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**Six Year Trend Analysis 2019
New York State Dairy Farms
Selected Financial and Production Factors**

**Dairy Farm Business Summary
New York State
Same 124 Farms
2014 - 2019**

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Six Year Trend Analysis
New York Dairy Farms
Selected Financial and Production Factors
Dairy Farm Business Summary
New York State
Same 124 Farms, 2014 – 2019

Jason Karszes and Lauren Augello¹

Trend analysis is an important use of benchmarking within a dairy businesses. While current year performance is important, understanding trends within the business and the industry may provide additional insight into strengths and areas of opportunities within the business. To provide benchmark trends of various financial and performance factors over time, data was utilized from 124 farms that have participated in the Dairy Farm Business Summary and Analysis Project in New York State for six years, from 2014 through 2019. This information is reported on an average basis, the top 20% of farms as determined by average return on assets w/o appreciation over the six years, and the remaining 80% of farms. For selected factors, the trends and changes between the top 20% of farms and the remaining 80% are highlighted. The following tables present these benchmarks:

Table 1	Selected Characteristics, Six Year Comparison, Average All 124 Farms
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To utilize these tables, place your number for the appropriate benchmark next to or below the corresponding number for the appropriate year. Once all six years are recorded, than can compare your trend to the benchmark trend. If your trend is different than the industry, than can ask the question why, and if it is better or worse than the industry trend. If you are a DFBS cooperator, you can work with your extension educator to look at these trends and comparisons for all farms and your farm business.

These benchmarks and comparison are provided for use for comparison purposes only and represents the performance of those farms participating in the Dairy Farm Business Summary and Analysis Program in New York State. These numbers don't represent the average for all dairy farms across New York and are from farms that are generally considered above average dairy farms in New York. No analysis or interpretation of these benchmarks and ratios is provided.

¹ PRO-DAIRY Program, Department of Animal Science, Cornell University, Ithaca, NY



Selected Characteristics, Six Year Comparison
Same 124 Farms

Table 1

New York State, Dairy Farm Business Summary & Analysis Program

	2014	2015	2016	2017	2018	2019	% Change
Size of Business							
average number of cows	802	842	885	936	996	1,050	30.9%
percent heifers to cows	86%	86%	87%	87%	85%	82%	
milk sold, pounds	20,542,206	21,611,659	23,323,548	24,364,774	25,795,385	27,566,700	34.2%
worker equivalent	17.9	18.6	19.0	19.7	20.4	20.8	
tillable acres per cow	2.04	2.05	2.02	1.97	1.91	1.85	-9.3%
corn grain acres per cow	0.19	0.19	0.16	0.16	0.24	0.13	
Rates of Production							
milk sold per cow, pounds	25,612	25,668	26,357	26,044	25,905	26,252	2.5%
cull rate	34%	34%	34%	34%	32%	35%	
net calf & cow sales, per cow	502	567	408	378	306	270	
Labor Efficiency							
cows per worker	44.9	45.2	46.6	47.5	48.9	50.5	12.5%
milk sold per worker, pounds	1,149,536	1,159,424	1,227,555	1,236,791	1,266,964	1,325,322	15.3%
Cost Control and Milk Price							
dairy feed & crop expense per cwt. milk	\$ 9.02	\$ 8.23	\$ 7.26	\$ 7.15	\$ 7.17	\$ 6.96	
labor and machinery costs per cow	\$ 1,828	\$ 1,828	\$ 1,753	\$ 1,690	\$ 1,742	\$ 1,698	
hired labor cost per cwt.	\$ 2.90	\$ 2.96	\$ 2.85	\$ 2.95	\$ 2.97	\$ 2.99	
labor cost per hired worker equivalent	\$ 38,840	\$ 39,978	\$ 40,631	\$ 42,342	\$ 43,560	\$ 45,536	17.2%
operating cost of producing milk per cwt.	\$ 17.03	\$ 15.53	\$ 14.53	\$ 14.81	\$ 15.00	\$ 15.32	
purch. input cost of producing milk per cwt.	\$ 18.70	\$ 17.22	\$ 16.24	\$ 16.58	\$ 16.68	\$ 16.95	
total cost of producing milk per cwt.	\$ 21.02	\$ 19.65	\$ 18.55	\$ 18.88	\$ 18.90	\$ 19.09	
net milk price per cwt.	\$ 24.50	\$ 17.37	\$ 16.13	\$ 17.39	\$ 16.06	\$ 18.23	
Capital Efficiency(average for year)							
farm capital per cow	\$ 11,418	\$ 12,060	\$ 12,108	\$ 12,100	\$ 11,719	\$ 11,425	0.1%
machinery and equipment per cow	\$ 1,871	\$ 1,985	\$ 1,956	\$ 1,886	\$ 1,805	\$ 1,751	
net reinvestment per cow	\$ (1,312)	\$ (1,239)	\$ (916)	\$ (877)	\$ (568)	\$ (574)	
Profitability							
net farm income without appreciation	\$ 1,373,953	\$ 236,850	\$ 194,937	\$ 460,123	\$ 145,744	\$ 674,276	
net farm income w/o apprec. per cow	\$ 1,713	\$ 281	\$ 220	\$ 492	\$ 146	\$ 642	
labor & management income per oper.	\$ 476,663	\$ (54,505)	\$ (75,344)	\$ 32,489	\$ (100,446)	\$ 115,200	
rate of return on equity capital w/o apprec.	18.9%	1.0%	0.3%	3.7%	-0.6%	6.1%	
rate of return on all capital w/o apprec.	14.3%	1.6%	1.3%	3.8%	1.2%	5.7%	
Financial Summary							
farm net worth, end of year	7,084,200	7,242,553	7,377,260	7,832,775	7,572,776	8,245,159	41.7%
debt to asset ratio	0.28	0.30	0.33	0.33	0.35	0.33	
farm debt per cow	\$ 3,432	\$ 3,774	\$ 3,937	\$ 4,002	\$ 4,028	\$ 3,785	10.3%
retained earnings	\$ 1,122,847	\$ (33,397)	\$ (51,123)	\$ 264,037	\$ (104,896)	\$ 402,873	\$1,600,341
valuation equity change	\$ 102,220	\$ 67,164	\$ 48,307	\$ 131,571	\$ (217,741)	\$ 200,062	\$331,582

