

*Minnesota State Colleges and Universities*

**State  
Farm Business Management Program  
Database**

*19th Annual*

***Dairy Farm Sort - 2015***

**Financial Sort By Gross Revenue**

\$100,001 to \$250,000  
\$250,001 to \$500,000  
\$500,001 to \$1,000,000  
\$1,000,000 to \$2,000,000  
Over \$2,000,000

**Enterprise Sort By Herd Size**

Up to 50 Cows  
51 to 100 Cows  
101 to 200 Cows  
201 to 500 Cows  
Over 500 Cows

\*\*\* Including selected sorts comparing production practices \*\*\*

Including 5-yr & 20-yr trend of selected data from the statewide average

MnSCU Community and Technical Colleges with FBM programs providing data for this report:

Alexandria	Ridgewater
Central Lakes	Riverland
Minnesota West	St. Cloud
Northland	South Central

April, 2016



A MEMBER OF THE MINNESOTA STATE COLLEGES  
AND UNIVERSITIES SYSTEM

In Cooperation with the Center for Farm Financial Management University of Minnesota  
Compiled by DelRay Lecy

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Visit the Farm Business Management Program Website at: [www.fbm.mnscu.edu](http://www.fbm.mnscu.edu)

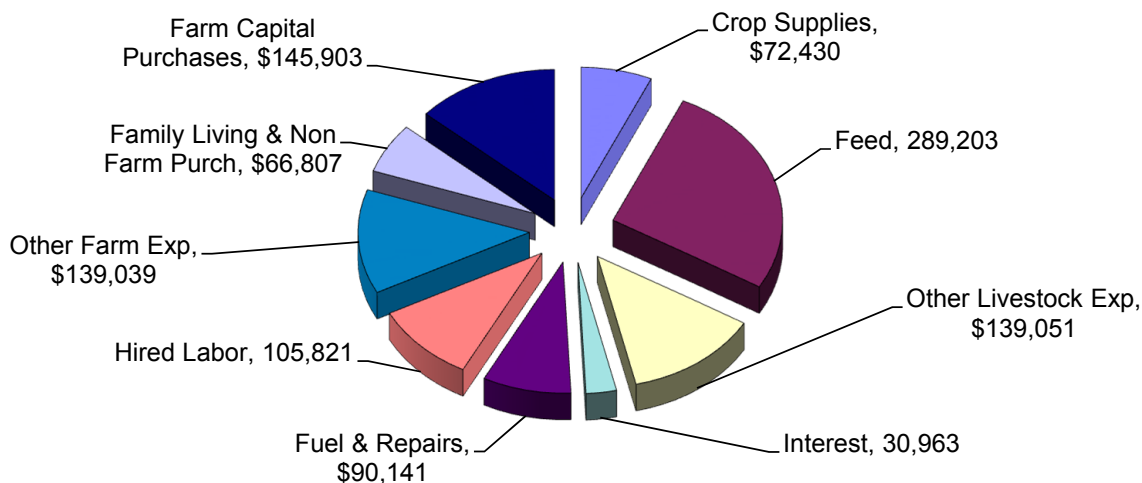
**General Financial Summary**  
**Farm Business Management Education Programs**  
**Minnesota State Colleges and Universities**  
**(Dairy Farms Sorted by Gross Farm Income)**

