



MINNESOTA STATE

Farm Business Management Program Database

20th Annual

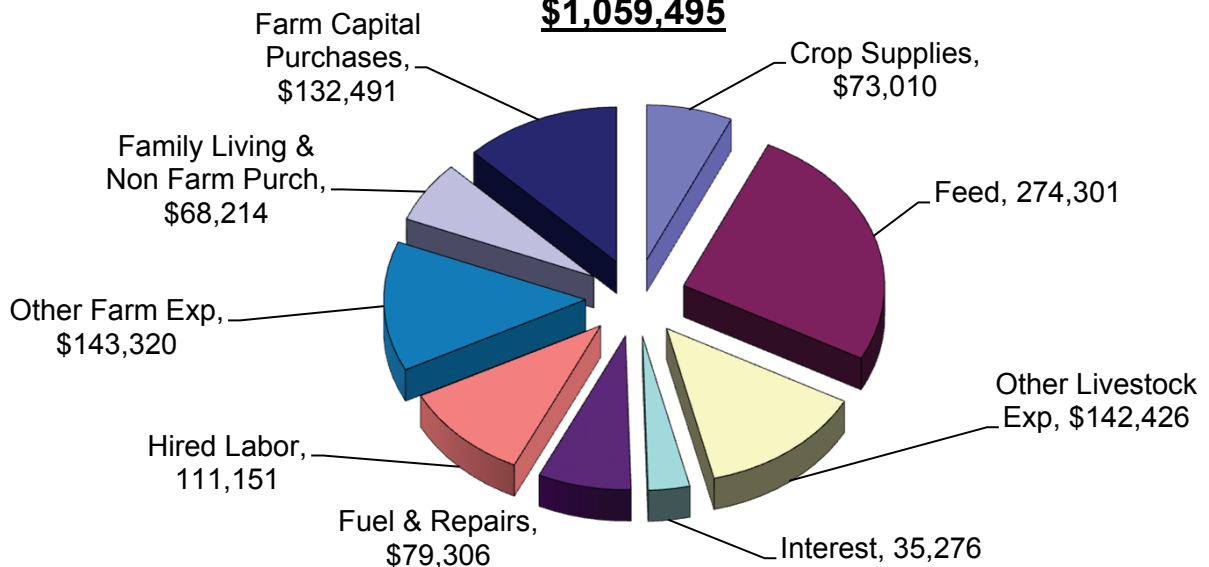
Dairy Farm Sort - 2016

*Financial Sort By Gross Revenue & Enterprise Sort Data by Herd Size
Selected Production Practice Sorts, 5-yr & Long Term Trends of Selected Data*

April, 2017

Average Dollars Spent by a Minnesota Dairy Farm totals

\$1,059,495



In Cooperation with the Center for Farm Financial Management, University of Minnesota
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A Brief Overview of 2016

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. Over 30% of all farms suffered negative net returns in 2016.

Livestock producers fared even worse with a second consecutive year of low milk, pork and beef prices. Lower crop prices translated into lower feed costs for livestock producers but that did not help Minnesota producers enough to improve profits in 2016. For the second consecutive year, prices for every major livestock commodity decreased.

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.

The median net farm income for all livestock producers for the last five years was: \$21,676 (2016), \$24,647 (2015); \$110,634 (2014); \$44,755 (2013); and \$127,626 (2012).

Dairy farms profits declined again in 2016. The median dairy farm earned \$31,563, down from just over \$45,000 in 2015.

- The average price received for milk decreased by 8% percent, from \$17.93 per hundred pounds in 2015 to \$16.57.
- With the average costs of production around \$16.00, dairy producers netted less than 60 cents per hundred pounds of production, or slightly over \$135 per cow.
- The average dairy farm milked 195 cows, which is up from an average of 186 cows in 2015.
- The average milk production was 24,390 pounds, also up from 23,840 pounds in 2015.