Table 2

Top 20% of Farms vs. Remaining 80% of Farms
Percent Change and Differences, Selected Measures
Same 124 Farms, 2014 - 2019
Dairy Farm Business Summary, New York State

	2014	2019	Change	Percent Change	Percent Difference	
					2014	2019
Average Herd Size, Milking & Dry						
Top 20%	1,225	1,746	521	42.5%	76.3%	99.8%
80%	695	874	179	25.8%		
Milk per Cow, Lbs.						
Top 20%	26,643	26,870	228	0.9%	5.9%	3.6%
80%	25,153	25,940	787	3.1%		
Milk Sold per Farm, Lbs.						
Top 20%	32,636,394	46,909,309	14,272,915	43.7%	86.6%	106.8%
80%	17,488,119	22,682,203	5,194,084	29.7%		
Cows per Worker						
Top 20%	47.3	54.6	7.30	15.4%	7.7%	12.2%
80%	43.9	48.6	4.73	10.8%		
Milk Sold per Worker, Lbs.						
Top 20%	1,259,120	1,465,916	206,796	16.4%	14.0%	16.2%
80%	1,104,048	1,261,524	157,476	14.3%		
Hired Labor Cost per Cwt.						
Top 20%	\$2.69	\$2.81	\$0.12	4.4%	-10.1%	-8.6%
80%	\$3.00	\$3.08	\$0.08	2.7%		
Cost per Hired Worker						
Top 20%	\$37,600	\$44,795	\$7,195	19.1%	-4.5%	-2.4%
80%	\$39,389	\$45,895	\$6,506	16.5%		
Investment Per Cow						
Top 20%	\$10,773	\$10,849	\$76	0.7%	-8.0%	-7.4%
80%	\$11,705	\$11,716	\$12	0.1%		
Machinery Invest. per Cow						
Top 20%	\$1,680	\$1,445	-\$234.66	-14.0%	-14.1%	-24.1%
80%	\$1,956	\$1,905	-\$51.79	-2.6%		
Debt Per Cow, End of Year						
Top 20%	\$2,811	\$2,842	\$31.00	1.1%	-24.1%	-33.5%
80%	\$3,704	\$4,271	\$567.00	15.3%		
Net Worth, Beginning of 2014 to End of 2019						
Top 20%	\$8,672,222	\$14,511,996	\$5,839,774	67.3%	70.0%	117.8%
80%	\$5,099,993	\$6,662,624	\$1,562,631	30.6%		

Table 3
Top 20% of Farms vs. Remaining 80% of Farms

Selected Measures, Six Year Comparison

Same 124 Farms, 2014 - 2019

Dairy Farm Business Summary, New York State

	2014	2015	2016	2017	2018	2019
Net Investment Per Cow						
Top 20%	\$1,444	\$1,210	\$854	\$1,277	\$770	\$652
80%	\$1,254	\$1,253	\$944	\$691	\$469	\$535
Farm Capital per Cow						
Top 20%	\$10,773	\$11,226	\$11,424	\$11,486	\$11,060	\$10,849
80%	\$11,705	\$12,440	\$12,418	\$12,387	\$12,042	\$11,716
Tillable Acres per Cow						
Top 20%	1.81	1.80	1.76	1.69	1.64	1.58
80%	2.09	2.11	2.11	2.06	1.99	1.96
Corn Grain Acres per Cow						
Top 20%	0.12	0.11	0.11	0.09	0.17	0.09
80%	0.22	0.23	0.18	0.19	0.27	0.15
Crop Revenue, Per Cow						
Top 20%	\$182	\$92	\$116	\$157	\$126	\$24
80%	\$133	\$124	\$91	\$129	\$108	\$72
Cull Rate, Percent						
Top 20%	31%	31%	34%	33%	30%	32%
80%	35%	36%	34%	35%	34%	36%
Net Calf & Cow Income, per Cow(1)						
Top 20%	\$509	\$569	\$451	\$387	\$319	\$298
80%	\$499	\$567	\$388	\$373	\$298	\$255
Percent Heifers to Cows						
Top 20%	84%	83%	86%	85%	81%	79%
80%	86%	87%	87%	88%	87%	82%
Operating Cost to Produce Milk per Cwt.						
Top 20%	\$15.74	\$14.76	\$13.35	\$13.65	\$14.00	\$14.51
80%	\$17.64	\$15.90	\$15.08	\$15.37	\$15.50	\$15.75
Total Cost to Produce Milk per Cwt.						
Top 20%	\$19.39	\$18.57	\$17.17	\$17.50	\$17.66	\$18.03
80%	\$21.79	\$20.16	\$19.20	\$19.53	\$19.53	\$19.65
Net Farm Income Per Cow						
Top 20%	\$2,175	\$533	\$564	\$845	\$458	\$923
80%	\$1,508	\$167	\$64	\$327	-\$7	\$501
Net Milk Price per Cwt.						
Top 20%	\$24.55	\$17.41	\$16.15	\$17.44	\$16.10	\$18.29
80%	\$24.48	\$17.36	\$16.13	\$17.37	\$16.05	\$18.20
Farm Operating Receipts per Cwt.						
Top 20%	\$28.89	\$21.51	\$19.95	\$21.56	\$19.96	\$21.59
80%	\$28.53	\$21.86	\$19.77	\$21.28	\$19.63	\$21.56
Working Capital as Percent of Expenses						
Top 20%	39%	31%	30%	31%	31%	35%
80%	28%	21%	16%	16%	13%	16%

(1) Net Calf & Cow Income, per Cow = cattle revenue plus calf revenue - purchased replacement - expansion cattle expense.

