



MINNESOTA STATE

Farm Business Management Program Database 22nd Annual

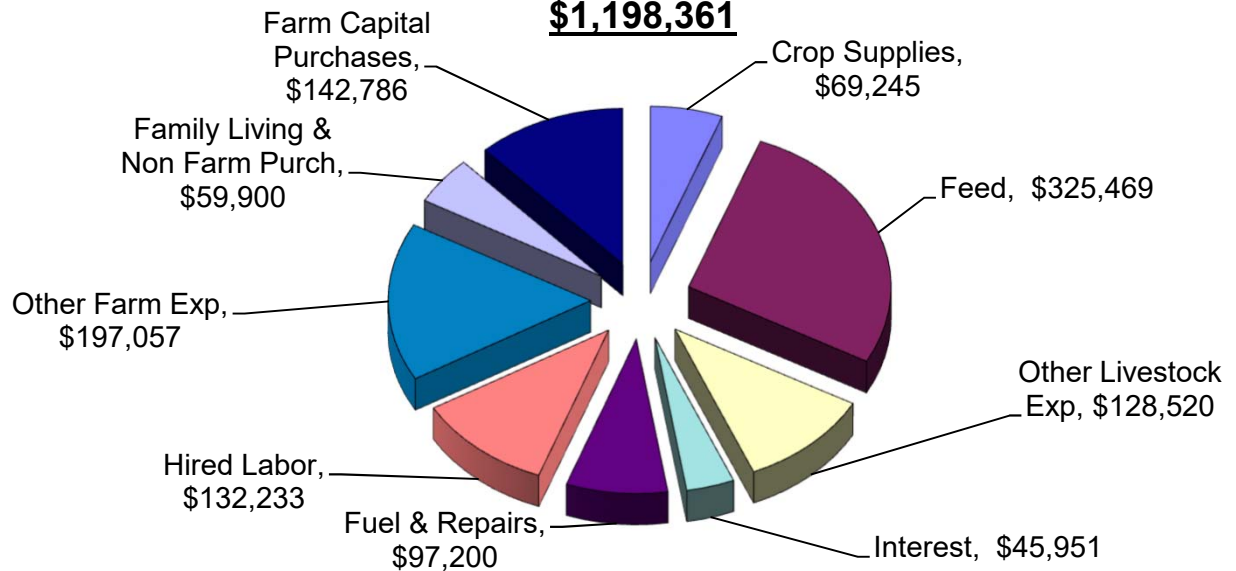
Dairy Farm Sort - 2018

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

April, 2019

Average Dollars Spent by a Minnesota Dairy Farm totals

\$1,198,361



In Cooperation with the Center for Farm Financial Management, University of Minnesota
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A Brief Overview of 2018

This special report for dairy provides summary information for dairy producers in the Minnesota State Farm Business Management (FBM) Database.

Based on the graphic on the cover, over a 40 year farming career, each dairy farmer would spend \$47,934,440. Based on that same graphic, the farms in this report spent \$348,723,051 in their greater communities in 2018. The majority of the money is spent locally, including businesses and cooperatives; demonstrating the vital importance of farming on the economy of Minnesota.

2018 represented the fourth consecutive year of low or negative margins for dairy producers. While Government payments and other income provided some support, the average net return still showed a loss of \$208.70 per cow. The Operating Expense Ratio of 88.8% (indicating that 88.8 cents of every dollar was spent on operating expenses alone) was second only to 2009 as the highest in the last 10 years. Even more concerning, the average dairy farm showed a Capital Debt Repayment Margin of \$-47,179. This means the average dairy farm was \$47,179 short of paying all expenses incurred by the farm and servicing all of the debt. Multiply that shortfall by the 291 farms shown below and this represents a cumulative shortfall of \$13,729,089. The individual dairy operation is not alone in experiencing significant stress, it also puts significant pressure on local businesses, cooperatives, and lending institutions. In fact, the four-year Term Debt Coverage Ratio (amount available to pay each dollar of term debt) trends only show one year above 1.00 with two years significantly below 1.00.

Term Debt Coverage Ratio Trends			
2015	2016	2017	2018
1.00	0.89	1.20	0.61

Dairy farms profits decreased in 2018. The median dairy farm earned \$11,722, down from \$47,254 in 2017.

- The average price received for milk decreased by 7% percent, from \$17.72 per hundred pounds in 2017 to \$16.44.
- The average cost of production including all expenses was \$17.29. As a result, dairy producers lost \$0.85 per hundred pounds of production, or about \$209 per cow.
- The average dairy farm milked 228 cows, which is up from an average of 206 cows in 2017.
- The average milk production was 23,975 pounds, which is down from 24,637 pounds in 2017. Note, this is the first time since 2009 that we have seen a decrease in milk production per cow.