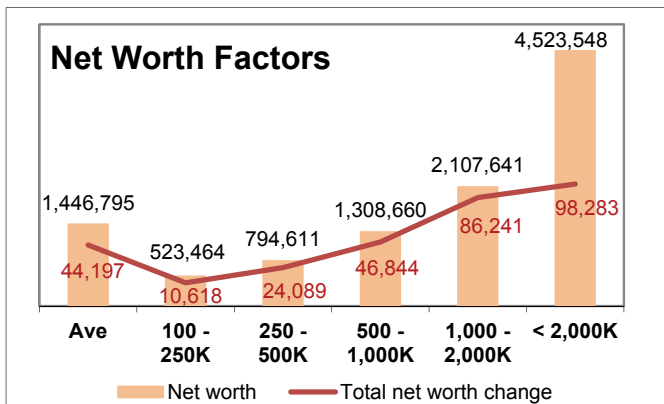
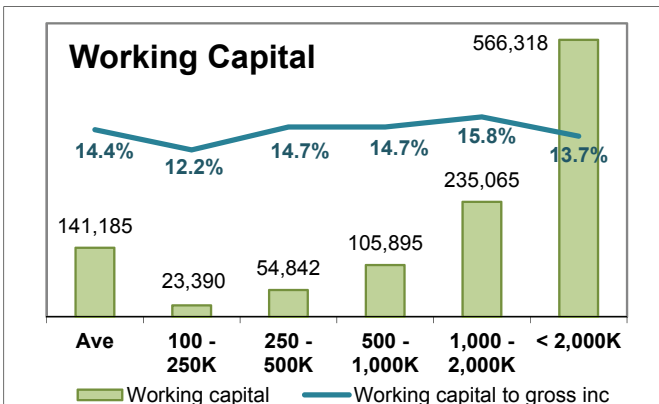
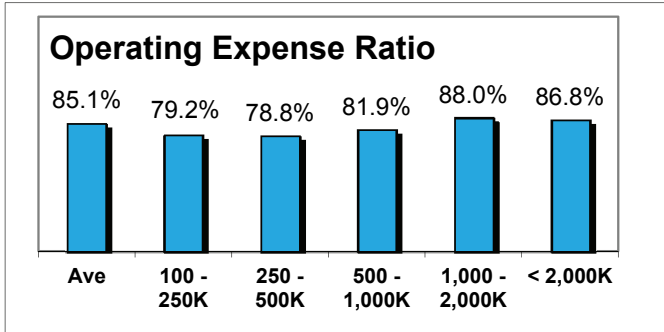
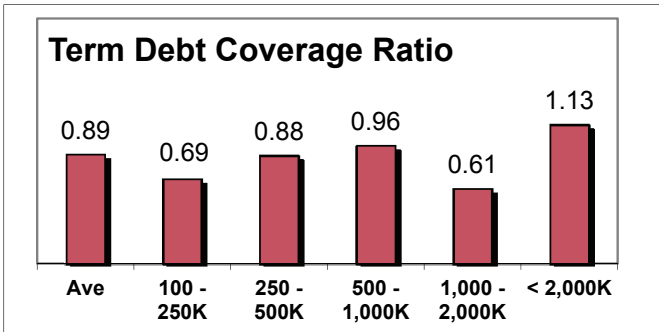
This special report consists of data from all herds included in the State FBM Database. It is designed to provide an overview of both the whole farm financial picture for dairy operations, and provide insight into the dairy enterprise based on herd size. Pages 1 and 2 provide financial information based on the size of the business using Gross Farm Income. Pages 3 and 4 provide enterprise information for the various herd sizes. Using the average Gross Margin per dairy cow of \$3,800 to \$4,000 in 2016, one can compare to the whole farm financial data for a given farm size. The 5 columns of the dairy enterprise, listed by number of cows, generally equates to the 5 columns of whole farm financial data, listed by Gross Farm Income.

General Financial Summary Farm Business Management Program Database (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	349	66	96	85	58	35
<u>Income Statement</u>						
Gross cash farm income	954,698	188,143	360,158	706,321	1,453,146	4,039,181
Total cash farm expense	858,789	160,005	307,842	617,709	1,346,591	3,671,180
Net cash farm income	95,909	28,138	52,316	88,611	106,555	368,001
Average net farm income	54,340	16,743	35,854	44,246	38,493	244,084
Median net farm income	31,867	22,162	31,563	48,471	36,491	157,296
<u>Solvency (end of year at market)</u>						
Total assets	2,552,436	926,021	1,404,896	2,356,201	3,792,676	7,736,071
Total liabilities	1,105,641	402,557	610,285	1,047,541	1,685,035	3,212,522
Net worth	1,446,795	523,464	794,611	1,308,660	2,107,641	4,523,548
Total net worth change	44,197	10,618	24,089	46,844	86,241	98,283
<u>Nonfarm Information</u>						
Net nonfarm income	15,111	18,527	17,157	18,922	8,432	3,442
Farms reporting living expenses	57	11	26	11	6	2
Total family living expense	50,454	38,493	50,694	58,259	58,871	-
Total living, invest, & capital	58,854	38,347	56,418	79,368	74,904	-