	Avg. Of All Farms	100,001 - 250,000	250,001 - 500,000	500,001 - 1,000,000	1,000,001 - 2,000,000	Over 2,000,000
Number of farms	339	48	100	86	56	37
<b><u>Income Statement</u></b>						
Gross cash farm income	1,009,283	183,448	368,290	701,855	1,451,017	4,164,564
Total cash farm expense	866,650	158,114	300,819	588,135	1,255,844	3,633,388
Net cash farm income	142,633	25,334	67,471	113,720	195,173	531,177
Inventory change	-18,108	8,236	-6,228	-13,442	-27,781	-91,067
Depreciation	-54,862	-10,254	-22,411	-42,609	-83,820	-201,194
Net farm income from operations	69,664	23,316	38,831	57,669	83,572	238,916
Gain or loss on capital sales	440	-94	379	-114	80	3,542
Average net farm income	70,104	23,221	39,211	57,555	83,652	242,458
Median net farm income	42,043	22,520	42,100	49,900	87,922	148,991
<b><u>Profitability (cost)</u></b>						
Rate of return on assets	2.1%	0.9%	1.9%	2.0%	2.0%	2.6%
Rate of return on equity	0.8%	-2.1%	-0.3%	0.3%	0.0%	2.1%
Operating profit margin	5.5%	3.2%	6.2%	5.9%	5.2%	5.5%
Asset turnover rate	38.9%	28.4%	30.0%	33.8%	37.9%	47.4%
<b><u>Liquidity &amp; Repayment (end of year)</u></b>						
Current assets	327,095	71,897	139,228	260,344	488,767	1,169,646
Current liabilities	175,983	45,359	89,685	129,743	278,745	580,260
Current ratio	1.86	1.59	1.55	2.01	1.75	2.02
Working capital	151,112	26,538	49,543	130,602	210,022	589,386
Working capital to gross inc	15.0%	13.8%	13.2%	18.4%	14.3%	14.4%
Term debt coverage ratio	1.00	1.07	0.90	1.04	0.91	1.08
Replacement coverage ratio	0.87	0.99	0.80	0.86	0.80	0.94
Term debt to EBITDA	3.81	4.51	4.56	4.23	4.41	2.77
<b><u>Solvency (end of year at cost)</u></b>						
Number of farms	339	48	100	86	56	37
Total assets	2,000,394	589,860	1,038,782	1,683,485	2,956,258	6,248,215
Total liabilities	822,116	274,033	496,710	726,651	1,336,038	2,071,499
Net worth	1,178,278	315,826	542,072	956,833	1,620,219	4,176,716
Net worth change	16,393	26,700	8,943	19,085	18,389	7,826
Farm debt to asset ratio	43%	51%	52%	46%	46%	34%
Total debt to asset ratio	41%	46%	48%	43%	45%	33%
Change in earned net worth %	1%	9%	2%	2%	1%	0%
<b><u>Solvency (end of year at market)</u></b>						
Number of farms	339	48	100	86	56	37
Total assets	2,414,806	814,381	1,373,032	2,123,540	3,497,568	6,959,287
Total liabilities	1,004,725	338,197	601,849	876,053	1,601,302	2,614,280
Net worth	1,410,081	476,184	771,183	1,247,487	1,896,265	4,345,007
Total net worth change	49,631	52,101	28,034	41,666	64,125	106,202
Farm debt to asset ratio	43%	44%	47%	44%	47%	38%
Total debt to asset ratio	42%	42%	44%	41%	46%	38%
Change in total net worth %	4%	12%	4%	3%	4%	3%
<b><u>Nonfarm Information</u></b>						
Net nonfarm income	14,688	21,217	15,981	14,696	8,434	9,940
Farms reporting living expenses	49	10	19	14	2	3
Total family living expense	53,492	34,819	49,890	57,530	75,094	121,332
Total living, invest, & capital	64,486	42,367	57,393	69,583	73,719	169,716
<b><u>Crop Acres</u></b>						
Total crop acres	360	144	212	291	538	1,017
Total crop acres owned	124	75	100	121	184	187
Total crop acres cash rented	234	65	108	166	354	830
Total crop acres share rented	3	4	3	5	-	-
Machinery value per crop acre	1,220	753	962	1,223	1,221	1,469

**Financial Standards Measures**  
**Farm Business Management Education Programs**  
**Minnesota State Colleges and Universities**  
**(Dairy Farms Sorted by Gross Farm Income)**

