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**Six Year Trend Analysis 2021
New York State Dairy Farms
Selected Financial and Production Factors**

**Dairy Farm Business Summary
New York State
Same 120 Farms
2016 - 2021**

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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 120 Farms, 2016 – 2021

Jason Karszes and Lauren Augello¹

Trend analysis is an important use of benchmarking within a dairy business. While current year performance is important, understanding trends within the business and the industry may provide additional insight into strengths and areas of opportunity. To provide benchmark trends of various financial and performance factors over time, data was utilized from 120 farms that have participated in the Dairy Farm Business Summary and Analysis Project (DFBS) in New York State for six years, from 2016 through 2021. This information is reported on an average basis, the top 25% of farms as determined by average return on assets w/o appreciation over the six years, and the remaining 75% of farms. For selected factors, the trends and changes between the top 25% of farms and the remaining 75% are highlighted. The following tables present these benchmarks:

Table 1	Selected Characteristics, Six Year Comparison, Average All 120 Farms
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Table 9	“Legal 21” Farm Financial Ratios, Same 120 Farms

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, then you can compare your trends to the benchmark trends. If your trends are different than the industry, then you can ask the question: “Why is it different” to help identify potential areas of improvements or strengths to continue to build. If you are a DFBS cooperator, you can work with your extension educator to look at these trends and comparisons between all farms and your farm business.

These benchmarks and comparisons 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 120 Farms

Table 1

New York State, Dairy Farm Business Summary & Analysis Program

	2016	2017	2018	2019	2020	2021	% Change
Size of Business							
average number of cows	927	983	1,048	1,106	1,147	1,172	26.4%
percent heifers to cows	87%	87%	85%	81%	79%	77%	
milk sold, pounds	24,402,994	25,600,720	27,099,739	29,089,812	30,249,063	31,687,347	29.9%
worker equivalent	19.8	20.6	21.3	21.8	22.1	22.1	
tillable acres per cow	1.99	1.93	1.86	1.81	1.82	1.83	-8.0%
corn grain acres per cow	0.16	0.15	0.21	0.11	0.14	0.19	
Rates of Production							
milk sold per cow, pounds	26,335	26,033	25,865	26,305	26,379	27,034	2.7%
cull rate	34%	34%	32%	35%	35%	35%	
net calf & cow sales, per cow	416	378	300	270	277	292	
Labor Efficiency							
cows per worker	46.8	47.7	49.1	50.7	51.9	53.2	13.6%
milk sold per worker, pounds	1,231,231	1,243,357	1,269,903	1,333,783	1,368,117	1,437,068	16.7%
Cost Control and Milk Price							
dairy feed & crop expense per cwt. milk	\$ 7.21	\$ 7.12	\$ 7.14	\$ 6.98	\$ 7.48	\$ 8.24	
labor and machinery costs per cow	\$ 1,677	\$ 1,677	\$ 1,733	\$ 1,686	\$ 1,727	\$ 1,759	
hired labor cost per cwt.	\$ 2.83	\$ 2.97	\$ 2.98	\$ 2.99	\$ 3.09	\$ 3.10	
labor cost per hired worker equivalent	\$ 40,355	\$ 42,453	\$ 43,391	\$ 45,573	\$ 48,167	\$ 50,778	25.8%
operating cost of producing milk per cwt. ¹	\$ 14.46	\$ 14.81	\$ 14.96	\$ 15.33	\$ 15.76	\$ 16.05	
purch. input cost of producing milk per cwt. ¹	\$ 16.15	\$ 16.54	\$ 16.62	\$ 16.92	\$ 17.37	\$ 17.60	
total cost of producing milk per cwt. ¹	\$ 18.46	\$ 18.82	\$ 18.83	\$ 19.06	\$ 19.61	\$ 19.89	
net milk price per cwt.	\$ 16.13	\$ 17.42	\$ 16.06	\$ 18.26	\$ 17.26	\$ 18.45	
Capital Efficiency(average for year)							
farm capital per cow	\$ 12,144	\$ 12,080	\$ 11,739	\$ 11,467	\$ 11,861	\$ 12,479	2.8%
machinery and equipment per cow	\$ 1,947	\$ 1,871	\$ 1,781	\$ 1,731	\$ 1,808	\$ 1,908	
net reinvestment per cow	\$ 893	\$ 886	\$ 554	\$ 578	\$ 823	\$ 817	
Profitability							
net farm income without appreciation	\$ 226,759	\$ 496,553	\$ 168,649	\$ 725,232	\$ 960,675	\$ 701,707	
net farm income w/o apprec. per cow	\$ 245	\$ 505	\$ 161	\$ 656	\$ 838	\$ 599	
labor & management income per oper.	\$ (69,179)	\$ 39,293	\$ (100,321)	\$ 126,599	\$ 205,800	\$ 80,043	
rate of return on equity capital w/o apprec.	0.7%	3.9%	-0.3%	6.2%	8.0%	4.8%	
rate of return on all capital w/o apprec.	1.5%	3.9%	1.4%	5.8%	6.7%	4.3%	
Financial Summary							
farm net worth, end of year	7,769,995	8,238,074	8,042,365	8,754,077	9,870,708	10,460,808	6.1%
debt to asset ratio	0.32	0.33	0.35	0.33	0.30	0.31	
farm debt per cow	\$ 3,908	\$ 3,975	\$ 3,994	\$ 3,773	\$ 3,651	\$ 3,931	0.6%
retained earnings	\$ (40,270)	\$ 288,528	\$ (94,430)	\$ 439,216	\$ 695,305	\$ 349,451	
valuation equity change	\$ 40,961	\$ 120,789	\$ (230,569)	\$ 220,448	\$ 103,904	\$ 188,231	