Table 3 Continued

	2014	2015	2016	2017	2018	2019
Hired Labor Cost per Cwt.						
Top 20%	\$2.69	\$2.76	\$2.69	\$2.84	\$2.79	\$2.81
80%	\$3.00	\$3.06	\$2.92	\$3.01	\$3.06	\$3.08
Purchased Feed per Cwt.						
Top 20%	\$7.29	\$6.62	\$5.77	\$5.68	\$5.73	\$5.62
80%	\$7.30	\$6.56	\$5.73	\$5.72	\$5.79	\$5.64
Livestock Expenses, Total (2) per Cwt.						
Top 20%	\$3.11	\$3.14	\$2.94	\$3.03	\$3.04	\$3.00
80%	\$3.54	\$3.54	\$3.30	\$3.36	\$3.12	\$3.23
Machinery & Fuel Expenses (3) per Cwt.						
Top 20%	\$2.11	\$1.89	\$1.62	\$1.75	\$1.71	\$1.80
80%	\$2.64	\$2.19	\$1.92	\$2.07	\$2.03	\$2.12
Machinery Depreciation Expense per Cwt.						
Top 20%	\$0.91	\$0.93	\$0.93	\$0.93	\$0.83	\$0.81
80%	\$1.06	\$1.01	\$0.99	\$1.02	\$0.94	\$0.90
Crop Input Costs (4) per Cwt.						
Top 20%	\$1.17	\$1.04	\$0.99	\$1.01	\$0.91	\$0.86
80%	\$1.46	\$1.48	\$1.24	\$1.16	\$1.14	\$1.03
Additional Fixed Costs (5) per Cwt.						
Top 20%	\$1.79	\$1.66	\$1.39	\$1.37	\$1.38	\$1.40
80%	\$1.95	\$1.78	\$1.57	\$1.62	\$1.62	\$1.61
Interest Costs per Cwt.						
Top 20%	\$0.27	\$0.30	\$0.32	\$0.40	\$0.52	\$0.52
80%	\$0.50	\$0.51	\$0.60	\$0.71	\$0.80	\$0.85
Total Farm Operating Expenses per Cwt.						
Top 20%	\$18.88	\$17.84	\$16.12	\$16.37	\$16.44	\$16.44
80%	\$20.71	\$19.37	\$17.62	\$18.00	\$17.89	\$17.90

(2) Livestock Expenses = sum of replacement livestock, breeding, vet, milk marketing, bedding, milking supplies, cattle lease, custom boarding, bST, livestock professional fees, and other livestock expenses categories

(3) Machinery & Fuel Expenses = sum of machine hire, rent, & lease, machine repairs & parts, and fuel, oil, & grease expense categories

(4) Crop Input Costs = sum of fertilizer & lime, seeds & plants, spray & other crop expenses, and crop, professional fees expense categories

(5) Fixed Costs = sum of land, building & fence repair, taxes, rent & lease, insurance, utilities other professional fees, and miscellaneous expenses categories



Six Year Per Cwt. Comparison
Same 25 Farms, Top 20% Sorted by Return on Assets w/o Appreciation
 New York State, Dairy Farm Business Summary & Analysis Program

Table 4

	Year					
	2014	2015	2016	2017	2018	2019
number of cows	1,225	1,308	1,369	1,476	1,627	1,746
milk sales in pounds	32,636,394	34,507,216	36,894,860	39,027,031	42,764,469	46,909,309
milk per cow	26,643	26,376	26,949	26,438	26,291	26,870
RECEIPTS						
milk sales-\$	\$25.45	\$18.38	\$17.10	\$18.53	\$17.36	\$19.48
dairy cattle sales	\$1.97	\$1.85	\$1.61	\$1.60	\$1.31	\$1.23
dairy calf sales	\$0.26	\$0.37	\$0.16	\$0.17	\$0.10	\$0.08
other livestock sales	\$0.06	\$0.03	\$0.07	\$0.06	\$0.07	\$0.03
crop sales	\$0.68	\$0.35	\$0.43	\$0.59	\$0.48	\$0.09
government receipts	\$0.02	\$0.12	\$0.16	\$0.08	\$0.10	\$0.21
custom machine work	\$0.10	\$0.07	\$0.08	\$0.08	\$0.09	\$0.10
gas tax refund	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
other	\$0.35	\$0.34	\$0.35	\$0.44	\$0.45	\$0.37
non-cash transfer (subtract)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Farm operating receipts	\$28.89	\$21.51	\$19.95	\$21.56	\$19.96	\$21.59
EXPENSES						
Hired labor	\$2.69	\$2.76	\$2.69	\$2.84	\$2.79	\$2.81
Feed						
dairy grain & concentrate	\$7.29	\$6.62	\$5.77	\$5.68	\$5.73	\$5.62
dairy roughage	\$0.44	\$0.43	\$0.40	\$0.30	\$0.37	\$0.42
nondairy feed	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
professional nutritional services	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.01
Machinery						
machine hire, rent & lease	\$0.33	\$0.36	\$0.37	\$0.34	\$0.39	\$0.45
machine repairs & parts	\$0.98	\$0.97	\$0.83	\$0.93	\$0.79	\$0.88
fuel, oil & grease	\$0.80	\$0.56	\$0.42	\$0.48	\$0.53	\$0.47