	Avg. Of All Farms	100,000 - 250,000	250,001 - 500,000	500,001 - 1,000,000	1,000,000 - 2,000,000	Over 2,000,000
Number of farms	339	48	100	86	56	37
<b><u>Liquidity</u></b>						
Current ratio	1.86	1.59	1.55	2.01	1.75	2.02
Working capital	151,112	26,538	49,543	130,602	210,022	589,386
Working capital to gross inc	15.0%	13.8%	13.2%	18.4%	14.3%	14.4%
<b><u>Solvency (market)</u></b>						
Farm debt to asset ratio	43%	44%	47%	44%	47%	38%
Farm equity to asset ratio	57%	56%	53%	56%	53%	62%
Farm debt to equity ratio	0.76	0.80	0.89	0.77	0.88	0.62
<b><u>Profitability (cost)</u></b>						
Rate of return on farm assets	2.1%	0.9%	1.9%	2.0%	2.0%	2.6%
Rate of return on farm equity	0.8%	-2.1%	-0.3%	0.3%	0.0%	2.1%
Operating profit margin	5.5%	3.2%	6.2%	5.9%	5.2%	5.5%
Net farm income	70,104	23,221	39,211	57,555	83,652	242,458
EBIDTA	155,817	42,854	79,388	127,744	222,916	516,278
<b><u>Repayment Capacity</u></b>						