¹Due to the pandemic and the government response, the increase in government receipts from 2019 to 2020 was unusually large. Therefor, this change isn't included in the calculation as an offset to the cost of milk production measures for 2020 in this report.



Table 2

Top 25% of Farms vs. Remaining 75% of Farms
Percent Change and Differences, Selected Measures
Same 120 Farms, 2016 - 2021
Dairy Farm Business Summary, New York State

	2016	2021	Change	Percent Change	Percent Difference	
					2016	2021
Average Herd Size, Milking & Dry						
Top 25%	1,312	1,816	504	38.4%	64.4%	89.6%
75%	798	958	160	20.1%		
Milk per Cow, Lbs.						
Top 25%	26,956	27,441	485	1.8%	3.7%	2.5%
75%	25,996	26,777	781	3.0%		
Milk Sold per Farm, Lbs.						
Top 25%	35,354,834	49,831,237	14,476,403	40.9%	70.4%	94.4%
75%	20,752,381	25,639,384	4,887,003	23.5%		
Cows per Worker						
Top 25%	50.3	59.5	9.25	18.4%	11.7%	19.5%
75%	45.0	49.8	4.81	10.7%		
Milk Sold per Worker, Lbs.						
Top 25%	1,354,591	1,633,276	278,684	20.6%	15.7%	22.5%
75%	1,170,467	1,333,301	162,834	13.9%		
Hired Labor Cost per Cwt.						
Top 25%	\$2.67	\$2.87	\$0.20	7.3%	-8.8%	-11.7%
75%	\$2.93	\$3.24	\$0.32	10.8%		
Cost per Hired Worker						
Top 25%	\$40,180	\$51,120	\$10,941	27.2%	-0.7%	1.1%
75%	\$40,444	\$50,586	\$10,141	25.1%		
Investment Per Cow						
Top 25%	\$11,736	\$12,058	\$323	2.8%	-5.1%	-5.4%
75%	\$12,368	\$12,746	\$377	3.1%		
Machinery Invest. per Cow						
Top 25%	\$1,782	\$1,652	-\$130.18	-7.3%	-12.5%	-20.2%
75%	\$2,037	\$2,069	\$32.82	1.6%		
Debt Per Cow, End of Year						
Top 25%	\$2,979	\$3,067	\$88.00	3.0%	-32.6%	-31.5%
75%	\$4,422	\$4,479	\$57.00	1.3%		
Net Worth, Beginning of 2016 to End of 2021						
Top 25%	\$11,243,529	\$17,060,993	\$5,817,464	51.7%	71.6%	106.5%
75%	\$6,553,346	\$8,260,746	\$1,707,400	26.1%		