Table 4 Continued

Livestock	2014	2015	2016	2017	2018	2019
replacement livestock	\$0.02	\$0.01	\$0.01	\$0.01	\$0.04	\$0.02
breeding fees	\$0.20	\$0.18	\$0.20	\$0.22	\$0.18	\$0.15
veterinary & medicine	\$0.65	\$0.67	\$0.62	\$0.64	\$0.60	\$0.57
milk marketing	\$0.90	\$0.97	\$0.94	\$1.09	\$1.26	\$1.20
bedding	\$0.39	\$0.38	\$0.36	\$0.32	\$0.29	\$0.30
milking supplies	\$0.27	\$0.33	\$0.33	\$0.26	\$0.27	\$0.31
cattle leased	\$0.03	\$0.01	\$0.00	\$0.00	\$0.00	\$0.01
custom boarding	\$0.30	\$0.27	\$0.24	\$0.28	\$0.27	\$0.30
bST	\$0.21	\$0.19	\$0.12	\$0.04	\$0.00	\$0.00
livestock, professional fees	\$0.06	\$0.06	\$0.06	\$0.06	\$0.05	\$0.06
other livestock expense	\$0.08	\$0.07	\$0.05	\$0.11	\$0.08	\$0.08
Crops						
fertilizer & lime	\$0.46	\$0.44	\$0.35	\$0.35	\$0.33	\$0.33
seeds & plants	\$0.49	\$0.38	\$0.40	\$0.44	\$0.36	\$0.34
spray & other crop expense	\$0.20	\$0.20	\$0.20	\$0.21	\$0.20	\$0.18
crop, professional fees	\$0.02	\$0.01	\$0.04	\$0.02	\$0.01	\$0.01
Real estate						
land, build., fence repair	\$0.42	\$0.39	\$0.26	\$0.25	\$0.26	\$0.32
taxes	\$0.25	\$0.25	\$0.27	\$0.26	\$0.24	\$0.23
rent & lease	\$0.24	\$0.23	\$0.21	\$0.22	\$0.23	\$0.21
Other cash expense						
insurance	\$0.16	\$0.20	\$0.16	\$0.16	\$0.15	\$0.16
utilities	\$0.45	\$0.36	\$0.31	\$0.31	\$0.33	\$0.29
interest paid	\$0.27	\$0.30	\$0.32	\$0.40	\$0.52	\$0.52
other, professional fees	\$0.11	\$0.12	\$0.11	\$0.10	\$0.10	\$0.10
miscellaneous	\$0.15	\$0.10	\$0.08	\$0.08	\$0.08	\$0.09
Farm operating expenses	\$18.88	\$17.84	\$16.12	\$16.37	\$16.44	\$16.44
Expansion Cattle	\$0.30	\$0.06	\$0.09	\$0.30	\$0.16	\$0.18
Extraordinary Expense	\$0.02	\$0.00	\$0.00	\$0.02	\$0.01	\$0.00
Machinery Depreciation	\$0.91	\$0.93	\$0.93	\$0.93	\$0.83	\$0.81
Building Depreciation	\$0.62	\$0.67	\$0.71	\$0.74	\$0.77	\$0.73
Total Accrual Expenses	\$20.73	\$19.49	\$17.86	\$18.36	\$18.21	\$18.16
Net Farm Income w/o Appreciation	\$8.17	\$2.02	\$2.09	\$3.20	\$1.74	\$3.43



Selected Characteristics, Six Year Comparison
Same 25 Farms, Top 20%, Sorted by Return on Assets w/o Appreciation
 New York State, Dairy Farm Business Summary & Analysis Program

Table 5

	Year						Percent Change
	2014	2015	2016	2017	2018	2019	
Size of Business							
average number of cows	1,225	1,308	1,369	1,476	1,627	1,746	42.5%
average number of heifers	1,031	1,092	1,177	1,254	1,310	1,388	34.6%
percent heifers to cows	84%	83%	86%	85%	81%	79%	
milk sold, pounds	32,636,394	34,507,216	36,894,860	39,027,031	42,764,469	46,909,309	43.7%
worker equivalent	25.92	27.31	28.03	29.38	31.00	32.00	23.5%
total tillable acres	2,212	2,352	2,414	2,497	2,674	2,752	24.4%
Rates of Production							
milk sold per cow, pounds	26,643	26,376	26,949	26,438	26,291	26,870	0.9%
hay DM per acre, tons	3.40	3.50	3.30	3.60	3.30	3.50	2.9%
corn silage per acre, tons	19.10	18.50	17.30	19.30	18.70	18.60	-2.6%
grain acres per cow	0.12	0.11	0.11	0.09	0.17	0.09	-27.2%
cull rate	31%	31%	34%	33%	30%	32%	3.2%
net calf & cow sales, per cow	\$ 509	\$ 569	\$ 451	\$ 387	\$ 319	\$ 298	
Labor Efficiency							
cows per worker	47.3	47.9	48.8	50.2	52.5	54.6	15.4%
milk sold per worker, pounds	1,259,120	1,263,538	1,316,263	1,328,354	1,379,499	1,465,916	16.4%
Cost Control and Milk Price							
grain & conc. purchased as % of milk sales	29%	36%	34%	31%	33%	29%	
dairy feed & crop expense per cwt. milk	\$ 8.90	\$ 8.08	\$ 7.16	\$ 6.99	\$ 7.00	\$ 6.90	
labor and machinery costs per cow	\$ 1,672	\$ 1,629	\$ 1,566	\$ 1,606	\$ 1,537	\$ 1,587	-5.1%
hired labor cost per cwt.	\$ 2.69	\$ 2.76	\$ 2.69	\$ 2.84	\$ 2.79	\$ 2.81	
labor cost per hired worker equivalent	\$ 37,600	\$ 38,656	\$ 38,968	\$ 41,373	\$ 41,967	\$ 44,795	19.1%
operating cost of producing milk per cwt.	\$ 15.74	\$ 14.76	\$ 13.35	\$ 13.65	\$ 14.00	\$ 14.51	
purch. input cost of prod. milk per cwt.	\$ 17.29	\$ 16.36	\$ 15.00	\$ 15.33	\$ 15.61	\$ 16.05	
total cost of producing milk per cwt.	\$ 19.39	\$ 18.57	\$ 17.17	\$ 17.50	\$ 17.66	\$ 18.03	
net milk price per cwt.	\$ 24.55	\$ 17.41	\$ 16.15	\$ 17.44	\$ 16.10	\$ 18.29	