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.

In cooperation with the Minnesota Department of Agriculture, we have estimated that the data in this report represents the following percentage of dairy herds in the state of Minnesota:

Herd Size	All	< 50 Cows	51-100	101-200	201-500	>500
	11.9%	3+%	9+%	30+%	30+%	40+%

General Financial Summary Farm Business Management Program Database (Dairy Farms Sorted by Gross Farm Income)

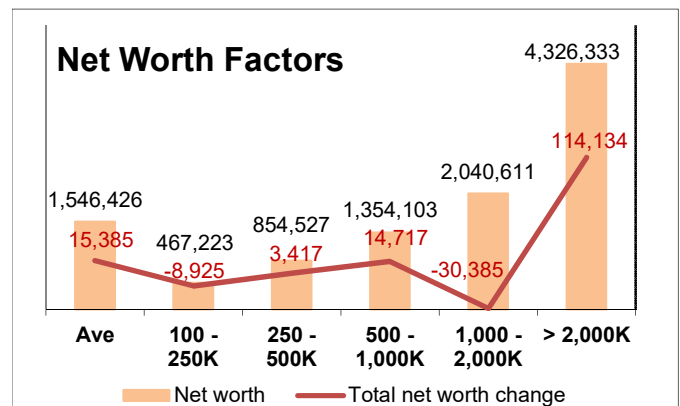
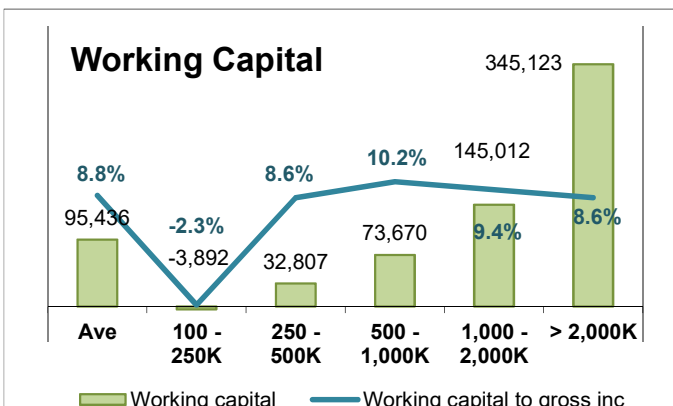
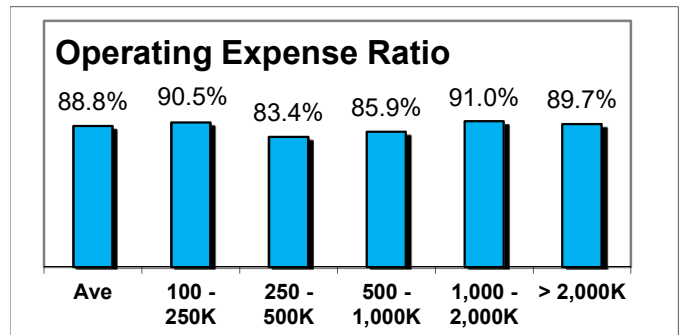
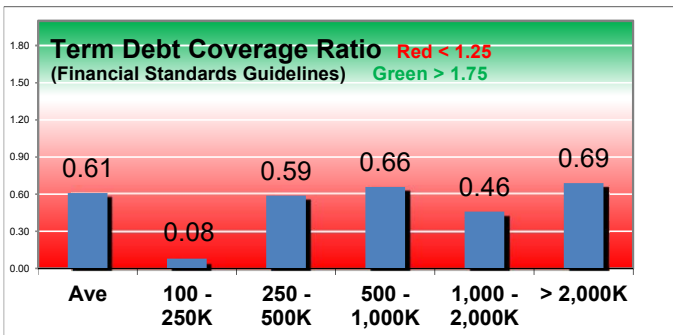
	Avg. Of All Farms	100,001 - 250,000	250,001 - 500,000	500,001 - 1,000,000	1,000,001 - 2,000,000	Over 2,000,000
Number of farms	291	44	81	76	40	40
<u>Income Statement</u>						
Gross cash farm income	1,074,911	176,115	378,387	725,470	1,524,712	3,943,197
Total cash farm expense	995,677	158,207	332,824	646,514	1,428,941	3,722,746
Net cash farm income	79,234	17,908	45,564	78,956	95,771	220,451
Average net farm income	14,729	-1,191	15,323	9,854	-8,454	72,281
Median net farm income	11,722	6,081	11,722	23,943	-4,980	39,926
<u>Solvency (end of year at market)</u>						
Total assets	2,402,181	828,872	1,551,687	2,496,807	3,803,493	8,072,220
Total liabilities	1,311,640	361,650	697,160	1,142,704	1,762,882	3,745,887
Net worth	1,546,426	467,223	854,527	1,354,103	2,040,611	4,326,333
Total net worth change	15,385	-8,925	3,417	14,717	-30,385	114,134