Table 3
Top 25% of Farms vs. Remaining 75% of Farms

Selected Measures, Six Year Comparison

Same 120 Farms, 2016 - 2021

Dairy Farm Business Summary, New York State

	2016	2017	2018	2019	2020	2021
Net Reinvestment Per Cow¹						
Top 25%	-\$859	-\$1,160	-\$748	-\$731	-\$805	-\$792
75%	-\$912	-\$732	-\$441	-\$486	-\$835	-\$831
Farm Capital per Cow						
Top 25%	\$11,736	\$11,734	\$11,267	\$11,030	\$11,350	\$12,058
75%	\$12,368	\$12,274	\$12,015	\$11,731	\$12,182	\$12,746
Tillable Acres per Cow						
Top 25%	1.80	1.72	1.65	1.58	1.56	1.58
75%	2.05	1.99	1.93	1.91	1.94	1.95
Corn Grain Acres per Cow						
Top 25%	0.09	0.09	0.17	0.09	0.09	0.14
75%	0.20	0.19	0.24	0.13	0.17	0.22
Crop Revenue, Per Cow						
Top 25%	\$90	\$141	\$123	\$26	\$48	\$189
75%	\$85	\$128	\$119	\$67	\$107	\$309
Cull Rate, Percent						
Top 25%	34%	32%	30%	33%	35%	34%
75%	34%	35%	33%	35%	36%	36%
Net Calf & Cow Income, per Cow²						
Top 25%	\$463	\$386	\$321	\$266	\$262	\$291
75%	\$390	\$375	\$287	\$274	\$285	\$293
Percent Heifers to Cows						
Top 25%	86%	85%	81%	77%	74%	75%
75%	88%	89%	87%	83%	82%	79%
Operating Cost to Produce Milk per Cwt.³						
Top 25%	\$13.41	\$13.78	\$14.00	\$14.56	\$14.88	\$15.45
75%	\$15.06	\$15.39	\$15.55	\$15.81	\$16.34	\$16.45
Total Cost to Produce Milk per Cwt.³						
Top 25%	\$17.29	\$17.71	\$17.67	\$18.12	\$18.53	\$19.15
75%	\$19.12	\$19.46	\$19.54	\$19.64	\$20.31	\$20.37
Net Farm Income Per Cow						
Top 25%	\$548	\$819	\$453	\$901	\$1,084	\$796
75%	\$78	\$329	-\$10	\$508	\$683	\$474
Net Milk Price per Cwt.						
Top 25%	\$16.19	\$17.54	\$16.10	\$18.30	\$17.44	\$18.53
75%	\$16.10	\$17.34	\$16.04	\$18.23	\$17.15	\$18.40
Farm Operating Receipts per Cwt.						
Top 25%	\$20.01	\$21.54	\$19.90	\$21.51	\$22.63	\$22.46
75%	\$19.74	\$21.27	\$19.64	\$21.63	\$23.06	\$22.97
Working Capital as Percent of Expenses						
Top 25%	30%	31%	32%	35%	42%	42%
75%	17%	16%	14%	17%	22%	23%

¹Net Reinvestment per cow is the total capital reinvested in the farm minus any capital sales

²Net calf & cow income, per cow = cattle revenue plus calf revenue - purchased replacement - expansion cattle expense

³Due to the pandemic and the government response, the increase in government receipts from 2019 to 2020 was unusually large. Therefore, this change isn't included as an offset to the cost of production measures for 2020 in this report.

Table 3 Continued

	2016	2017	2018	2019	2020	2021
Hired Labor Cost per Cwt.						
Top 25%	\$2.67	\$2.83	\$2.79	\$2.77	\$2.87	\$2.87
75%	\$2.93	\$3.04	\$3.09	\$3.12	\$3.22	\$3.24
Purchased Feed per Cwt.						
Top 25%	\$5.77	\$5.68	\$5.72	\$5.65	\$5.89	\$6.64
75%	\$5.66	\$5.67	\$5.76	\$5.66	\$6.10	\$6.67
Livestock Expenses, Total per Cwt. ⁴						
Top 25%	\$2.93	\$3.02	\$2.97	\$3.01	\$3.22	\$3.22
75%	\$3.36	\$3.42	\$3.18	\$3.24	\$3.43	\$3.47
Machinery & Fuel Expenses per Cwt. ⁵						
Top 25%	\$1.62	\$1.72	\$1.67	\$1.76	\$1.78	\$1.94
75%	\$1.93	\$2.11	\$2.07	\$2.19	\$2.15	\$2.30
Machinery Depreciation Expense per Cwt.						
Top 25%	\$0.97	\$0.96	\$0.84	\$0.83	\$0.84	\$0.84
75%	\$0.96	\$0.98	\$0.91	\$0.86	\$0.87	\$0.82
Crop Input Costs per Cwt. ⁶						
Top 25%	\$1.02	\$1.02	\$0.93	\$0.85	\$0.93	\$0.98
75%	\$1.24	\$1.15	\$1.12	\$1.03	\$1.13	\$1.26
Additional Fixed Costs per Cwt. ⁷						
Top 25%	\$1.43	\$1.40	\$1.40	\$1.42	\$1.44	\$1.49
75%	\$1.53	\$1.61	\$1.59	\$1.57	\$1.70	\$1.69
Interest Costs per Cwt.						
Top 25%	\$0.35	\$0.43	\$0.55	\$0.55	\$0.37	\$0.32
75%	\$0.60	\$0.70	\$0.80	\$0.86	\$0.64	\$0.52
Total Farm Operating Expenses per Cwt.						
Top 25%	\$16.20	\$16.45	\$16.41	\$16.42	\$16.96	\$17.98
75%	\$17.58	\$18.05	\$17.95	\$18.01	\$18.76	\$19.54