Capital debt repayment capacity	101,647	30,334	47,823	81,047	148,535	339,541
Capital debt repayment margin	130	1,880	-5,421	2,851	-14,753	25,110
Replacement margin	-14,731	-367	-12,137	-12,771	-36,134	-20,576
Term debt coverage ratio	1.00	1.07	0.90	1.04	0.91	1.08
Replacement coverage ratio	0.87	0.99	0.80	0.86	0.80	0.94
<b><u>Efficiency</u></b>						
Asset turnover rate (cost)	38.9%	28.4%	30.0%	33.8%	37.9%	47.4%
Operating expense ratio	84.6%	77.8%	78.8%	82.0%	84.8%	87.4%
Depreciation expense ratio	5.4%	5.3%	6.0%	6.0%	5.7%	4.9%
Interest expense ratio	3.1%	4.8%	4.8%	3.9%	3.8%	1.9%
Net farm income ratio	6.9%	12.0%	10.5%	8.1%	5.7%	5.9%

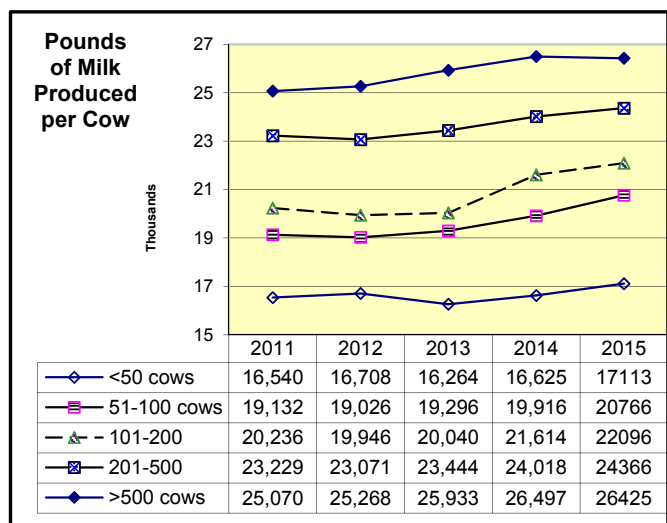
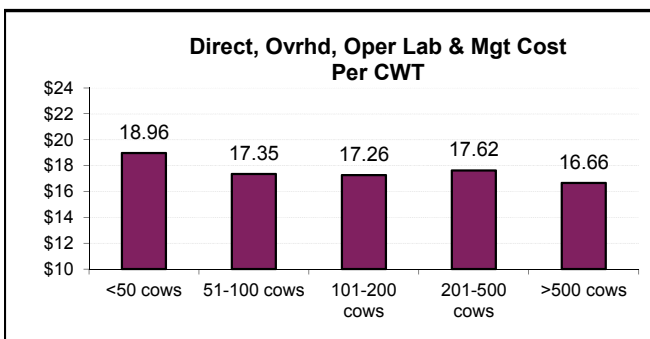
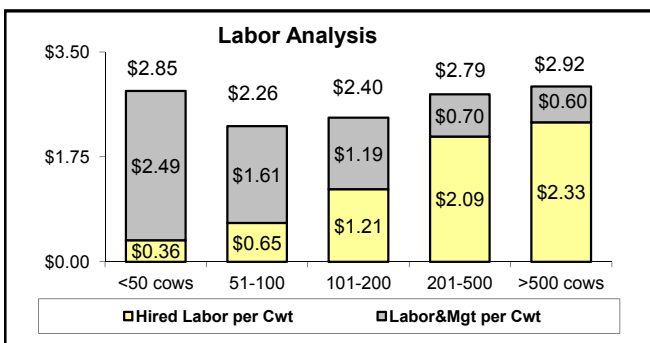
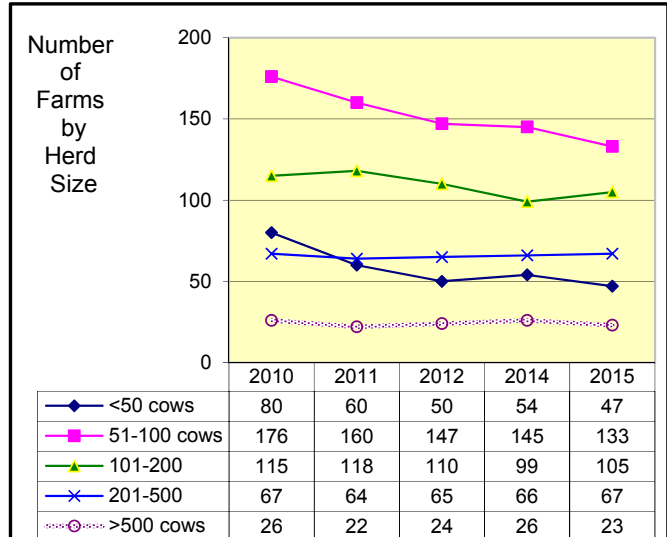
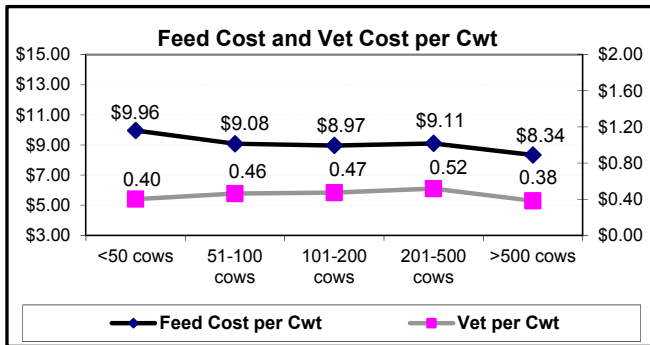
**Average Dollars Spent by a Minnesota Dairy Farm totals \$1,079,358**