Table 5 Continued

Capital Efficiency(average for year)	2014	2015	2016	2017	2018	2019	
farm capital per cow	\$ 10,773	\$ 11,226	\$ 11,424	\$ 11,486	\$ 11,060	\$ 10,849	0.7%
machinery and equipment per cow	\$ 1,680	\$ 1,784	\$ 1,744	\$ 1,631	\$ 1,508	\$ 1,445	-14.0%
asset turnover ratio	0.73	0.53	0.49	0.52	0.46	0.56	
net reinvestment per cow	\$ (1,444)	\$ (1,210)	\$ (854)	\$ (1,277)	\$ (770)	\$ (652)	
Profitability							
net farm income without appreciation	\$ 2,664,131	\$ 697,108	\$ 772,263	\$ 1,247,091	\$ 745,441	\$ 1,610,874	\$7,736,908
net farm income w/o apprec. per cow	\$ 2,175	\$ 533	\$ 564	\$ 845	\$ 458	\$ 923	
net farm income with appreciation	\$ 2,887,268	\$ 1,099,633	\$ 1,117,708	\$ 1,670,049	\$ 469,578	\$ 2,141,647	
net farm income with apprec. per cow	\$ 2,357	\$ 841	\$ 816	\$ 1,131	\$ 289	\$ 1,227	
labor & management income per oper.	\$ 948,829	\$ 59,187	\$ 76,473	\$ 262,362	\$ 40,008	\$ 397,168	\$1,784,027
net non-farm withdrawals per cwt.	\$ 1.20	\$ 1.57	\$ 1.08	\$ 0.74	\$ 1.42	\$ 1.21	
rate of return on equity capital with apprec.	27.4%	8.0%	7.7%	11.5%	1.9%	13.8%	
rate of return on all capital with apprec.	21.1%	6.8%	6.6%	9.5%	2.6%	11.3%	
rate of return on equity capital w/o apprec.	25.2%	4.4%	4.8%	8.2%	4.0%	10.0%	
rate of return on all capital w/o apprec.	19.4%	4.1%	4.4%	7.0%	4.1%	8.5%	
Financial Summary							
farm net worth, end of year	\$ 10,958,666	\$ 11,292,118	\$ 12,106,360	\$ 13,104,678	\$ 13,012,165	\$ 14,511,996	67.3%
debt to asset ratio	0.24	0.25	0.25	0.27	0.28	0.26	
farm debt per cow	\$ 2,811	\$ 2,768	\$ 2,793	\$ 3,052	\$ 3,062	\$ 2,842	1.1%
debt coverage ratio	5.37	1.71	2.10	3.44	1.59	2.95	
working capital, as % of expenses	39%	31%	30%	31%	31%	35%	
retained earnings	\$ 2,272,655	\$ 154,677	\$ 372,941	\$ 958,859	\$ 137,614	\$ 1,042,495	\$4,939,241
valuation equity change	\$ (83,844)	\$ 113,373	\$ 108,117	\$ 40,071	\$ (475,014)	\$ 390,082	\$92,785



Six Year Per Cwt. Comparison
Same 99 Farms, Remaining 80% Sorted by ROA w/o Appreciation
 New York State, Dairy Farm Business Summary & Analysis Program

Table 6

	Year					
	2014	2015	2016	2017	2018	2019
number of cows	695	724	763	799	836	874
milk sales in pounds	17,488,119	18,355,205	19,896,449	20,662,184	21,510,262	22,682,203
milk per cow	25,153	25,345	26,089	25,859	25,715	25,940
RECEIPTS						
milk sales-\$	\$25.35	\$18.29	\$17.07	\$18.44	\$17.19	\$19.35
dairy cattle sales	\$1.84	\$1.91	\$1.50	\$1.48	\$1.14	\$1.05
dairy calf sales	\$0.31	\$0.46	\$0.21	\$0.21	\$0.08	\$0.09
other livestock sales	\$0.53	\$0.49	\$0.35	\$0.50	\$0.09	\$0.04
crop sales	\$0.53	\$0.49	\$0.35	\$0.50	\$0.42	\$0.28
government receipts	\$0.04	\$0.20	\$0.19	\$0.18	\$0.18	\$0.25
custom machine work	\$0.06	\$0.07	\$0.06	\$0.07	\$0.06	\$0.06
gas tax refund	\$0.00	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00
other	\$0.36	\$0.34	\$0.35	\$0.34	\$0.45	\$0.45
non-cash transfer(subtract)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Farm operating receipts	\$28.53	\$21.86	\$19.77	\$21.28	\$19.63	\$21.56
EXPENSES						
Hired labor	\$3.00	\$3.06	\$2.92	\$3.01	\$3.06	\$3.08
Feed						
dairy grain & concentrate	\$7.30	\$6.56	\$5.73	\$5.72	\$5.79	\$5.64
dairy roughage	\$0.32	\$0.26	\$0.32	\$0.34	\$0.32	\$0.33
nondairy feed	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
professional nutritional services	\$0.00	\$0.01	\$0.01	\$0.01	\$0.00	\$0.01
Machinery						
machine hire, rent & lease	\$0.57	\$0.57	\$0.50	\$0.58	\$0.53	\$0.59
machine repairs & parts	\$1.15	\$1.02	\$0.96	\$0.97	\$0.88	\$0.95
fuel, oil & grease	\$0.92	\$0.59	\$0.45	\$0.52	\$0.62	\$0.58



Table 6 Continued

	2014	2015	2016	2017	2018	2019
Livestock						
replacement livestock	\$0.06	\$0.04	\$0.04	\$0.05	\$0.02	\$0.09
breeding fees	\$0.24	\$0.24	\$0.23	\$0.23	\$0.22	\$0.20
veterinary & medicine	\$0.70	\$0.68	\$0.65	\$0.65	\$0.60	\$0.61
milk marketing	\$0.88	\$0.93	\$0.94	\$1.07	\$1.15	\$1.15
bedding	\$0.38	\$0.38	\$0.35	\$0.36	\$0.34	\$0.35
milking supplies	\$0.41	\$0.41	\$0.34	\$0.37	\$0.35	\$0.36
cattle leased	\$0.02	\$0.02	\$0.02	\$0.01	\$0.01	\$0.02
custom boarding	\$0.48	\$0.49	\$0.44	\$0.41	\$0.29	\$0.28
bST	\$0.20	\$0.19	\$0.14	\$0.04	\$0.00	\$0.00
livestock, professional fees	\$0.06	\$0.06	\$0.06	\$0.07	\$0.06	\$0.06
other livestock expense	\$0.12	\$0.10	\$0.08	\$0.09	\$0.08	\$0.10
Crops						
fertilizer & lime	\$0.59	\$0.64	\$0.47	\$0.40	\$0.43	\$0.39
seeds & plants	\$0.56	\$0.55	\$0.49	\$0.48	\$0.47	\$0.43
spray & other crop expense	\$0.29	\$0.26	\$0.25	\$0.24	\$0.21	\$0.20
crop, professional fees	\$0.02	\$0.04	\$0.03	\$0.04	\$0.03	\$0.02
Real estate						
land, build., fence repair	\$0.45	\$0.35	\$0.28	\$0.30	\$0.24	\$0.27
taxes	\$0.25	\$0.25	\$0.24	\$0.25	\$0.25	\$0.25
rent & lease	\$0.31	\$0.31	\$0.31	\$0.32	\$0.35	\$0.35
Other cash expense						
insurance	\$0.20	\$0.24	\$0.18	\$0.18	\$0.18	\$0.18
utilities	\$0.48	\$0.40	\$0.34	\$0.36	\$0.39	\$0.35
interest paid	\$0.50	\$0.51	\$0.60	\$0.71	\$0.80	\$0.85
other, professional fees	\$0.12	\$0.12	\$0.10	\$0.10	\$0.10	\$0.11
miscellaneous	\$0.13	\$0.12	\$0.10	\$0.11	\$0.10	\$0.11
Farm operating expenses	\$20.71	\$19.37	\$17.62	\$18.00	\$17.89	\$17.90
Expansion Cattle	\$0.10	\$0.09	\$0.17	\$0.20	\$0.05	\$0.06
Extraordinary Expense	\$0.00	\$0.01	\$0.00	\$0.02	\$0.01	\$0.01
Machinery Depreciation	\$1.06	\$1.01	\$0.99	\$1.02	\$0.94	\$0.90
Building Depreciation	\$0.66	\$0.71	\$0.74	\$0.76	\$0.77	\$0.77
Total Accrual Expenses	\$22.53	\$21.20	\$19.53	\$20.01	\$19.65	\$19.63
Net Farm Income w/o Appreciation	\$6.00	\$0.66	\$0.25	\$1.27	-\$0.03	\$1.93