⁴Livestock 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

⁵Machinery & Fuel Expenses = sum of machine hire, rent, & lease, machine repairs & parts, and fuel, oil, & grease expense categories

⁶Crop Input Costs = sum of fertilizer & lime, seeds & plants, spray & other crop expenses, and crop, professional fees expense categories

⁷Fixed 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 30 Farms, Top 25% Sorted by Return on Assets w/o Appreciation
 New York State, Dairy Farm Business Summary & Analysis Program

Table 4

	Year					
	2016	2017	2018	2019	2020	2021
number of cows	1,312	1,410	1,549	1,667	1,770	1,816
milk sales in pounds	35,354,834	37,399,937	40,942,397	44,712,240	47,432,756	49,831,237
milk per cow	26,956	26,520	26,429	26,822	26,806	27,441
RECEIPTS						
milk sales-\$	\$17.13	\$18.61	\$17.32	\$19.47	\$18.75	\$19.89
dairy cattle sales	\$1.70	\$1.53	\$1.31	\$1.17	\$1.02	\$1.02
dairy calf sales	\$0.15	\$0.21	\$0.11	\$0.09	\$0.15	\$0.21
other livestock sales	\$0.07	\$0.10	\$0.09	\$0.04	\$0.05	\$0.06
crop sales	\$0.33	\$0.53	\$0.46	\$0.10	\$0.18	\$0.69
government receipts	\$0.18	\$0.09	\$0.10	\$0.22	\$1.96	\$0.11
custom machine work	\$0.07	\$0.07	\$0.08	\$0.09	\$0.09	\$0.08
gas tax refund	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
other	\$0.37	\$0.40	\$0.42	\$0.34	\$0.43	\$0.39
non-cash transfer (subtract)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Farm operating receipts	\$20.01	\$21.54	\$19.90	\$21.51	\$22.63	\$22.46
EXPENSES						
Hired labor	\$2.67	\$2.83	\$2.79	\$2.77	\$2.87	\$2.87
Feed						
dairy grain & concentrate	\$5.77	\$5.68	\$5.72	\$5.65	\$5.89	\$6.64
dairy roughage	\$0.40	\$0.35	\$0.37	\$0.41	\$0.44	\$0.53
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	\$0.00
Machinery						
machine hire, rent & lease	\$0.43	\$0.41	\$0.42	\$0.48	\$0.50	\$0.54
machine repairs & parts	\$0.81	\$0.86	\$0.74	\$0.81	\$0.91	\$0.93
fuel, oil & grease	\$0.38	\$0.45	\$0.52	\$0.47	\$0.37	\$0.47