Financial Standards Measures

Farm Business Management Program Database

(Dairy Farms Sorted by Gross Farm Income, excludes Organic and Organic Transition)

	Avg. Of All Farms	100,000 - 250,000	250,001 - 500,000	500,001 - 1,000,000	1,000,001 - 2,000,000	Over 2,000,000
Number of farms	291	44	81	76	40	40
Liquidity						
Current ratio	1.39	0.94	1.31	1.45	1.45	1.40
Working capital	95,436	-3,892	32,807	73,670	145,012	345,123
Working capital to gross inc	8.8%	-2.3%	8.6%	10.2%	9.4%	8.6%
Solvency (market)						
Farm debt to asset ratio	48%	47%	49%	48%	47%	47%
Farm equity to asset ratio	52%	53%	51%	52%	53%	53%
Change in total net worth %	1%	-2%	0%	1%	-1%	3%
Profitability (cost)						
Rate of return on farm assets	0.1%	-4.8%	-0.1%	0.0%	-0.7%	1.0%
Rate of return on farm equity	-3.8%	-17.0%	-4.9%	-4.3%	-5.1%	-1.8%
Operating profit margin	0.2%	-19.7%	-0.5%	-0.1%	-2.1%	2.4%
Net farm income	14,729	-1,191	15,323	9,854	-8,454	72,281
EBIDTA	122,329	16,200	63,389	101,463	139,428	413,669
Repayment Capacity						
Capital debt repayment capacity	72,275	2,365	34,840	64,272	73,875	255,000
Capital debt repayment margin	-47,179	-28,006	-23,974	-33,144	-85,292	-112,372
Replacement margin	-66,636	-31,924	-31,684	-52,619	-113,471	-168,069
Term debt coverage ratio	0.61	0.08	0.59	0.66	0.46	0.69
Replacement coverage ratio	0.52	0.07	0.52	0.55	0.39	0.60
Efficiency						
Asset turnover rate (cost)	34.0%	24.4%	25.3%	27.0%	34.8%	41.0%
Operating expense ratio	88.8%	90.5%	83.4%	85.9%	91.0%	89.7%
Depreciation expense ratio	5.7%	7.7%	6.7%	7.2%	5.6%	5.0%
Interest expense ratio	4.3%	7.1%	6.2%	5.5%	4.0%	3.5%
Net farm income ratio	1.4%	-0.7%	4.0%	1.4%	-0.5%	1.8%