<i>State Database</i> <b>Dairy Cow Enterprise</b> <i>(Sorted by Herd Size)</i>	<b>Sorted by Average Number of Dairy Cows</b>					
	Average	Up to 50 Cows	51 to 100 Cows	101 to 200 Cows	201 To 500 Cows	Over 500 Cows
	***** Per Cow *****					
<b>Number Of Farms</b>	<b>375</b>	<b>47</b>	<b>133</b>	<b>105</b>	<b>67</b>	<b>23</b>
Milk sold (hd)	4,240.55	3,102.75	3,664.28	3,923.25	4,309.53	4,736.26
Dairy Calves sold (hd)	139.02	92.44	113.82	110.98	123.23	187.71
Transferred out (hd)	47.53	54.89	69.28	49.43	75.82	9.34
Cull sales (hd)	353.86	271.89	343.15	323.95	345.20	393.61
Other income	51.40	47.17	43.85	30.52	68.60	52.82
Purchased (hd)	-26.61	-76.48	-54.79	-44.46	-22.09	-2.39
Transferred in (hd)	-88.61	-60.74	-52.04	-63.40	-101.45	-111.76
Inventory change (hd)	49.32	100.86	44.13	74.25	48.69	31.21
Dairy repl net cost	-571.70	-535.91	-578.36	-591.29	-550.13	-579.01
<b>Gross margin</b>	<b>4,195.60</b>	<b>2,996.86</b>	<b>3,593.32</b>	<b>3,814.52</b>	<b>4,298.91</b>	<b>4,718.14</b>
<b>Direct Expenses</b>						
Protein Vit Minerals (lb.)	773.51	440.62	627.67	616.20	788.00	957.12
Complete Ration (lb.)	292.51	264.92	213.99	363.72	365.49	212.67
Corn (bu.)	239.05	196.69	213.37	205.90	243.39	271.99
Corn Silage (lb.)	326.38	241.76	277.72	284.12	320.94	388.30
Hay, Alfalfa (lb.)	186.28	294.61	308.64	238.20	163.60	110.07
Haylage, Alfalfa (lb.)	140.99	129.50	108.79	112.31	163.74	153.82
Other feed stuffs (lb)	144.37	135.76	134.60	161.13	173.95	110.19
Breeding fees	53.04	34.04	50.10	46.46	52.90	60.45
Veterinary	107.77	68.75	96.13	104.67	126.03	100.97
BST	48.95	4.62	13.01	18.14	57.06	81.45
Supplies	259.70	238.05	255.97	232.75	259.11	281.77
Fuel & oil	72.30	58.16	57.92	70.96	74.80	78.33
Repairs	157.39	110.62	134.01	141.60	161.55	178.24
Custom hire	61.34	18.85	43.79	51.81	58.37	81.79
Hired labor	218.09	11.09	49.27	132.96	293.61	295.27
Marketing, Hauling, & Trucking	41.51	70.08	60.35	50.04	29.65	36.32
Bedding	78.66	34.24	58.31	79.08	90.82	79.55
Total direct expenses	3201.84	2352.35	2703.64	2910.03	3423.00	3478.29
Return over direct expense	993.76	644.51	889.69	904.48	875.91	1239.85
<b>Overhead Expenses</b>						
Hired labor	208.64	50.39	85.40	134.41	215.28	319.50
Building leases	49.42	29.58	13.92	43.62	53.01	67.19
Utilities	71.83	97.75	93.68	74.85	65.50	64.01
Interest	79.56	62.29	85.89	97.71	90.00	56.18
Mach & bldg depreciation	169.84	119.35	162.91	182.64	168.03	170.23
Miscellaneous	103.37	107.69	121.69	106.71	107.91	88.41
Total overhead expenses	682.65	467.03	563.49	639.93	699.73	765.52
Total dir & ovhd expenses	3884.50	2819.38	3267.13	3549.97	4122.72	4243.80
<b>Net return</b>	<b>311.11</b>	<b>177.47</b>	<b>326.20</b>	<b>264.55</b>	<b>176.18</b>	<b>474.34</b>
Labor & management charge	216.61	426.10	335.07	263.53	171.63	158.13
Net return over lbr & mgt	94.50	-248.63	-8.87	1.02	4.55	316.20
<b>Cost of Production per CWT</b>						
Total direct expense per cwt.	13.43	13.75	13.02	13.17	14.05	13.16
Total dir& ovhd expense per cwt.	16.29	16.48	15.73	16.07	16.92	16.06
With other revenue adjustments	16.61	17.29	16.21	16.65	17.15	16.21
With labor and management	17.52	19.78	17.82	17.84	17.86	16.81
Est. labor hours per unit	41.14	48.23	38.86	35.03	41.46	45.34
<b>Other Information</b>						
<b>Avg. number of Cows</b>	<b>186.3</b>	<b>39.4</b>	<b>73.6</b>	<b>142</b>	<b>314</b>	<b>967.6</b>
Milk produced per Cow	23,840	17,113	20,766	22,096	24,366	26,425
Culling percentage	30.3	24.5	29.0	27.8	29.8	33.6
Turnover rate	37.2	33.0	36.3	34.3	37.0	40.2
Percent of barn capacity	111.1	91.2	105.5	108.4	117	112.2
Feed cost per day	5.76	4.67	5.16	5.43	6.08	6.04
Feed cost per cwt of milk	8.82	9.96	9.08	8.97	9.11	8.34
Feed cost per Cow	2,103.09	1,703.85	1,884.78	1,981.56	2,219.11	2,204.16
Avg. milk price per cwt.	17.93	18.29	17.79	17.86	17.92	18.03
Milk price / feed margin	9.11	8.33	8.71	8.89	8.81	9.68