Table 4 Continued

Livestock	2016	2017	2018	2019	2020	2021
replacement livestock	\$0.04	\$0.02	\$0.03	\$0.08	\$0.14	\$0.14
breeding fees	\$0.18	\$0.19	\$0.17	\$0.15	\$0.17	\$0.17
veterinary & medicine	\$0.58	\$0.62	\$0.57	\$0.53	\$0.51	\$0.53
milk marketing	\$0.95	\$1.07	\$1.22	\$1.17	\$1.31	\$1.36
bedding	\$0.35	\$0.33	\$0.30	\$0.31	\$0.31	\$0.32
milking supplies	\$0.33	\$0.28	\$0.28	\$0.31	\$0.33	\$0.30
cattle leased	\$0.01	\$0.01	\$0.00	\$0.01	\$0.02	\$0.00
custom boarding	\$0.27	\$0.31	\$0.29	\$0.31	\$0.30	\$0.24
bST	\$0.12	\$0.04	\$0.00	\$0.00	\$0.00	\$0.00
livestock, professional fees	\$0.05	\$0.06	\$0.05	\$0.05	\$0.06	\$0.06
other livestock expense	\$0.05	\$0.10	\$0.06	\$0.08	\$0.07	\$0.09
Crops						
fertilizer & lime	\$0.37	\$0.36	\$0.37	\$0.35	\$0.36	\$0.41
seeds & plants	\$0.41	\$0.44	\$0.35	\$0.32	\$0.38	\$0.37
spray & other crop expense	\$0.19	\$0.21	\$0.19	\$0.18	\$0.18	\$0.19
crop, professional fees	\$0.04	\$0.02	\$0.01	\$0.01	\$0.01	\$0.01
Real estate						
land, build., fence repair	\$0.25	\$0.24	\$0.24	\$0.31	\$0.33	\$0.32
taxes	\$0.25	\$0.23	\$0.22	\$0.22	\$0.21	\$0.23
rent & lease	\$0.25	\$0.25	\$0.27	\$0.23	\$0.27	\$0.27
Other cash expense						
insurance	\$0.16	\$0.16	\$0.14	\$0.16	\$0.15	\$0.15
utilities	\$0.32	\$0.31	\$0.33	\$0.29	\$0.28	\$0.34
interest paid	\$0.35	\$0.43	\$0.55	\$0.55	\$0.37	\$0.32
other, professional fees	\$0.11	\$0.11	\$0.11	\$0.10	\$0.09	\$0.08
miscellaneous	\$0.09	\$0.10	\$0.09	\$0.10	\$0.09	\$0.10
Farm operating expenses	\$16.20	\$16.45	\$16.41	\$16.42	\$16.96	\$17.98
Expansion Cattle	\$0.09	\$0.26	\$0.17	\$0.18	\$0.06	\$0.04
Extraordinary Expense	\$0.00	\$0.04	\$0.01	\$0.00	\$0.00	\$0.00
Machinery Depreciation	\$0.97	\$0.96	\$0.84	\$0.83	\$0.84	\$0.84
Building Depreciation	\$0.72	\$0.74	\$0.76	\$0.73	\$0.72	\$0.71
Total Accrual Expenses	\$17.98	\$18.45	\$18.19	\$18.15	\$18.58	\$19.56
Net Farm Income w/o Appreciation	\$2.03	\$3.09	\$1.71	\$3.36	\$4.05	\$2.90



Selected Characteristics, Six Year Comparison
Same 30 Farms, Top 25% Sorted by Return on Assets w/o Appreciation
 New York State, Dairy Farm Business Summary & Analysis Program

Table 5

	Year						Percent Change
	2016	2017	2018	2019	2020	2021	
Size of Business							
average number of cows	1,312	1,410	1,549	1,667	1,770	1,816	38.4%
average number of heifers	1,124	1,194	1,253	1,289	1,318	1,353	20.4%
percent heifers to cows	86%	85%	81%	77%	74%	75%	
milk sold, pounds	35,354,834	37,399,937	40,942,397	44,712,240	47,432,756	49,831,237	40.9%
worker equivalent	26.10	27.57	29.09	29.84	30.54	30.51	16.9%
total tillable acres	2,368	2,423	2,555	2,637	2,761	2,866	21.0%
Rates of Production							
milk sold per cow, pounds	26,956	26,520	26,429	26,822	26,806	27,441	1.8%
hay DM per acre, tons	3.20	3.60	3.30	3.40	3.10	3.90	21.9%
corn silage per acre, tons	16.60	18.80	18.90	18.20	17.90	19.00	14.5%
grain acres per cow	0.09	0.09	0.17	0.09	0.09	0.14	50.9%
cull rate	34%	32%	30%	33%	35%	34%	0.0%
net calf & cow sales, per cow	\$ 463	\$ 386	\$ 321	\$ 266	\$ 262	\$ 291	
Labor Efficiency							
cows per worker	50.3	51.1	53.2	55.9	58.0	59.5	18.4%
milk sold per worker, pounds	1,354,591	1,356,545	1,407,439	1,498,399	1,553,135	1,633,276	20.6%
Cost Control and Milk Price							
grain & conc. purchased as % of milk sales	34%	31%	33%	29%	31%	33%	
dairy feed & crop expense per cwt. milk	\$ 7.19	\$ 7.05	\$ 7.02	\$ 6.91	\$ 7.27	\$ 8.15	
labor and machinery costs per cow	\$ 1,577	\$ 1,614	\$ 1,542	\$ 1,572	\$ 1,611	\$ 1,691	7.2%
hired labor cost per cwt.	\$ 2.67	\$ 2.83	\$ 2.79	\$ 2.77	\$ 2.87	\$ 2.87	
labor cost per hired worker equivalent	\$ 40,180	\$ 42,402	\$ 43,074	\$ 45,482	\$ 48,714	\$ 51,120	27.2%
operating cost of producing milk per cwt. ¹	\$ 13.41	\$ 13.78	\$ 14.00	\$ 14.56	\$ 14.88	\$ 15.45	
purch. input cost of prod. milk per cwt. ¹	\$ 15.10	\$ 15.52	\$ 15.61	\$ 16.11	\$ 16.44	\$ 16.99	
total cost of producing milk per cwt. ¹	\$ 17.29	\$ 17.71	\$ 17.67	\$ 18.12	\$ 18.53	\$ 19.15	
net milk price per cwt.	\$ 16.19	\$ 17.54	\$ 16.10	\$ 18.30	\$ 17.44	\$ 18.53	