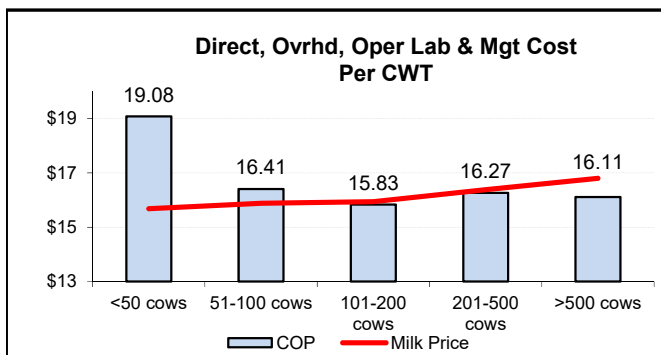
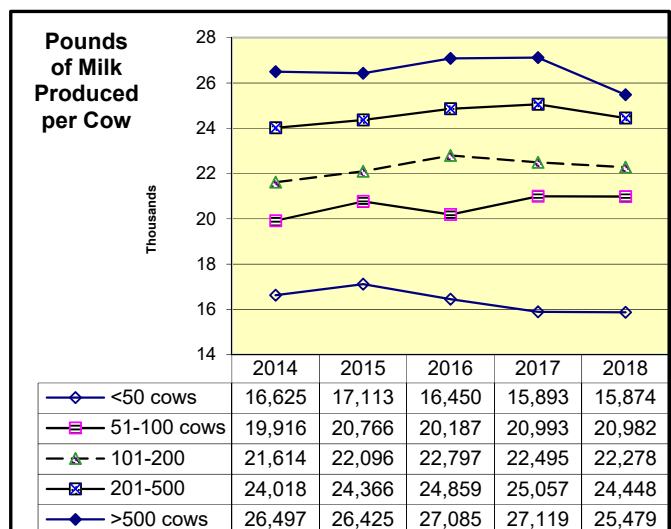
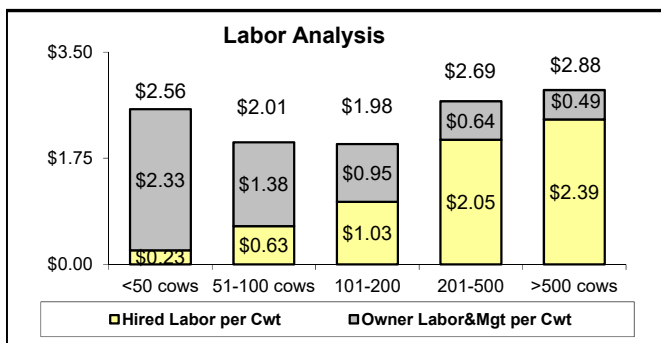
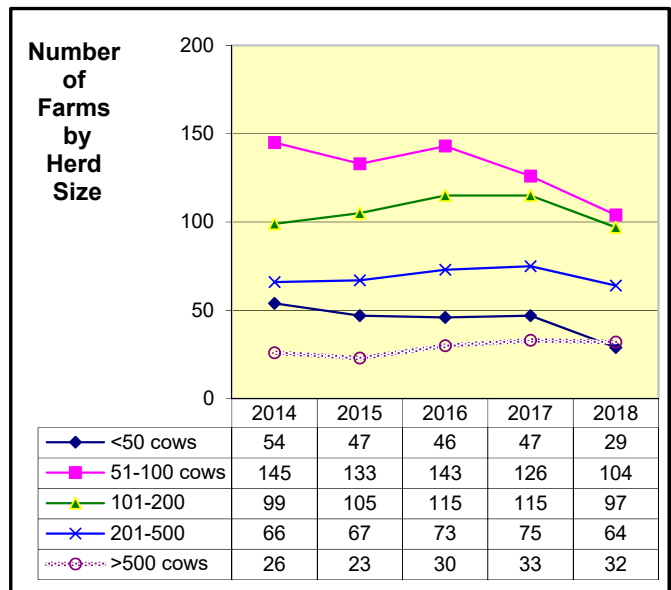
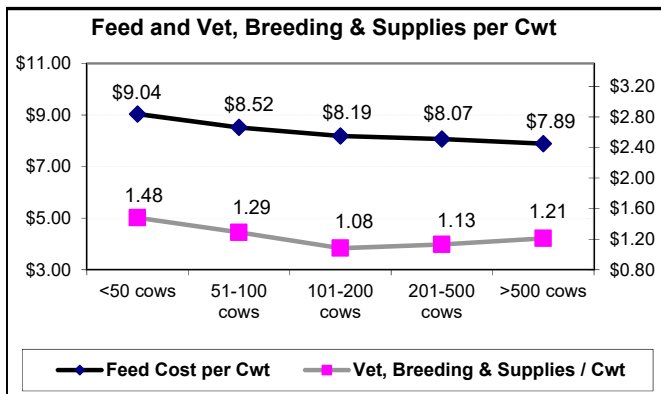


