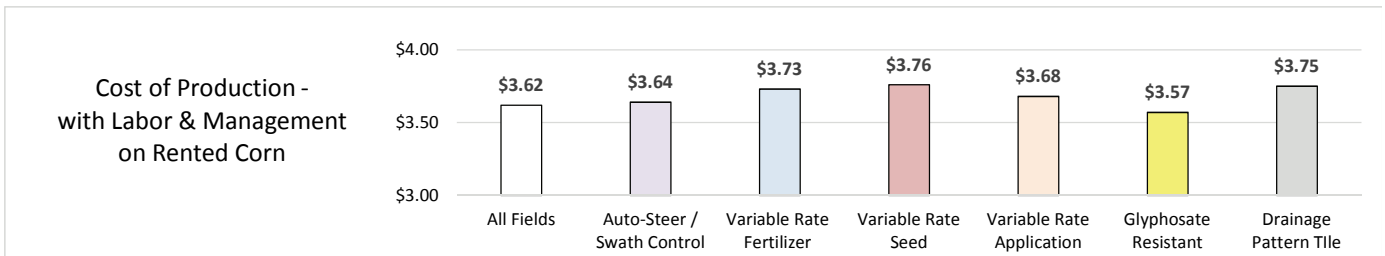
	<b>Avg. Of All Farms</b>	<b>Less Than 500</b>	<b>501 1,000</b>	<b>1,001 2,000</b>	<b>2,001 5,000</b>
Number of farms	1129	911	153	55	10
Yield per acre (bu.)	55.63	57.12	55.53	53.1	53.23
Value per bu.	9.35	9.35	9.33	9.44	9.11
Gross return per acre	531.53	545.75	531.96	512.66	487.46
<b>Direct Expenses</b>					
Seed	58.68	58.66	59.02	58.35	58.36
Fertilizer	23.20	21.77	23.43	26.02	23.58
Crop chemicals	37.80	40.93	37.04	33.32	32.85
Crop insurance	17.26	17.24	18.18	16.74	14.97
Storage	0.79	0.99	0.57	0.91	-
Fuel & oil	12.64	12.30	12.96	12.56	13.83
Repairs	23.92	26.02	22.76	20.99	23.12
Custom hire	6.56	8.76	5.01	4.44	4.32
Hired labor	2.40	2.19	2.66	3.31	-
Land rent	174.92	179.24	181.40	161.94	155.98
Machinery leases	3.34	3.05	2.07	5.96	2.97
Utilities	0.74	0.74	1.03	0.59	-
Hauling and trucking	0.82	1.04	0.79	-	1.11
Marketing	1.29	1.34	1.38	1.23	0.74
Operating interest	7.29	7.02	7.34	8.08	6.57
Miscellaneous	2.49	2.38	2.54	2.98	2.34
Total direct expenses per acre	374.15	383.66	378.20	357.43	340.73
Return over direct exp per acre	157.38	162.08	153.76	155.23	146.73
<b>Total overhead expenses per acre</b>	63.22	61.59	61.94	70.02	59.49
<b>Total dir &amp; ovhd expenses per acre</b>	437.37	445.26	440.14	427.44	400.22
Net return per acre	94.16	100.49	91.82	85.21	87.24
<b>Cost of Production</b>					
Total direct expense per bu.	6.73	6.72	6.81	6.73	6.40
Total dir & ovhd exp per bu.	7.86	7.79	7.93	8.05	7.52
Less govt & other income	7.30	7.25	7.29	7.46	7.17
With labor & management	7.84	7.84	7.83	7.90	7.69
Net value per unit	9.35	9.35	9.33	9.46	9.12
Machinery cost per acre	80.36	83.83	75.31	81.86	73.43