¹Due to the pandemic and the government response, the increase in government receipts from 2019 to 2020 was unusually large. Therefore, this change isn't included as an offset to the cost of production measures for 2020 in this report.



Table 5 Continued

Capital Efficiency(average for year)	2016	2017	2018	2019	2020	2021	
farm capital per cow	\$ 11,736	\$ 11,734	\$ 11,267	\$ 11,030	\$ 11,350	\$ 12,058	2.8%
machinery and equipment per cow	\$ 1,782	\$ 1,664	\$ 1,542	\$ 1,477	\$ 1,548	\$ 1,652	-7.3%
asset turnover ratio	0.48	0.51	0.45	0.55	0.55	0.54	
net reinvestment per cow	\$ 859	\$ 1,160	\$ 748	\$ 731	\$ 805	\$ 792	
Profitability							Total
net farm income without appreciation	\$ 719,236	\$ 1,155,390	\$ 701,986	\$ 1,502,214	\$ 1,919,487	\$ 1,445,143	\$7,443,456
net farm income w/o apprec. per cow	\$ 548	\$ 819	\$ 453	\$ 901	\$ 1,084	\$ 796	
net farm income with appreciation	\$ 1,032,629	\$ 1,537,067	\$ 391,734	\$ 1,978,224	\$ 2,274,542	\$ 1,981,813	
net farm income with apprec. per cow	\$ 787	\$ 1,090	\$ 253	\$ 1,187	\$ 1,285	\$ 1,091	Total
labor & management income per oper.	\$ 62,575	\$ 236,689	\$ 31,521	\$ 367,592	\$ 516,939	\$ 273,962	\$1,489,278
net non-farm withdrawals per cwt.	\$ 1.17	\$ 0.82	\$ 1.35	\$ 1.16	\$ 0.97	\$ 1.54	
rate of return on equity capital with apprec.	7.3%	10.9%	1.4%	13.2%	13.5%	10.5%	
rate of return on all capital with apprec.	6.2%	9.0%	2.3%	10.8%	11.0%	8.6%	
rate of return on equity capital w/o apprec.	4.5%	7.8%	3.9%	9.6%	11.2%	7.2%	
rate of return on all capital w/o apprec.	4.2%	6.7%	4.1%	8.2%	9.2%	6.2%	
Financial Summary							
farm net worth, end of year	\$ 11,743,873	\$ 12,646,362	\$ 12,550,853	\$ 13,947,048	\$ 16,015,260	\$ 17,060,993	51.7%
debt to asset ratio	0.26	0.27	0.29	0.27	0.24	0.25	
farm debt per cow	\$ 2,979	\$ 3,152	\$ 3,157	\$ 2,972	\$ 2,789	\$ 3,067	3.0%
debt coverage ratio	1.92	3.01	1.52	2.70	3.21	2.08	
working capital, as % of expenses	30%	31%	32%	35%	42%	42%	
retained earnings	\$ 305,206	\$ 849,560	\$ 148,624	\$ 985,710	\$ 1,458,116	\$ 677,044	
valuation equity change	\$ 122,730	\$ 61,938	\$ (476,032)	\$ 295,966	\$ 140,042	\$ 313,787	



Six Year Per Cwt. Comparison
Same 90 Farms, Remaining 75% Sorted by ROA w/o Appreciation
 New York State, Dairy Farm Business Summary & Analysis Program