Financial Standards Measures
Farm Business Management Program Database
(Dairy Farms Sorted by Gross Farm Income)

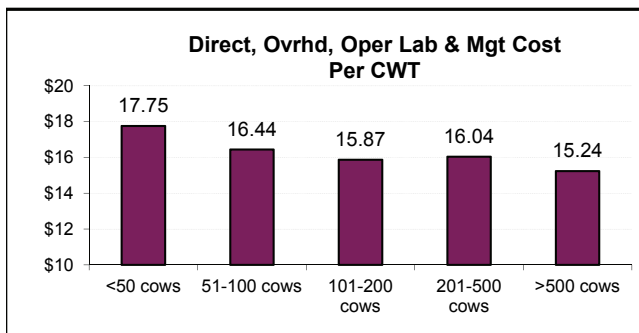
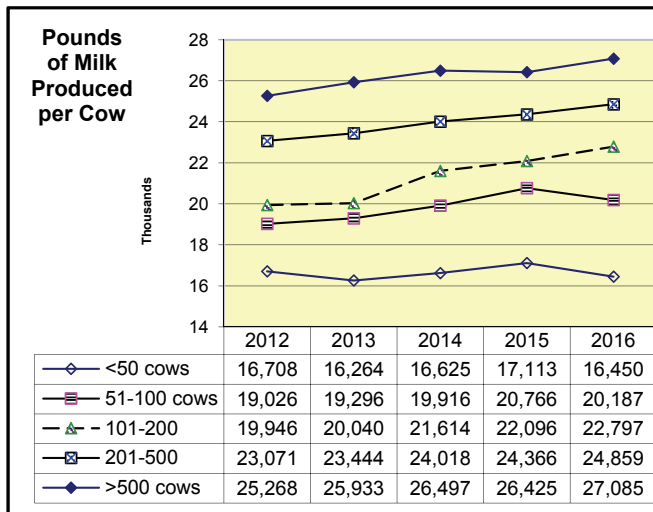
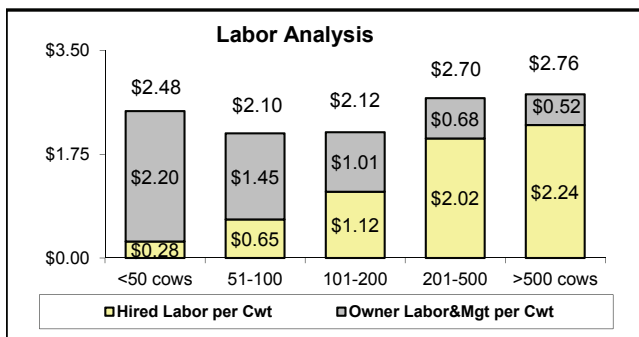
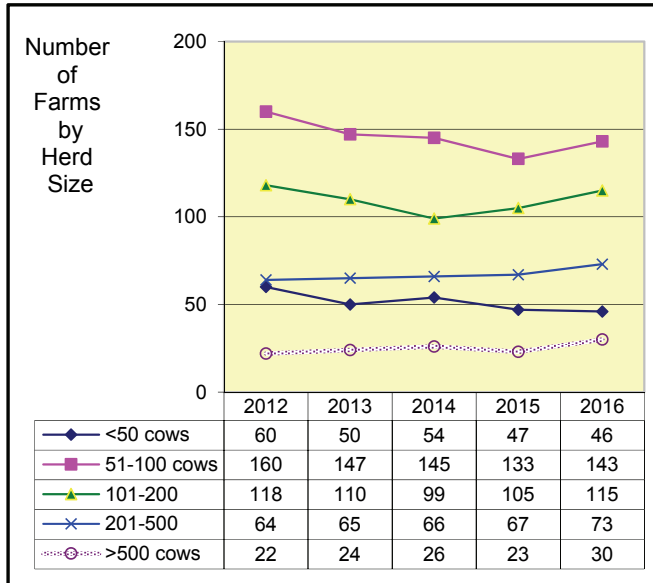
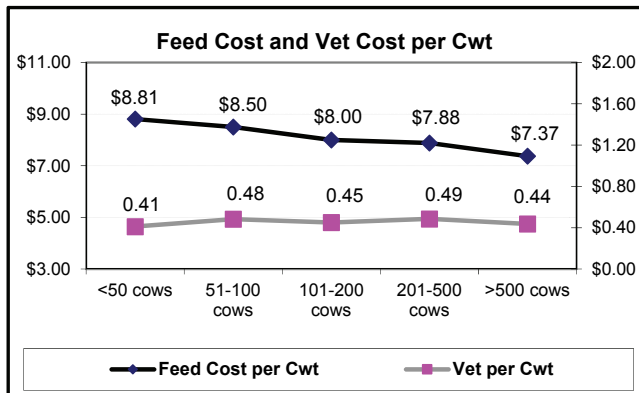
	Avg. Of <u>All Farms</u>	100,000 - <u>250,000</u>	250,001 - <u>500,000</u>	500,001 - <u>1,000,000</u>	<u>1,000,000 -</u> <u>2,000,000</u>	Over <u>2,000,000</u>
Number of farms	349	66	96	85	58	35
<u>Liquidity</u>						
Current ratio	1.71	1.42	1.58	1.73	1.76	1.76
Working capital	141,185	23,390	54,842	105,895	235,065	566,318
Working capital to gross inc	14.4%	12.2%	14.7%	14.7%	15.8%	13.7%
<u>Solvency (market)</u>						
Farm debt to asset ratio	45%	46%	47%	47%	45%	42%
Farm equity to asset ratio	55%	54%	53%	53%	55%	58%
Farm debt to equity ratio	0.82	0.86	0.90	0.89	0.83	0.73
<u>Profitability (cost)</u>						