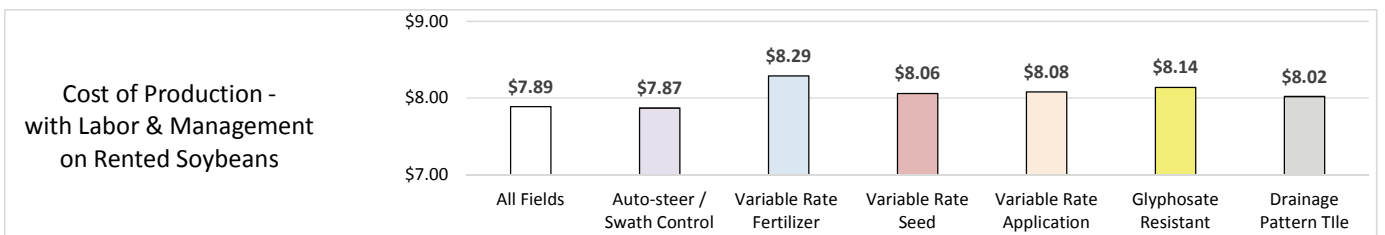
**Financial Standards Measures  
Statewide Special Sort for Crops  
Farm Business Management Database  
Precision Agriculture Technology**

The State Database includes data from over 1,000 farms that produce corn and soybeans, and provides the opportunity to dig deeper into the data using special markers on farms with different practices. Using the FINPACK & RankEM Central software from the Center for Farm Financial Management, specific production practices can be included or excluded from a given sort. This enables selected practices to be compared. Below is a sample of the sort options which provide another comparative look at Minnesota's State FBM Corn and Soybean Data.

Corn Enterprise							
Sort	All Fields	Auto-Steer / Swath Control	Variable Rate Fertilizer	Variable Rate Seed	Variable Rate Application	Glyphosate Resistant	Drainage Pattern Tile
Number of Farms	1366	343	156	89	41	79	140
Yield	200.24	203.90	207.70	206.83	202.94	199.72	207.15
Seed	\$114.36	\$115.11	\$118.07	\$117.71	\$118.53	\$114.78	\$118.66
Fertilizer	\$129.06	\$134.28	\$143.36	\$146.03	\$137.23	\$128.52	\$139.35
Chemical	\$35.43	\$36.74	\$39.86	\$40.98	\$33.32	\$34.75	\$40.92
Fuel & Oil	\$20.38	\$20.30	\$21.54	\$20.33	\$18.58	\$21.52	\$19.22
Repairs	\$39.06	\$39.98	\$40.74	\$38.60	\$39.37	\$41.17	\$42.15
Rent	\$207.27	\$212.44	\$216.80	\$212.31	\$233.58	\$202.58	\$228.31
Interest	\$19.48	\$21.84	\$22.93	\$22.88	\$17.37	\$19.96	\$22.40
Mach and Bldg Depreciation	\$53.51	\$57.78	\$61.39	\$69.63	\$51.03	\$57.08	\$62.94
Net Return	-\$43.49	-\$43.36	-\$67.48	-\$73.77	-\$34.01	-\$29.06	-\$78.68
Cost of Prod - w/ Labor & Mgt	\$3.62	\$3.64	\$3.73	\$3.76	\$3.68	\$3.57	\$3.75
Mach Cost/Ac	\$130.27	\$134.57	\$142.88	\$147.77	\$126.50	\$133.92	\$143.20