Table 6

	Year					
	2016	2017	2018	2019	2020	2021
number of cows	798	841	881	919	939	958
milk sales in pounds	20,752,381	21,667,648	22,485,520	23,882,336	24,521,166	25,639,384
milk per cow	25,996	25,761	25,535	25,992	26,111	26,777
RECEIPTS						
milk sales-\$	\$17.04	\$18.40	\$17.19	\$19.38	\$18.47	\$19.77
dairy cattle sales	\$1.49	\$1.53	\$1.12	\$1.08	\$1.06	\$1.01
dairy calf sales	\$0.22	\$0.20	\$0.07	\$0.08	\$0.16	\$0.26
other livestock sales	\$0.33	\$0.49	\$0.47	\$0.26	\$0.05	\$0.11
crop sales	\$0.33	\$0.49	\$0.47	\$0.26	\$0.41	\$1.16
government receipts	\$0.18	\$0.19	\$0.17	\$0.23	\$2.35	\$0.15
custom machine work	\$0.06	\$0.06	\$0.06	\$0.06	\$0.06	\$0.08
gas tax refund	\$0.00	\$0.01	\$0.00	\$0.00	\$0.00	\$0.00
other	\$0.37	\$0.37	\$0.47	\$0.49	\$0.51	\$0.44
non-cash transfer(subtract)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Farm operating receipts	\$19.74	\$21.27	\$19.64	\$21.63	\$23.06	\$22.97
EXPENSES						
Hired labor	\$2.93	\$3.04	\$3.09	\$3.12	\$3.22	\$3.24
Feed						
dairy grain & concentrate	\$5.66	\$5.67	\$5.76	\$5.66	\$6.10	\$6.67
dairy roughage	\$0.33	\$0.34	\$0.33	\$0.33	\$0.39	\$0.37
nondairy feed	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
professional nutritional services	\$0.01	\$0.01	\$0.00	\$0.01	\$0.01	\$0.01
Machinery						
machine hire, rent & lease	\$0.51	\$0.59	\$0.53	\$0.63	\$0.63	\$0.63
machine repairs & parts	\$0.96	\$0.98	\$0.91	\$0.98	\$1.08	\$1.09
fuel, oil & grease	\$0.46	\$0.54	\$0.63	\$0.59	\$0.44	\$0.58



Table 6 Continued

	2016	2017	2018	2019	2020	2021
Livestock						
replacement livestock	\$0.04	\$0.05	\$0.02	\$0.06	\$0.07	\$0.07
breeding fees	\$0.23	\$0.23	\$0.23	\$0.20	\$0.22	\$0.21
veterinary & medicine	\$0.65	\$0.65	\$0.60	\$0.61	\$0.59	\$0.58
milk marketing	\$0.94	\$1.06	\$1.15	\$1.15	\$1.32	\$1.36
bedding	\$0.37	\$0.36	\$0.34	\$0.37	\$0.37	\$0.37
milking supplies	\$0.34	\$0.37	\$0.35	\$0.35	\$0.36	\$0.36
cattle leased	\$0.02	\$0.01	\$0.01	\$0.02	\$0.01	\$0.01
custom boarding	\$0.47	\$0.45	\$0.32	\$0.31	\$0.32	\$0.33
bST	\$0.14	\$0.05	\$0.00	\$0.00	\$0.00	\$0.00
livestock, professional fees	\$0.06	\$0.07	\$0.06	\$0.06	\$0.07	\$0.08
other livestock expense	\$0.09	\$0.11	\$0.10	\$0.10	\$0.09	\$0.11
Crops						
fertilizer & lime	\$0.44	\$0.40	\$0.39	\$0.36	\$0.42	\$0.51
seeds & plants	\$0.49	\$0.47	\$0.47	\$0.44	\$0.44	\$0.46
spray & other crop expense	\$0.27	\$0.25	\$0.22	\$0.20	\$0.23	\$0.26
crop, professional fees	\$0.03	\$0.04	\$0.03	\$0.03	\$0.03	\$0.03
Real estate						
land, build., fence repair	\$0.28	\$0.30	\$0.25	\$0.27	\$0.33	\$0.29
taxes	\$0.24	\$0.25	\$0.25	\$0.25	\$0.26	\$0.26
rent & lease	\$0.29	\$0.31	\$0.33	\$0.33	\$0.36	\$0.38
Other cash expense						
insurance	\$0.18	\$0.17	\$0.19	\$0.18	\$0.19	\$0.19
utilities	\$0.34	\$0.36	\$0.38	\$0.34	\$0.35	\$0.38
interest paid	\$0.60	\$0.70	\$0.80	\$0.86	\$0.64	\$0.52
other, professional fees	\$0.10	\$0.09	\$0.10	\$0.11	\$0.10	\$0.10
miscellaneous	\$0.10	\$0.11	\$0.10	\$0.10	\$0.10	\$0.10
Farm operating expenses	\$17.58	\$18.05	\$17.95	\$18.01	\$18.76	\$19.54
Expansion Cattle	\$0.18	\$0.22	\$0.04	\$0.05	\$0.05	\$0.10
Extraordinary Expense	\$0.00	\$0.01	\$0.01	\$0.01	\$0.00	\$0.00
Machinery Depreciation	\$0.96	\$0.98	\$0.91	\$0.86	\$0.87	\$0.82
Building Depreciation	\$0.72	\$0.74	\$0.76	\$0.75	\$0.76	\$0.73
Total Accrual Expenses	\$19.44	\$19.99	\$19.68	\$19.67	\$20.45	\$21.20
Net Farm Income w/o Appreciation	\$0.30	\$1.28	-\$0.04	\$1.95	\$2.61	\$1.77