## Selected Dairy Enterprise Factors from the Farm Business Management Program Database

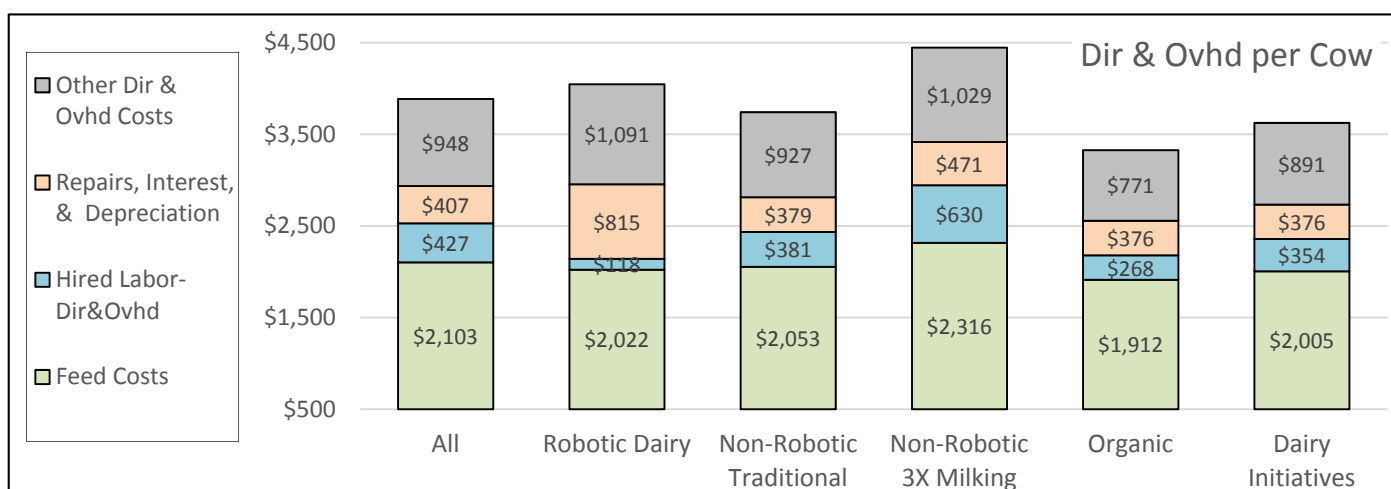
Herd Size	State Ave.	up to 50 cows	51-100 cows	101-200 cows	201-500 cows	over 500 cows
Number of Farms	375	47	133	105	67	23
Ave # of Cows	186.3	39.4	73.6	142.0	314.0	967.6
Milk Prod. Per Cow	23840	17,113	20,766	22,096	24,366	26,425
Feed Cost per Cwt	\$8.82	\$9.96	\$9.08	\$8.97	\$9.11	\$8.34
Interest per Cwt	\$0.33	\$0.36	\$0.41	\$0.44	\$0.37	\$0.21
Vet per Cwt	\$0.45	\$0.40	\$0.46	\$0.47	\$0.52	\$0.38
Hired Labor per Cwt	\$1.79	\$0.36	\$0.65	\$1.21	\$2.09	\$2.33
Deprec/Lease per Cwt	\$0.92	\$0.87	\$0.85	\$1.02	\$0.91	\$0.90
Milk Price per Cwt	\$17.93	\$18.29	\$17.79	\$17.86	\$17.92	\$18.03
Dir & Ovhd Cost per Cwt	\$16.29	\$16.48	\$15.73	\$16.07	\$16.92	\$16.06
Return over Dir & Ovhd per Cow	\$311	\$177	\$326	\$265	\$176	\$474
Herd Profit over Dir&Ovhd	\$57,960	\$6,992	\$24,008	\$37,566	\$55,321	\$458,971
Labor&Mgt per Cwt	\$0.91	\$2.49	\$1.61	\$1.19	\$0.70	\$0.60
Net per Cow after Labor&Mgt	\$95	-\$249	-\$9	\$1	\$5	\$316
Herd Profit over Labor&Mgt	\$17,605	-\$9,796	-\$653	\$145	\$1,429	\$305,965