Selected Characteristics, Six Year Comparison
Same 99 Farms, Remaining 80% Sorted by ROA w/o Appreciation
 New York State, Dairy Farm Business Summary & Analysis Program

Table 7

	Year						Percent Change
	2014	2015	2016	2017	2018	2019	
Size of Business							
average number of cows	695	724	763	799	836	874	25.8%
average number of heifers	599	630	667	707	731	721	20.4%
percent heifers to cows	86%	87%	87%	88%	87%	82%	
milk sold, pounds	17,488,119	18,355,205	19,896,449	20,662,184	21,510,262	22,682,203	29.7%
worker equivalent	15.84	16.45	16.72	17.26	17.67	17.98	13.5%
total tillable acres	1,454	1,524	1,610	1,645	1,667	1,713	17.9%
Rates of Production							
milk sold per cow, pounds	25,153	25,345	26,089	25,859	25,715	25,940	3.1%
hay DM per acre, tons	3.40	3.30	3.10	3.20	3.20	3.10	-8.8%
corn silage per acre, tons	18.70	17.70	17.10	17.70	19.00	18.40	-1.6%
grain acres per cow	0.22	0.23	0.18	0.19	0.27	0.15	-31.3%
cull rate, %	35%	36%	34%	35%	34%	36%	2.9%
net calf & cow sales, per cow	\$ 499	\$ 567	\$ 388	\$ 373	\$ 298	\$ 255	
Labor Efficiency							
cows per worker	43.9	44.0	45.6	46.3	47.3	48.6	10.8%
milk sold per worker, pounds	1,104,048	1,115,818	1,189,979	1,197,114	1,217,332	1,261,524	14.3%
Cost Control and Milk Price							
grain & conc. purchased as % of milk sales	29.00	36.00	34.00	31.00	34.00	29.00	
dairy feed & crop expense per cwt. milk	\$ 9.08	\$ 8.30	\$ 7.30	\$ 7.22	\$ 7.25	\$ 7.00	
labor and machinery costs per cow	\$ 1,897	\$ 1,810	\$ 1,747	\$ 1,806	\$ 1,777	\$ 1,802	-5.0%
hired labor cost per cwt.	\$ 3.00	\$ 3.06	\$ 2.92	\$ 3.01	\$ 3.06	\$ 3.08	
labor cost per hired worker equivalent	\$ 39,389	\$ 40,571	\$ 41,389	\$ 42,794	\$ 44,330	\$ 45,895	16.5%
operating cost of producing milk per cwt.	\$ 17.64	\$ 15.90	\$ 15.08	\$ 15.37	\$ 15.50	\$ 15.75	
purch. input cost of prod. milk per cwt.	\$ 19.36	\$ 17.63	\$ 16.82	\$ 17.17	\$ 17.22	\$ 17.42	
total cost of producing milk per cwt.	\$ 21.79	\$ 20.16	\$ 19.20	\$ 19.53	\$ 19.53	\$ 19.65	
net milk price per cwt.	\$ 24.48	\$ 17.36	\$ 16.13	\$ 17.37	\$ 16.05	\$ 18.20	



Table 7 Continued

Capital Efficiency(average for year)	2014	2015	2016	2017	2018	2019	
farm capital per cow	\$ 11,705	\$ 12,440	\$ 12,418	\$ 12,387	\$ 12,042	\$ 11,716	0.1%
machinery and equipment per cow	\$ 1,956	\$ 2,077	\$ 2,052	\$ 2,005	\$ 1,950	\$ 1,905	-2.6%
asset turnover ratio	0.65	0.47	0.43	0.47	0.41	0.50	
net reinvestment per cow	\$ (1,254)	\$ (1,253)	\$ (944)	\$ (691)	\$ (469)	\$ (535)	
Profitability							
net farm income without appreciation	\$ 1,048,150	\$ 120,623	\$ 49,147	\$ 261,393	\$ (5,695)	\$ 437,963	
net farm income w/o apprec. per cow	\$ 1,508	\$ 167	\$ 64	\$ 327	\$ (7)	\$ 501	
net farm income with appreciation	\$ 1,353,219	\$ 361,152	\$ 214,861	\$ 496,960	\$ (96,705)	\$ 678,904	
net farm income with apprec. per cow	\$ 1,947	\$ 499	\$ 282	\$ 622	\$ (116)	\$ 777	
labor & management income per oper.	\$ 350,817	\$ (84,547)	\$ (114,508)	\$ (24,724)	\$ (134,374)	\$ 47,032	
net non-farm withdrawals per cwt.	\$ 1.23	\$ 1.09	\$ 1.05	\$ 0.84	\$ 0.75	\$ 0.87	
rate of return on equity capital with apprec.	21.6%	3.3%	0.8%	5.1%	-4.4%	7.7%	
rate of return on all capital with apprec.	15.9%	3.3%	1.8%	4.8%	-1.0%	6.7%	
rate of return on equity capital w/o apprec.	16.1%	-0.6%	-1.8%	1.4%	-2.9%	3.9%	
rate of return on all capital w/o apprec.	12.2%	0.7%	0.1%	2.4%	-0.1%	4.4%	
Financial Summary							
farm net worth, end of year	\$ 6,105,800	\$ 6,219,936	\$ 6,183,043	\$ 6,501,487	\$ 6,199,192	\$ 6,662,624	30.6%
debt to asset ratio	0.30	0.33	0.36	0.36	0.38	0.36	
farm debt per cow	\$ 3,704	\$ 4,250	\$ 4,465	\$ 4,463	\$ 4,511	\$ 4,271	15.3%
debt coverage ratio	3.25	0.80	0.70	1.25	0.73	1.41	
working capital, as % of expenses	28%	21%	16%	16%	13%	16%	
retained earnings	\$ 832,492	\$ (80,891)	\$ (158,210)	\$ 88,576	\$ (166,135)	\$ 241,353	\$757,185
valuation equity change	\$ 149,206	\$ 55,495	\$ 33,204	\$ 154,677	\$ (152,774)	\$ 152,077	\$391,884