State Database Dairy Cow Enterprise <i>(Excludes Organic and Organic Transition)</i>	Sorted by Average Number of Dairy Cows					
	Average	Up to 50 Cows	51 to 100 Cows	101 to 200 Cows	201 To 500 Cows	Over 500 Cows
	***** Per Cow *****					
Number Of Farms	326	29	104	97	64	32
Milk sold (hd)	3,911.70	2,467.50	3,303.20	3,534.39	3,971.37	4,250.31
Dairy Calves sold (hd)	31.30	45.04	34.26	28.98	34.22	29.05
Transferred out (hd)	31.46	30.05	55.61	40.00	36.86	17.69
Cull sales (hd)	213.96	149.97	202.67	202.51	208.37	228.28
Other income	116.76	108.09	137.33	118.09	145.91	90.90
Purchased (hd)	-32.38	-96.73	-87.47	-63.37	-20.01	-10.44
Transferred in (hd)	-42.11	-61.95	-93.70	-49.54	-37.28	-28.14
Inventory change (hd)	66.68	-24.69	45.96	23.25	47.10	108.64
Dairy repl net cost	-630.37	-372.65	-536.30	-589.72	-621.91	-688.29
Gross margin	3,667.01	2,244.61	3,061.56	3,244.59	3,764.65	3,998.01
Direct Expenses						
Protein Vit Minerals (lb.)	675.75	377.20	646.02	649.62	631.57	736.93
Complete Ration (lb.)	333.05	143.50	165.96	290.26	406.93	350.87
Corn (bu.)	217.29	169.59	224.98	201.84	214.92	225.70
Corn Silage (lb.)	305.89	222.07	258.92	264.52	311.75	335.67
Hay, Alfalfa (lb.)	150.07	297.68	296.06	207.90	103.74	113.23
Haylage, Alfalfa (lb.)	134.02	65.11	95.64	88.42	204.05	118.31
Other feed stuffs (lb)	116.84	159.15	100.04	121.95	99.22	129.54
Breeding fees	45.85	32.49	41.03	35.25	39.48	56.80
Veterinary	105.43	62.95	96.00	95.52	111.93	109.39
Supplies	130.47	139.46	133.34	110.31	125.14	142.22
Fuel & oil	85.79	68.63	62.74	74.83	81.01	100.62
Repairs	139.24	131.28	115.34	125.71	139.95	151.28
Custom hire	61.97	13.74	40.48	32.65	66.49	79.39
Hired labor	294.86	11.48	39.18	109.55	333.93	427.58
Hauling, & Trucking	70.11	92.92	90.13	69.44	68.45	65.58
Marketing	44.02	39.46	41.59	38.81	45.82	45.92
Bedding	75.74	39.28	49.67	57.94	91.01	81.20
Total direct expenses	3,081.14	2,175.62	2,570.11	2,679.32	3,169.55	3,365.97
Return over direct expense	585.87	68.99	491.45	565.28	595.10	632.04
Overhead Expenses						
Hired labor	154.40	25.39	93.23	120.03	167.99	180.95
Building leases	50.70	10.41	26.31	31.97	62.83	58.48
Utilities	66.32	93.58	109.93	74.60	60.40	54.48
Interest	93.11	105.23	93.57	114.10	104.89	74.84
Mach & bldg depreciation	164.37	110.86	152.73	181.60	166.01	160.40
Miscellaneous	21.92	25.46	26.50	30.43	18.06	19.45
Total overhead expenses	624.08	483.26	582.38	635.52	651.10	615.99
Total dir & ovhd expenses	3,705.21	2,658.88	3,152.48	3,314.84	3,820.65	3,981.96
Net return	-38.21	-414.27	-90.93	-70.24	-56.00	16.05
Labor & management charge	170.49	369.28	290.01	212.42	155.84	123.72
Net return over lbr & mgt	-208.70	-783.55	-380.94	-282.66	-211.84	-107.67
Cost of Production per CWT						
Total direct expense per cwt.	12.85	13.71	12.25	12.03	12.96	13.21
Total dir & ovhd expense per cwt.	15.45	16.75	15.02	14.88	15.63	15.63
With other revenue adjustments	16.58	18.26	16.30	16.24	16.59	16.72
With labor and management	17.29	20.58	17.68	17.19	17.23	17.20
Est. labor hours per unit	39.26	46.00	33.30	32.67	40.24	42.85
Other Information						
Avg. number of Cows	227.5	38.6	75	141.6	330.1	949
Milk produced per Cow	23,974	15,874	20,982	22,278	24,448	25,479
Culling percentage	30.6	25.9	29.2	30.0	29.4	32.1
Turnover rate	37.1	37.3	37.6	37.1	36.3	37.6
Percent of barn capacity	115	91	105	113	119	116
Feed cost per day	5.30	3.93	4.90	5.00	5.40	5.51
Feed cost per cwt of milk	8.06	9.04	8.52	8.19	8.07	7.89
Feed cost per Cow	1,932.89	1,434.29	1,787.61	1,824.50	1,972.20	2,010.25
Avg. milk price per cwt.	16.44	15.68	15.88	15.94	16.38	16.80
Milk price / feed margin	8.37	6.64	7.36	7.75	8.32	8.91

Selected Dairy Enterprise Factors from the Farm Business Management Program Database

(excludes Organic and Organic Transition)