Soybean Enterprise							
Sort	All Fields	Auto-steer / Swath Control	Variable Rate Fertilizer	Variable Rate Seed	Variable Rate Application	Glyphosate Resistant	Drainage Pattern Tile
Number of Farms	1255	315	85	50	30	117	109
Yield	56.25	56.28	59.87	57.78	60.54	53.57	61.68
Seed	\$58.31	\$60.25	\$59.26	\$56.19	\$65.27	\$61.37	\$56.22
Fertilizer	\$23.69	\$23.52	\$31.67	\$28.71	\$27.34	\$22.67	\$24.49
Chemical	\$38.16	\$39.89	\$43.95	\$44.57	\$48.66	\$40.76	\$44.95
Fuel & Oil	\$12.75	\$12.13	\$13.01	\$13.00	\$13.10	\$12.36	\$12.29
Repairs	\$24.30	\$22.82	\$25.93	\$23.46	\$26.15	\$22.79	\$26.71
Rent	\$179.45	\$182.17	\$210.42	\$182.18	\$208.36	\$181.91	\$214.21
Interest	\$11.20	\$11.35	\$12.24	\$11.64	\$12.50	\$11.10	\$11.85
Mach and Bldg Depreciation	\$33.24	\$33.72	\$36.11	\$41.31	\$37.62	\$29.96	\$40.75
Net Return	\$93.01	\$89.73	\$69.74	\$86.28	\$77.78	\$72.64	\$96.03
Cost of Prod - w/ Labor & Mgt	\$7.89	\$7.87	\$8.29	\$8.06	\$8.08	\$8.14	\$8.02
Mach Cost/Ac	\$82.15	\$79.88	\$86.94	\$88.77	\$88.90	\$76.91	\$91.00



**Crop Enterprise Analysis for Corn on Rented Acres  
Statewide Special Sort for Crops  
Farm Business Management Database  
Tillage Alternatives**

	Avg. of All Farms	Chisel / Reduced Till	No Till	Strip Till	Ridge Till	All Tillage & Row Width 19" - 25"
Number of farms	1229	814	18	18	8	129
Yield per acre (bu.)	199.65	201.39	169.74	193.62	204.05	196.48
Value per bu.	3.31	3.32	3.32	3.20	3.35	3.22
Gross return per acre	676.10	683.85	568.59	640.22	700.39	656.63
<b>Direct Expenses</b>						
Seed	113.96	116.51	94.78	110.74	115.08	107.96
Fertilizer	130.44	133.03	127.77	136.02	128.93	123.60
Crop chemicals	35.18	34.75	24.16	33.15	39.33	31.77
Crop insurance	18.74	18.93	15.90	16.78	15.83	20.53
Drying expense	9.92	10.32	9.68	9.16	10.35	9.60
Storage	2.00	2.30	2.92	-	1.38	1.39
Fuel & oil	20.65	20.41	12.54	16.67	19.65	20.88
Repairs	39.55	39.32	29.78	36.06	33.18	39.36
Custom hire	9.68	9.63	14.77	8.55	5.18	4.96
Hired labor	4.15	4.86	0.83	2.62	4.79	3.81
Land rent	205.71	212.93	148.99	157.16	201.22	181.31
Machinery leases	4.76	5.22	15.87	1.28	7.36	3.99
Utilities	1.21	1.50	0.81	1.65	3.82	-
Hauling and trucking	2.06	1.57	8.83	1.66	1.71	1.34
Marketing	1.70	1.94	0.69	-	3.66	0.91
Operating interest	13.16	14.04	9.37	6.70	3.68	12.68
Miscellaneous	2.58	2.83	1.32	3.89	6.51	4.19
Total direct expenses per acre	615.60	630.12	519.00	540.44	601.66	568.28
Return over direct exp per acre	60.50	53.73	49.60	99.78	98.72	88.36
Total overhead expenses per acre	104.01	102.98	59.08	91.59	115.10	118.09
Total dir & ovhd expenses per acre	719.61	733.10	578.07	632.03	716.76	686.36
Net return per acre	-43.51	-49.25	-9.48	8.20	-16.37	-29.73
<b>Cost of Production</b>						
Total direct expense per bu.	3.08	3.13	3.06	2.79	3.23	2.89
Total dir & ovhd exp per bu.	3.60	3.64	3.41	3.26	3.68	3.49
Less govt & other income	3.40	3.42	3.21	3.05	3.46	3.25
With labor & management	3.63	3.66	3.42	3.36	3.67	3.53
Net value per unit	3.32	3.33	3.32	3.22	3.47	3.23
Machinery cost per acre	130.62	130.44	105.43	104.64	126.06	132.33