Table 8

"Legal 21" Farm Financial Ratios
Same 25 Farms, Top 20% Sorted by ROA w/o Appreciation, New York State, DFBS
2014-2019

	DFBS page	2014	2015	2016	2017	2018	2019	6 Year Average	Your Farm
Liquidity									
Current Ratio	7	3.54	3.31	2.95	2.98	3.61	4.26	3.28	<input type="text"/>
Working Capital	7	\$2,624,255	\$2,077,960	\$1,944,762	\$2,192,787	\$2,450,129	\$2,940,702	\$2,257,979	<input type="text"/>
As % of Total Expense	7	39.0%	31.0%	30.0%	31.0%	31.0%	35.0%	32.4%	<input type="text"/>
As % of Gross Revenue ¹	calc	27.8%	28.0%	26.4%	26.1%	28.7%	29.0%	27.4%	<input type="text"/>
Solvency									
Debt/Asset Ratio	7	0.24	0.25	0.25	0.27	0.28	0.26	0.26	<input type="text"/>
Equity/Asset Ratio	7	0.76	0.75	0.75	0.73	0.72	0.74	0.74	<input type="text"/>
Debt/Equity Ratio(Leverage Ratio)	7	0.31	0.33	0.33	0.36	0.40	0.35	0.35	<input type="text"/>
Profitability									
Net Farm Income w/o Apprec. (Per Cow)	1	\$2,175	\$533	\$564	\$845	\$458	\$923	\$915	<input type="text"/>
ROA w/o Apprec.	4	19.4%	4.1%	4.4%	7.0%	4.1%	8.5%	7.8%	<input type="text"/>
ROE w/o Apprec.	4	25.2%	4.4%	4.8%	8.2%	4.0%	10.0%	9.3%	<input type="text"/>
Operating Profit Margin Ratio ²	calc	0.27	0.08	0.09	0.14	0.09	0.16	0.135	<input type="text"/>
EBITDA(Per Cow) ³	calc	\$2,494	\$877	\$942	\$1,247	\$879	\$1,341	\$1,288	<input type="text"/>
Repayment Capacity									
Capital Debt Repayment Capacity(per cow) ⁴	calc	\$2,333	\$619	\$802	\$1,198	\$642	\$1,152	\$1,119	<input type="text"/>
Capital Debt Repayment Margin(per cow) ⁵	calc	\$1,899	\$258	\$420	\$849	\$238	\$761	\$733	<input type="text"/>
Replacement Margin(per cow) ⁶	calc	\$2,091	\$375	\$550	\$952	\$424	\$934	\$878	<input type="text"/>
Term Debt Coverage Ratio	1	5.37	1.71	2.10	3.44	1.59	2.95	2.84	<input type="text"/>
Replacement Margin Coverage Ratio ⁷	calc	3.4	1.0	1.3	2.0	1.0	1.9	1.76	<input type="text"/>

Financial Efficiency**Table 8 Continued**

Asset Turnover Ratio ⁸	14	0.73	0.53	0.49	0.52	0.46	0.56	0.55	
Operating Expense Ratio	14	0.66	0.82	0.8	0.76	0.81	0.75	0.77	
Depreciation Expense Ratio	14	0.05	0.07	0.08	0.08	0.08	0.07	0.07	
Interest Expense Ratio	14	0.01	0.01	0.02	0.02	0.03	0.02	0.02	
Net Farm Income from Operations Ratio	4	0.28	0.09	0.10	0.15	0.09	0.16	0.14	

1 Calculated utilizing gross income instead of value of farm production. $(\text{Current Assets} - \text{Current Liabilities}) / \text{Gross Receipts} * 100$

2 $(\text{Net Farm Income} + \text{Interest Paid} - \text{Unpaid Family Labor} - \text{Owner Value}) / \text{Gross Revenue}$

3 $(\text{Net Farm Income} + \text{Depreciation} + \text{Interest} - \text{Value of Unpaid Owner Labor \& Management}) / \text{Average Cows}$

4 $(\text{Net Farm Income} + \text{Depreciation} + \text{Net Non-Farm Income} - \text{Non-Farm Cash Expenses} + \text{Interest Paid on Term Loans}) / \text{Average Cows}$

5 $(\text{Capital Debt Repayment Capacity} - \text{Scheduled Principle and Interest on Term Loans}) / \text{Average Cows}$

6 $(\text{Capital Debt Repayment Capacity} - \text{Unfunded(cash) Capital Replacement Allowance}) / \text{Annual machinery depreciation expense}$ utilized to represent un-funded capital replacement requirement.