Rate of return on farm assets	1.5%	0.0%	1.4%	1.5%	0.1%	2.8%
Rate of return on farm equity	-0.7%	-4.8%	-1.2%	-1.3%	-3.3%	2.1%
Operating profit margin	4.0%	-0.2%	4.9%	4.9%	0.2%	6.4%
Net farm income	54,340	16,743	35,854	44,246	38,493	244,084
EBIDTA	145,683	40,048	79,135	130,814	178,436	547,211
<u>Repayment Capacity</u>						
Capital debt repayment capacity	90,960	21,932	49,107	85,957	98,391	357,866
Capital debt repayment margin	-11,281	-9,789	-6,703	-3,521	-62,904	39,799
Replacement margin	-29,118	-13,819	-13,882	-22,128	-88,481	-22,103
Term debt coverage ratio	0.89	0.69	0.88	0.96	0.61	1.13
Replacement coverage ratio	0.76	0.61	0.78	0.80	0.53	0.94
<u>Efficiency</u>						
Asset turnover rate (cost)	36.1%	26.6%	27.8%	30.8%	35.8%	44.6%
Operating expense ratio	85.1%	79.2%	78.8%	81.9%	88.0%	86.8%
Depreciation expense ratio	5.8%	6.4%	6.5%	7.2%	6.1%	4.8%
Interest expense ratio	3.7%	5.7%	5.0%	5.0%	3.8%	2.5%
Net farm income ratio	5.6%	8.7%	9.6%	6.1%	2.6%	5.9%