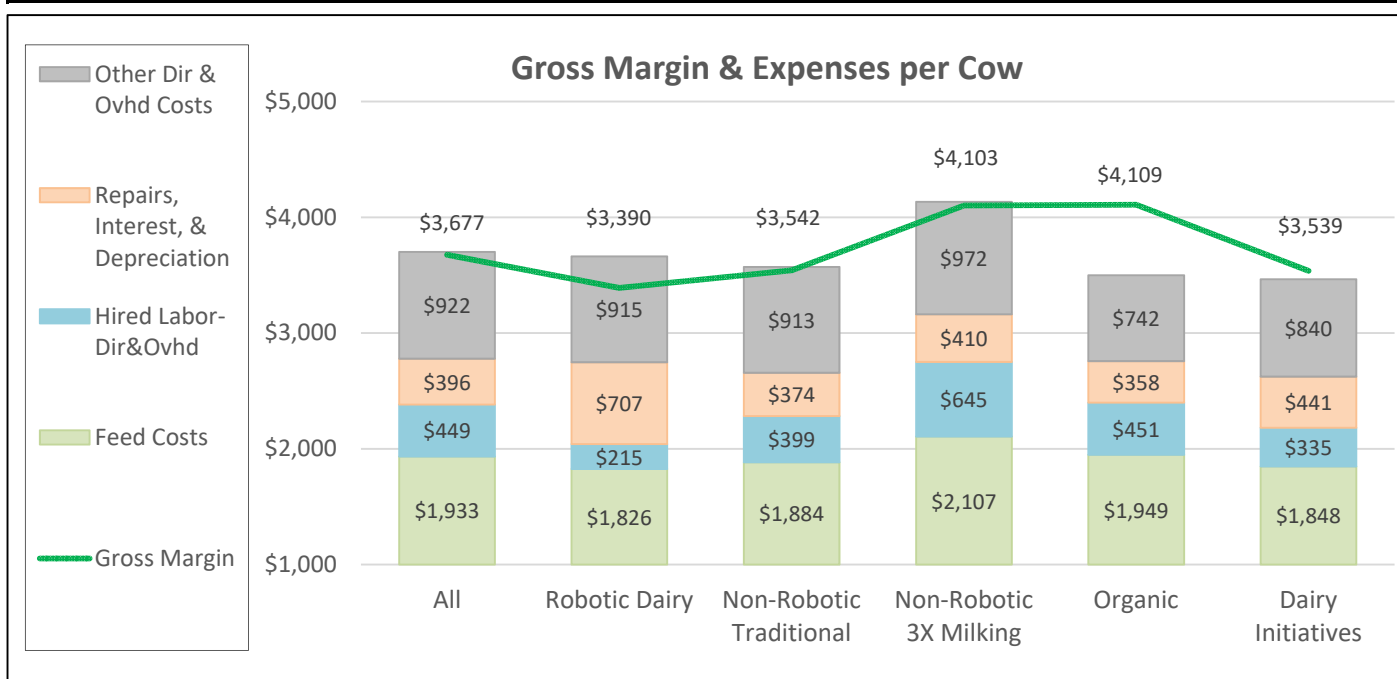
Herd Size	State Ave.	up to 50 cows	51-100 cows	101-200 cows	201-500 cows	over 500 cows
Number of Farms	326	29	104	97	64	32
Ave # of Cows	227.5	38.6	75.0	141.6	330.1	949.0
Milk Prod. Per Cow	23,974	15,874	20,982	22,278	24,448	25,479
Feed Cost per Cwt	\$8.06	\$9.04	\$8.52	\$8.19	\$8.07	\$7.89
Interest per Cwt	\$0.39	\$0.66	\$0.45	\$0.51	\$0.43	\$0.29
Vet, Breeding & Supplies / Cwt	\$1.18	\$1.48	\$1.29	\$1.08	\$1.13	\$1.21
Hired Labor per Cwt	\$1.87	\$0.23	\$0.63	\$1.03	\$2.05	\$2.39
Deprec/Lease per Cwt	\$0.90	\$0.76	\$0.85	\$0.96	\$0.94	\$0.86
Milk Price per Cwt	\$16.44	\$15.68	\$15.88	\$15.94	\$16.38	\$16.80
Dir & Ovhd Cost per Cwt	\$15.45	\$16.75	\$15.02	\$14.88	\$15.63	\$15.63
Return over Dir & Ovhd per Cow	-\$38	-\$414	-\$91	-\$70	-\$56	\$16
Herd Profit over Dir&Ovhd	-\$8,693	-\$15,991	-\$6,820	-\$9,946	-\$18,486	\$15,231
Owner Labor&Mgt per Cwt	\$0.71	\$2.33	\$1.38	\$0.95	\$0.64	\$0.49
Net per Cow after Labor&Mgt	-\$209	-\$784	-\$381	-\$283	-\$212	-\$108
Herd Profit over Labor&Mgt	-\$47,479	-\$30,245	-\$28,571	-\$40,025	-\$69,928	-\$102,179