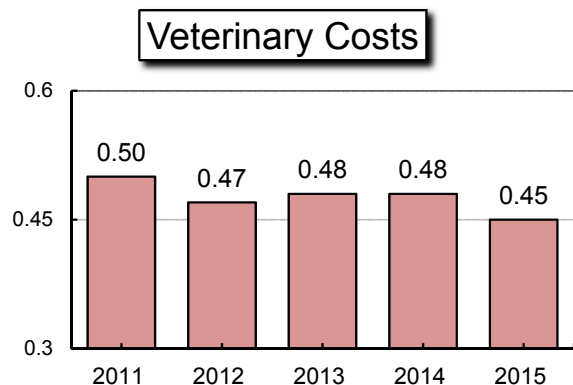
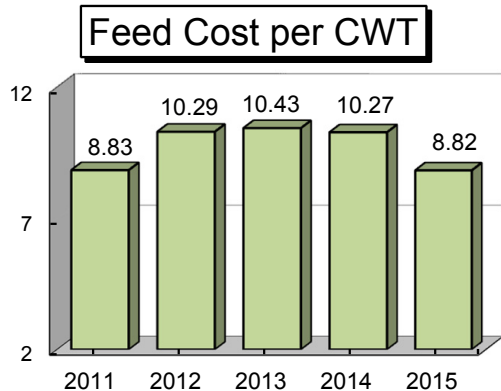
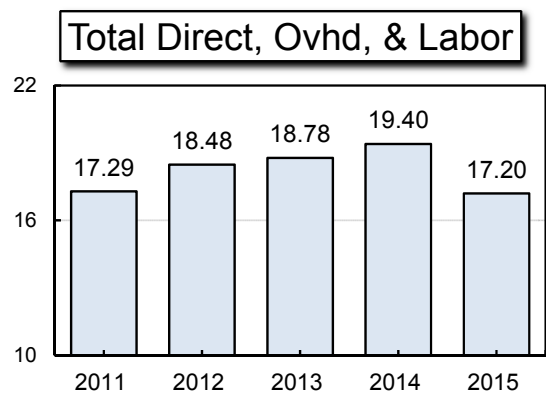
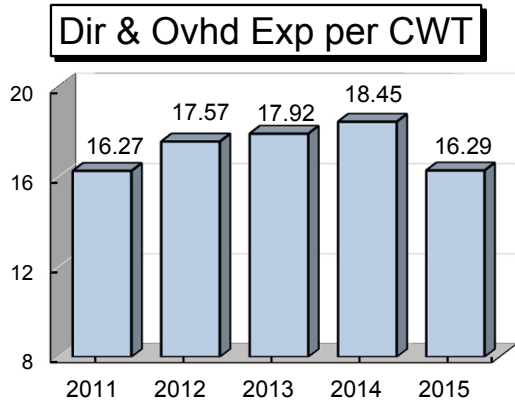
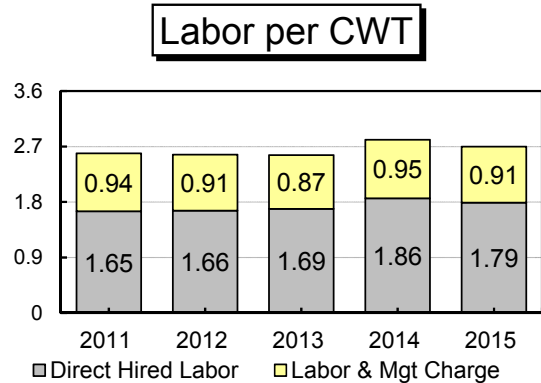
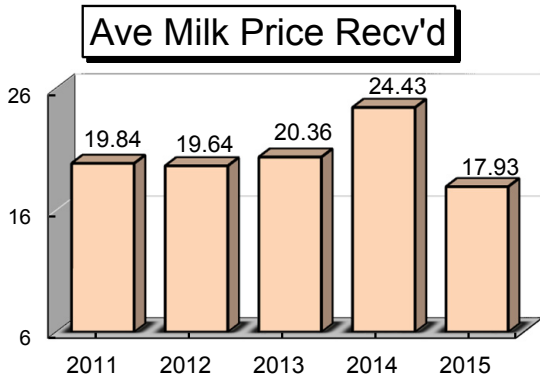
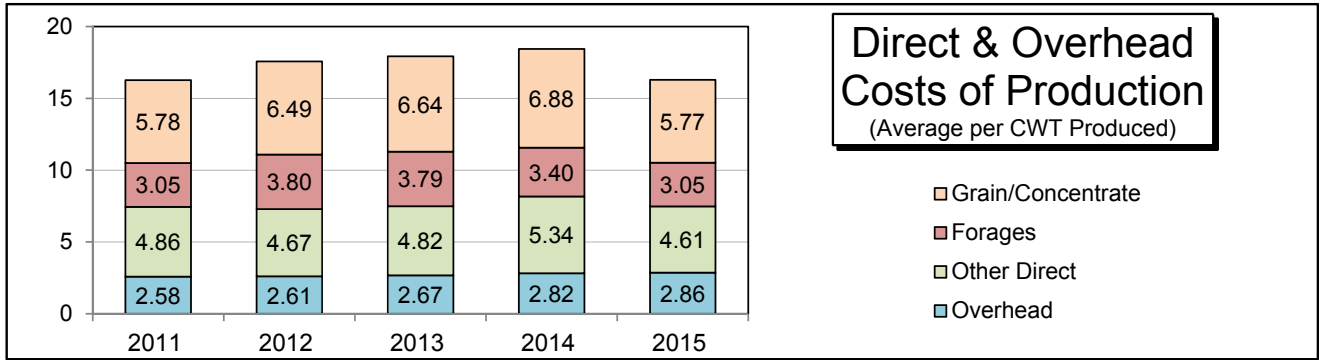
## Additional Selected Sorts within the Dairy Enterprise