State Database Dairy Cow Enterprise (Sorted by Herd Size)	Sorted by Average Number of Dairy Cows					
	Average	Up to 50 Cows	51 to 100 Cows	101 to 200 Cows	201 To 500 Cows	Over 500 Cows
	***** Per Cow *****					
Number Of Farms	407	46	143	115	73	30
Milk sold (hd)	4,006.88	2,869.62	3,359.11	3,764.49	4,049.43	4,439.80
Dairy Calves sold (hd)	68.64	59.88	58.53	59.36	67.15	79.92
Transferred out (hd)	41.53	63.62	67.10	38.30	44.04	30.02
Cull sales (hd)	243.13	173.99	220.30	239.13	247.07	255.49
Other income	44.76	47.04	38.12	34.09	60.20	40.48
Purchased (hd)	-36.70	-124.21	-74.52	-56.54	-20.46	-18.31
Transferred in (hd)	-78.31	-77.21	-93.20	-59.38	-86.73	-76.81
Inventory change (hd)	52.14	75.42	69.83	54.22	29.21	62.00
Dairy repl net cost	-555.76	-516.32	-493.87	-518.51	-537.26	-620.18
Gross margin	3,790.19	2,575.08	3,155.77	3,563.24	3,856.83	4,193.33
Direct Expenses						
Protein Vit Minerals (lb.)	649.42	335.41	611.97	595.22	637.54	726.72
Complete Ration (lb.)	325.36	278.80	175.80	323.42	376.72	343.79
Corn (bu.)	224.65	162.91	201.14	205.95	250.30	227.17
Corn Silage (lb.)	297.49	212.03	262.17	258.63	290.89	345.50
Hay, Alfalfa (lb.)	147.46	272.41	229.69	199.69	140.91	81.89
Haylage, Alfalfa (lb.)	141.13	26.29	99.32	96.45	151.35	182.79
Other feed stuffs (lb)	114.16	161.30	136.14	143.29	111.81	87.17
Breeding fees	48.37	32.42	46.12	43.39	46.60	54.75
Veterinary	111.99	67.70	97.58	102.83	120.80	118.45
BST	47.34	3.21	10.73	16.61	50.69	79.90
Supplies	285.92	241.52	256.14	255.42	282.62	321.33
Fuel & oil	60.84	50.90	46.23	50.68	59.51	74.34
Repairs	128.39	114.10	121.18	133.24	117.99	138.01
Custom hire	57.30	19.77	38.77	46.80	58.77	71.92
Hired labor	242.84	20.26	45.48	115.96	300.13	360.86
Marketing, Hauling, & Trucking	39.82	66.90	62.98	45.68	35.55	29.22
Bedding	69.91	27.35	46.34	71.42	81.60	70.96
Total direct expenses	2,992.36	2,093.28	2,487.78	2,704.69	3,113.79	3,314.74
Return over direct expense	797.83	481.80	667.99	858.55	743.03	878.59
Overhead Expenses						
Hired labor	184.68	25.50	85.82	138.67	201.16	246.75
Building leases	54.00	29.78	17.87	47.04	65.38	64.03
Utilities	66.50	102.60	90.15	71.98	61.86	55.67
Interest	85.50	85.08	78.00	118.37	94.84	60.85
Mach & bldg depreciation	167.54	105.55	153.82	194.83	174.20	154.89
Miscellaneous	102.62	116.46	112.54	113.12	105.66	89.03
Total overhead expenses	660.83	464.97	538.21	684.01	703.10	671.21
Total dir & ovhd expenses	3,653.19	2,558.25	3,026.00	3,388.70	3,816.89	3,985.96
Net return	136.99	16.83	129.77	174.54	39.94	207.37
Labor & management charge	192.75	361.87	293.10	229.38	169.49	140.83
Net return over lbr & mgt	-55.76	-345.04	-163.33	-54.84	-129.56	66.55
Cost of Production per CWT						
Total direct expense per cwt.	12.27	12.73	12.32	11.86	12.53	12.24
Total dir& ovhd expense per cwt.	14.98	15.55	14.99	14.86	15.35	14.72
With other revenue adjustments	15.99	17.55	16.09	15.83	16.29	15.74
With labor and management	16.78	19.75	17.55	16.84	16.97	16.26
Est. labor hours per unit	41.10	42.88	37.73	35.08	41.72	45.37
Other Information						
Avg. number of Cows	195	38.6	74	142.5	318.1	913.4
Milk produced per Cow	24,390	16,450	20,187	22,797	24,859	27,085
Culling percentage	28.5	23.4	27.4	27.8	28.7	29.6
Turnover rate	35.5	32.4	35.2	34.6	35.7	36.4
Percent of barn capacity	111.1	87.4	106.9	108.5	115	113.3
Feed cost per day	5.2	3.97	4.7	4.99	5.37	5.47
Feed cost per cwt of milk	7.79	8.81	8.5	8	7.88	7.37
Feed cost per Cow	1,899.65	1,449.14	1,716.22	1,822.66	1,959.53	1,995.02
Avg. milk price per cwt.	16.57	17.68	16.74	16.6	16.48	16.53
Milk price / feed margin	8.78	8.87	8.24	8.6	8.59	9.16