Additional Selected Sorts within the Dairy Enterprise

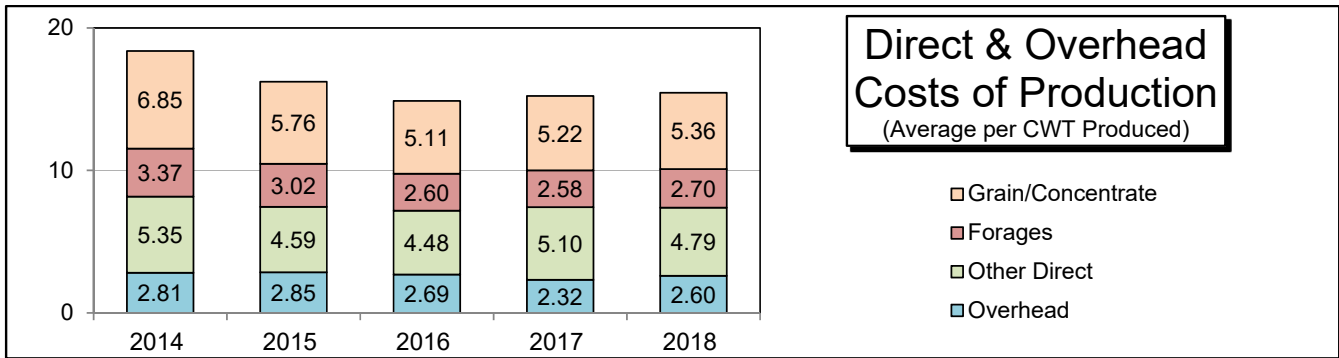
The State Database provides the opportunity to dig deeper into the data using special markers on farms with different practices. Using the FINPACK & RankEM Central software from the Center for Farm Financial Management, specific production practices can be included or excluded from a given sort. This 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
Number of Farms	341	18	272	30	15	87
Number of Cows	222	177	193	602	112	180
Milk Produced per Cow	23,791	23,265	23,168	26,618	15,694	23,486
Milk Sold	\$3,923.24	\$3,678.11	\$3,782.16	\$4,351.01	\$4,434.12	\$3,823.95
Gross Margin	\$3,676.76	\$3,389.77	\$3,541.82	\$4,102.74	\$4,109.03	\$3,538.56
Feed Cost per Cow	\$1,933.24	\$1,825.57	\$1,884.07	\$2,106.57	\$1,948.62	\$1,847.93
Breeding Fees	\$45.64	\$41.57	\$44.06	\$52.05	\$36.54	\$36.99
Veterinary	\$103.85	\$113.68	\$97.66	\$127.90	\$33.61	\$94.17
Repairs	\$139.02	\$157.49	\$131.22	\$160.54	\$129.42	\$142.99
Hired Labor-Dir&Ovhd	\$449.28	\$215.42	\$399.13	\$645.00	\$450.50	\$335.22
Interest	\$93.01	\$222.39	\$92.79	\$71.24	\$88.92	\$112.37
Depreciation	\$163.83	\$327.38	\$150.32	\$178.55	\$139.70	\$185.49
Total Dir & Ovhd Cost	\$3,700.67	\$3,662.86	\$3,570.56	\$4,133.42	\$3,499.52	\$3,464.37
Net Return	-\$23.91	-\$273.09	-\$28.74	-\$30.68	\$609.50	\$74.19
Cost of Prod - O&D	\$15.55	\$15.74	\$15.41	\$15.53	\$22.30	\$14.75
Culling Percentage	30.5	25.9	30.7	31.2	27.8	29.2
Turnover Rate	37.0	33.9	37.2	37.6	32.9	36.3
Lb. of Milk Sold/FTE	1,686,141	2,216,621	1,702,943	1,630,126	1,156,053	1,882,253
Feed Cost per CWT	\$8.13	\$7.85	\$8.13	\$7.91	\$12.42	\$7.87
Average Milk Price	\$16.62	\$16.02	\$16.41	\$16.52	\$29.18	\$16.45