The State Database includes data from 375 dairy farms 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 Dairy Data.

Sort - Includes	All	Robotic Dairy	Non-Robotic Traditional	Non-Robotic 3X Milking	Organic	Dairy Initiatives
Sort - Excludes	NA	All non-robotic herds	Organic, Org. Transition, 3X Milking, Rot. Grazing, Robotics	Organic, Org. Transition, Rot. Grazing, Robotics, non-3X milk herds	All non-organic herds	All non-Dairy Initiative herds
Number of Farms	375	10	310	34	13	119
Number of Cows	186.3	132.1	165.7	449.9	101.2	158.4
Milk Produced per Cow	23,840	25,062	23,381	26,355	14,389	22,671
Milk Sold	\$4,240.55	\$4,139.40	\$4,112.80	\$4,675.56	\$4,797.07	\$4,020.94
Gross Margin	\$4,195.60	\$4,022.41	\$4,038.99	\$4,732.37	\$4,779.43	\$4,004.49
Feed Cost per Cow	\$2,103.09	\$2,022.41	\$2,053.46	\$2,316.20	\$1,912.28	\$2,004.56
Veterinary	\$107.77	\$135.37	\$100.80	\$136.07	\$38.21	\$104.41
BST	\$48.95	\$14.45	\$45.36	\$69.93	\$0.00	\$35.28
Repairs	\$157.39	\$197.43	\$146.38	\$191.23	\$174.55	\$153.65
Hired Labor-Dir&Ovhd	\$426.73	\$118.27	\$381.12	\$629.54	\$268.27	\$353.72
Interest	\$79.56	\$249.27	\$79.88	\$66.11	\$66.46	\$75.39
Depreciation	\$169.84	\$367.94	\$153.22	\$213.74	\$134.96	\$147.00
Total Dir & Ovhd Cost	\$3,884.50	\$4,046.10	\$3,741.06	\$4,446.00	\$3,327.62	\$3,625.08
Net Return	\$311.11	-\$23.69	\$297.93	\$286.37	\$1,451.81	\$379.40
Cost of Prod - O&D	\$16.29	\$16.14	\$16.00	\$16.87	\$23.13	\$15.99
Culling Percentage	30.3	25.5	30.2	32.4	20.8	29.3
Turnover Rate	37.2	31.6	37.5	38.2	25.6	36.0
Feed Cost per CWT	\$8.82	\$8.07	\$8.78	\$8.79	\$13.29	\$8.84
Average Milk Price	\$17.93	\$16.64	\$17.69	\$18.01	\$34.47	\$17.93



## Summary of Selected Dairy Enterprise Factors - Average Farm Data





## A Twenty Year History of Selected Dairy Information