Selected Dairy Enterprise Factors from the Farm Business Management Program Database

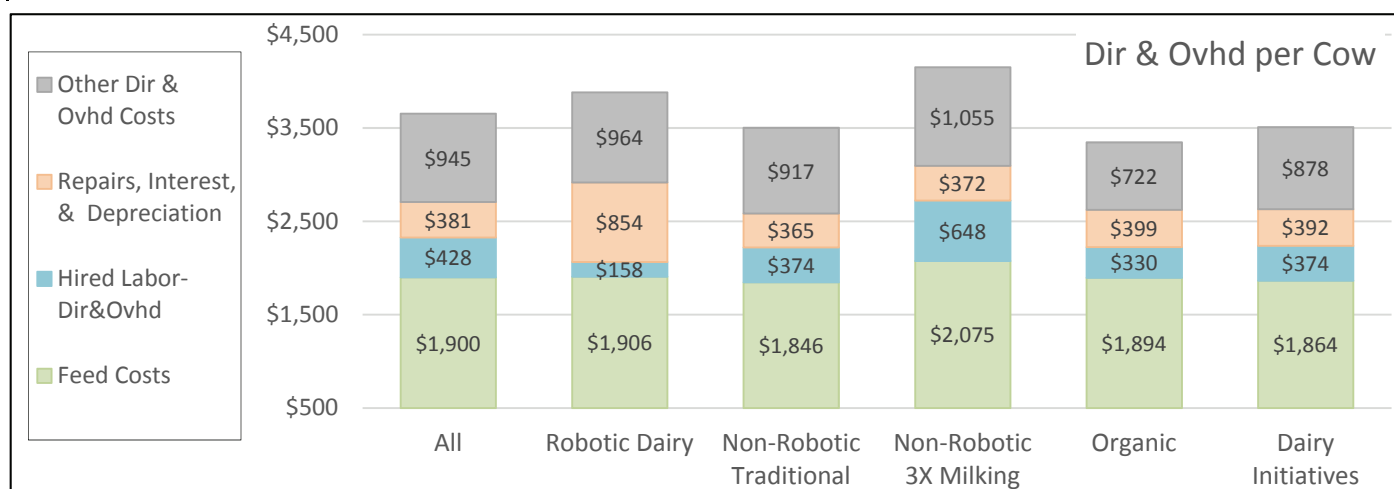
Herd Size	State Ave.	up to 50 cows	51-100 cows	101-200 cows	201-500 cows	over 500 cows
Number of Farms	407	46	143	115	73	30
Ave # of Cows	195.0	38.6	74.0	142.5	318.1	913.4
Milk Prod. Per Cow	24,390	16,450	20,187	22,797	24,859	27,085
Feed Cost per Cwt	\$7.79	\$8.81	\$8.50	\$8.00	\$7.88	\$7.37
Interest per Cwt	\$0.35	\$0.52	\$0.39	\$0.52	\$0.38	\$0.22
Vet per Cwt	\$0.46	\$0.41	\$0.48	\$0.45	\$0.49	\$0.44
Hired Labor per Cwt	\$1.75	\$0.28	\$0.65	\$1.12	\$2.02	\$2.24
Deprec/Lease per Cwt	\$0.91	\$0.82	\$0.85	\$1.06	\$0.96	\$0.81
Milk Price per Cwt	\$16.57	\$17.68	\$16.74	\$16.60	\$16.48	\$16.53
Dir & Ovhd Cost per Cwt	\$14.98	\$15.55	\$14.99	\$14.86	\$15.35	\$14.72
Return over Dir & Ovhd per Cow	\$137	\$17	\$130	\$175	\$40	\$207
Herd Profit over Dir&Ovhd	\$26,713	\$650	\$9,603	\$24,872	\$12,705	\$189,412
Owner Labor&Mgt per Cwt	\$0.79	\$2.20	\$1.45	\$1.01	\$0.68	\$0.52
Net per Cow after Labor&Mgt	-\$56	-\$345	-\$163	-\$55	-\$130	\$67
Herd Profit over Labor&Mgt	-\$10,873	-\$13,319	-\$12,086	-\$7,815	-\$41,210	\$60,778