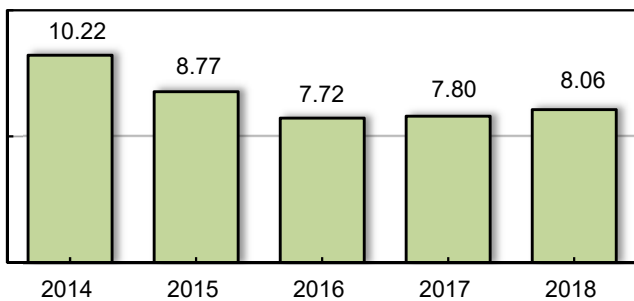


Summary of Selected Dairy Enterprise Factors - Average Farm Data

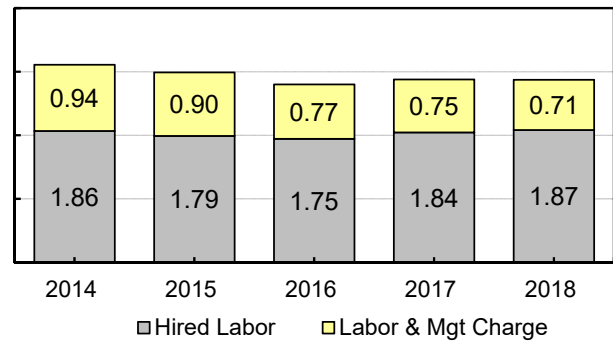
(excludes Organic and Organic Transition)



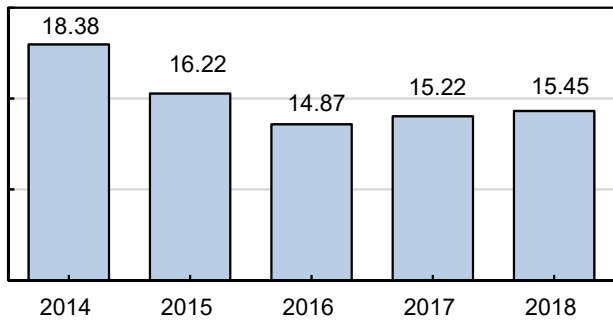
Feed Cost per CWT



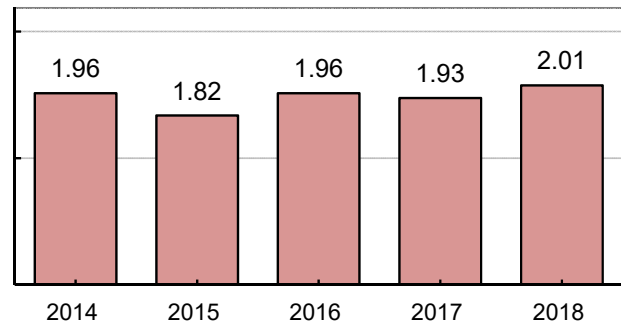
Labor per CWT



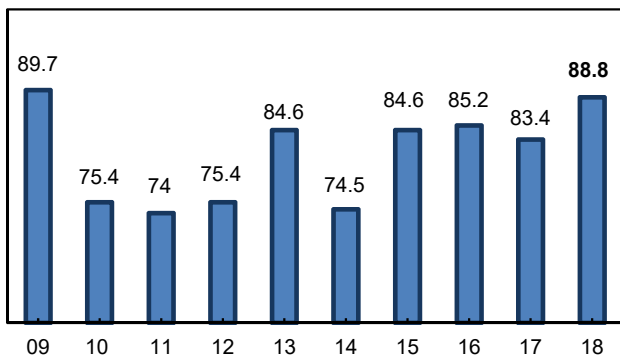
Dir & Ovhd Exp per CWT



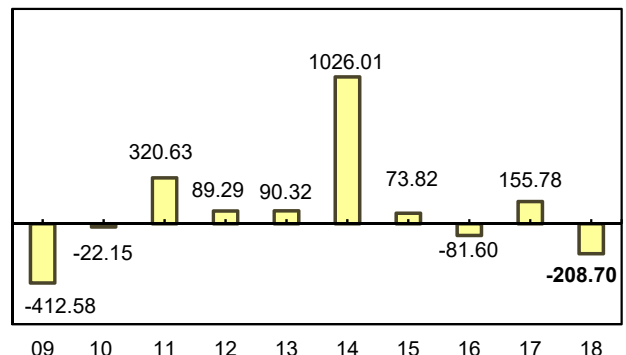
Vet, Breeding & Supplies Cost



Operating Expense Ratio



Net Return after Dir, Ovhd, & Labor



A Long Term History of Selected Dairy Information

(Includes Organic and Organic Transition)