7 $(\text{Capital Debt Repayment Capacity}) / (\text{Scheduled Principle \& Interest on Term Loans} + \text{Unfunded(cash) Capital Replacement Allowance})$

8 Utilizing Gross Farm Income to calculate instead of value of farm production

Source: Farm Financial Ratios and Guidelines, Farm Financial Standards Council, 2014



Table 9

**"Legal 21" Farm Financial Ratios
Same 124 Farms, New York State, DFBS
2014-2019**

	DFBS page	2014	2015	2016	2017	2018	2019	6 Year Average	Your Farm
Liquidity									
Current Ratio	7	3.11	2.53	2.18	2.21	2.13	2.51	2.45	<input type="text"/>
Working Capital	7	\$1,406,391	\$1,056,443	\$899,706	\$967,672	\$942,173	\$1,179,302	\$1,075,281	<input type="text"/>
As % of Total Expense	7	31.0%	24.0%	20.0%	20.0%	19.0%	22.0%	0.23	<input type="text"/>
As % of Gross Revenue ¹	calc	23.9%	22.5%	19.5%	18.6%	18.5%	19.8%	0.20	<input type="text"/>
Solvency									
Debt/Asset Ratio	7	0.28	0.3	0.33	0.33	0.35	0.33	0.32	<input type="text"/>
Equity/Asset Ratio	7	0.72	0.70	0.67	0.67	0.65	0.67	0.68	<input type="text"/>
Debt/Equity Ratio(Leverage Ratio)	7	0.39	0.44	0.48	0.49	0.54	0.49	0.47	<input type="text"/>
Profitability									
Net Farm Income w/o Apprec. (Per Cow)	1	\$1,713	\$281	\$220	\$492	\$146	\$642	\$582	<input type="text"/>
ROA w/o Apprec.	4	14.3%	1.6%	1.3%	3.8%	1.2%	5.7%	4.7%	<input type="text"/>
ROE w/o Apprec.	4	18.9%	1.0%	0.3%	3.7%	-0.6%	6.1%	4.9%	<input type="text"/>
Operating Profit Margin Ratio ²	calc	0.22	0.04	0.03	0.08	0.03	0.11	0.09	<input type="text"/>
EBITDA(Per Cow) ³	calc	\$2,056	\$632	\$614	\$916	\$576	\$1,078	\$979	<input type="text"/>
Repayment Capacity									
Capital Debt Repayment Capacity(per cow) ⁴	calc	\$1,933	\$506	\$529	\$897	\$514	\$1,006	\$898	<input type="text"/>
Capital Debt Repayment Margin(per cow) ⁵	calc	\$1,426	\$5	\$10	\$374	-\$33	\$434	\$369	<input type="text"/>
Replacement Margin(per cow) ⁶	calc	\$1,674	\$254	\$272	\$639	\$280	\$778	\$649	<input type="text"/>
Term Debt Coverage Ratio	1	3.81	1.01	1.02	1.71	0.94	1.76	1.71	<input type="text"/>
Replacement Margin Coverage Ratio ⁷	calc	2.5	0.7	0.7	1.1	0.7	1.3	1.16	<input type="text"/>

Financial Efficiency

Table 9 Continued

Asset Turnover Ratio ⁸	14	0.67	0.49	0.45	0.48	0.43	0.52	0.51	
Operating Expense Ratio	14	0.69	0.85	0.85	0.8	0.85	0.78	0.80	
Depreciation Expense Ratio	14	0.06	0.08	0.09	0.08	0.08	0.08	0.08	
Interest Expense Ratio	14	0.01	0.02	0.03	0.03	0.04	0.03	0.03	
Net Farm Income from Operations Ratio	4	0.23	0.05	0.04	0.09	0.03	0.11	0.09	

1 Calculated utilizing gross income instead of value of farm production. $(\text{Current Assets} - \text{Current Liabilities}) / \text{Gross Receipts} * 100$

2 $(\text{Net Farm Income} + \text{Interest Paid} - \text{Unpaid Family Labor} - \text{Owner Value}) / \text{Gross Revenue}$

3 $(\text{Net Farm Income} + \text{Depreciation} + \text{Interest} - \text{Value of Un-Paid Owner Labor \& Management}) / \text{Average Cows}$

4 $(\text{Net Farm Income} + \text{Depreciation} + \text{Net Non-Farm Income} - \text{Non-Farm Cash Expenses} + \text{Interest Paid on Term Loans}) / \text{Average Cows}$

5 $(\text{Capital Debt Repayment Capacity} - \text{Scheduled Principle and Interest on Term Loans}) / \text{Average Cows}$

6 $(\text{Capital Debt Repayment Capacity} - \text{Unfunded(cash) Capital Replacement Allowance}) / \text{Annual machinery depreciation expense utilized to represent un-funded capital replacement requirement.}$

7 $(\text{Capital Debt Repayment Capacity}) / (\text{Scheduled Principle \& Interest on Term Loans} + \text{Unfunded(cash) Capital Replacement Allowance})$

8 Utilizing Gross Farm Income to calculate instead of value of farm production

Source: Farm Financial Ratios and Guidelines, Farm Financial Standards Council, 2014

OTHER A.E.M. EXTENSION BULLETINS

EB No	Title	Fee (if applicable)	Author(s)
2021-01	“Six Year Trend Analysis 2019, New York State Dairy Farms, Selected Financial and Production Factors”, Dairy Farm Business Summary		Karszes, J. and Augello, L.
2020-17	Potential Economic Benefits of Using Certified Clean Hop Plants vs. Hop Stunt Viroid Disease		Davis, T. J., Gómez, M.I., and Twomey, M.
2020-16	The Covid-19 Shopper: Food Preparation Changes		Park, K., Brumberg, A., and Yonezawa, K.
2020-15	The Covid-19 Shopper: Shopping Habits during Covid-19		Park, K., Brumberg, A., and Yonezawa, K.
2020-14	The Covid-19 Shopper: Online Shopping		Park, K., Brumberg, A., and Yonezawa, K.
2020-13	Enterprise Tool for Eastern United States Small Vineyard Management		Davis, T. J., and Gómez, M. I.
2020-12	Broccoli Production Enterprise Budgets		Davis, T.J. and Gomez, M. I.
2020-11	Cost of Establishment and Development of Concord Grapes in the Lake Erie Region of New York - 2020		Davis, T.J., Gómez, M.I., and Martin, K.
2020-10	Six Year Trend Analysis 2018, New York State Dairy Farms, Selected Financial and Production Factors		Karszes, J., and Skellie, J.
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