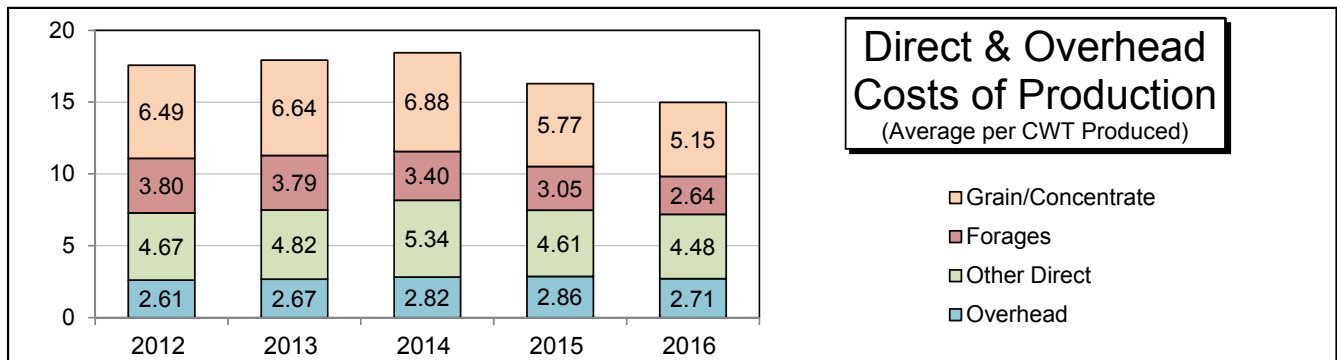
Additional Selected Sorts within the Dairy Enterprise

The State Database includes data from 407 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.

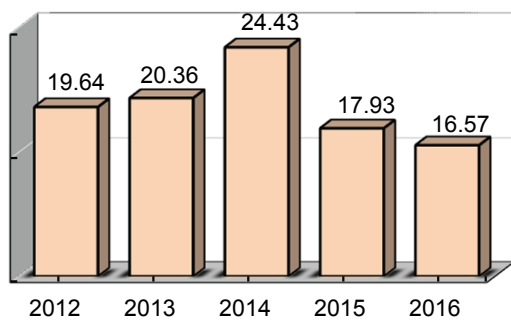
Sort - Includes	All	Robotic Dairy	Non-Robotic Traditional	Non-Robotic 3X Milking	Organic	Dairy Initiatives
Sort - Excludes	NA	All non-robotic herds	Organic, Org. Transition, 3X Milking, Rot. Grazing, Robotics	Organic, Org. Transition, Rot. Grazing, Robotics, non-3X milk herds	All non-organic herds	All non-Dairy Initiative herds
Number of Farms	407	16	331	34	17	118
Number of Cows	195	152	171	531	93	163
Milk Produced per Cow	24,390	25,741	23,770	27,224	14,910	23,828
Milk Sold	\$4,006.88	\$3,935.51	\$3,853.11	\$4,431.97	\$5,140.48	\$3,908.59
Gross Margin	\$3,790.19	\$3,761.71	\$3,631.45	\$4,215.74	\$5,025.96	\$3,692.89
Feed Cost per Cow	\$1,899.65	\$1,906.29	\$1,846.07	\$2,074.91	\$1,894.01	\$1,864.49
Breeding Fees	\$48.37	\$40.82	\$47.57	\$54.12	\$25.58	\$45.21
Veterinary	\$111.99	\$139.04	\$105.08	\$136.60	\$39.48	\$98.24
BST	\$47.34	\$19.74	\$39.90	\$80.17	\$0.00	\$36.51
Repairs	\$128.39	\$166.19	\$128.37	\$118.95	\$170.33	\$127.97
Hired Labor-Dir&Ovhd	\$427.52	\$157.61	\$374.07	\$647.79	\$330.02	\$373.83
Interest	\$85.50	\$244.41	\$86.62	\$64.12	\$61.22	\$94.18
Depreciation	\$167.54	\$443.01	\$149.71	\$189.07	\$167.54	\$169.88
Total Dir & Ovhd Cost	\$3,653.19	\$3,881.63	\$3,501.79	\$4,149.96	\$3,345.51	\$3,508.00
Net Return	\$136.99	-\$119.92	\$129.66	\$65.78	\$1,680.45	\$184.88
Cost of Prod - O&D	\$14.98	\$15.08	\$14.73	\$15.24	\$22.44	\$14.72
Culling Percentage	28.5	27.6	27.8	31.8	20.6	28.0
Turnover Rate	35.5	33.9	35.2	37.7	25.3	35.0
Feed Cost per CWT	\$7.79	\$7.41	\$7.77	\$7.62	\$12.70	\$7.82
Average Milk Price	\$16.57	\$15.47	\$16.30	\$16.51	\$35.30	\$16.56



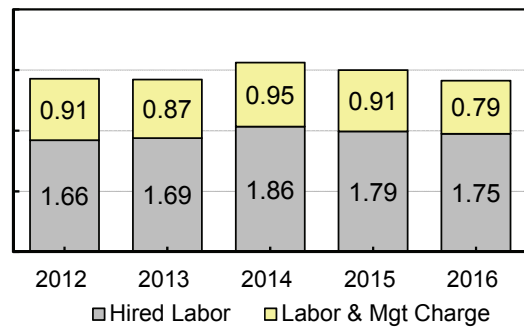
Summary of Selected Dairy Enterprise Factors - Average Farm Data



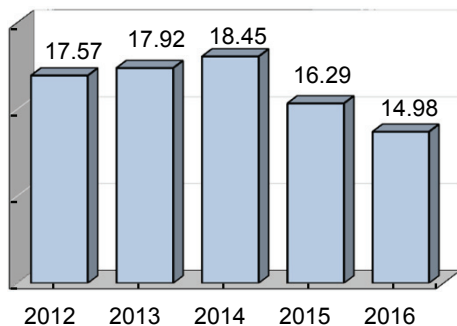
Ave Milk Price Recv'd



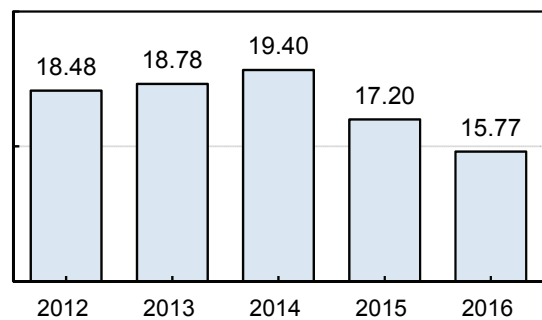
Labor per CWT



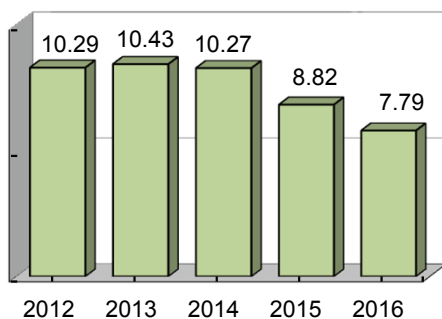
Dir & Ovhd Exp per CWT



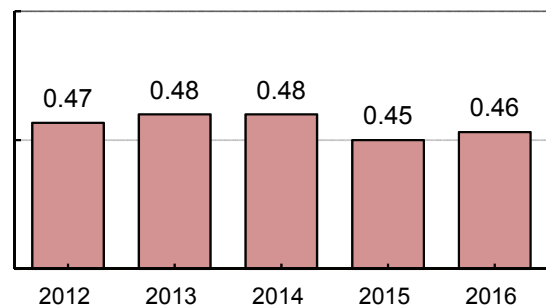
Total Direct, Ovhd, & Labor



Feed Cost per CWT



Veterinary Costs



A Long Term History of Selected Dairy Information