Selected Characteristics, Six Year Comparison
Same 90 Farms, Remaining 75% Sorted by ROA w/o Appreciation
 New York State, Dairy Farm Business Summary & Analysis Program

Table 7

	Year						Percent Change
	2016	2017	2018	2019	2020	2021	
Size of Business							
average number of cows	798	841	881	919	939	958	20.1%
average number of heifers	704	748	767	762	767	759	7.8%
percent heifers to cows	88%	89%	87%	83%	82%	79%	
milk sold, pounds	20,752,381	21,667,648	22,485,520	23,882,336	24,521,166	25,639,384	23.5%
worker equivalent	17.73	18.27	18.76	19.13	19.29	19.23	8.5%
total tillable acres	1,634	1,675	1,701	1,752	1,819	1,864	14.1%
Rates of Production							
milk sold per cow, pounds	25,996	25,761	25,535	25,992	26,111	26,777	3.0%
hay DM per acre, tons	3.20	3.30	3.20	3.20	3.10	3.60	12.5%
corn silage per acre, tons	17.40	18.10	18.80	18.50	18.30	19.60	12.6%
grain acres per cow	0.20	0.19	0.24	0.13	0.17	0.22	12.2%
cull rate, %	34%	35%	33%	35%	36%	36%	5.9%
net calf & cow sales, per cow	\$ 390	\$ 375	\$ 287	\$ 274	\$ 285	\$ 293	
Labor Efficiency							
cows per worker	45.0	46.0	47.0	48.0	48.7	49.8	10.7%
milk sold per worker, pounds	1,170,467	1,185,969	1,198,588	1,248,423	1,271,185	1,333,301	13.9%
Cost Control and Milk Price							
grain & conc. purchased as % of milk sales	33.00	31.00	33.00	29.00	33.00	34.00	
dairy feed & crop expense per cwt. milk	\$ 7.23	\$ 7.16	\$ 7.21	\$ 7.02	\$ 7.61	\$ 8.30	
labor and machinery costs per cow	\$ 1,731	\$ 1,800	\$ 1,770	\$ 1,820	\$ 1,852	\$ 1,933	11.7%
hired labor cost per cwt.	\$ 2.93	\$ 3.04	\$ 3.09	\$ 3.12	\$ 3.22	\$ 3.24	
labor cost per hired worker equivalent	\$ 40,444	\$ 42,482	\$ 43,568	\$ 45,622	\$ 47,859	\$ 50,586	25.1%
operating cost of producing milk per cwt. ¹	\$ 15.06	\$ 15.39	\$ 15.55	\$ 15.81	\$ 16.34	\$ 16.45	
purch. input cost of prod. milk per cwt. ¹	\$ 16.74	\$ 17.12	\$ 17.23	\$ 17.43	\$ 17.98	\$ 18.00	
total cost of producing milk per cwt. ¹	\$ 19.12	\$ 19.46	\$ 19.54	\$ 19.64	\$ 20.31	\$ 20.37	
net milk price per cwt.	\$ 16.10	\$ 17.34	\$ 16.04	\$ 18.23	\$ 17.15	\$ 18.40	

¹Due to the pandemic and the government response, the increase in government receipts from 2019 to 2020 was unusually large. Therefore, this change isn't included as an offset to the cost of production measures for 2020 in this report.



Table 7 Continued

Capital Efficiency(average for year)	2016	2017	2018	2019	2020	2021	
farm capital per cow	\$ 12,368	\$ 12,274	\$ 12,015	\$ 11,731	\$ 12,182	\$ 12,746	3.1%
machinery and equipment per cow	\$ 2,037	\$ 1,986	\$ 1,921	\$ 1,885	\$ 1,970	\$ 2,069	1.6%
asset turnover ratio	0.43	0.47	0.41	0.51	0.51	0.51	
net reinvestment per cow	\$ 912	\$ 732	\$ 441	\$ 486	\$ 835	\$ 831	
Profitability							
net farm income without appreciation	\$ 62,600	\$ 276,941	\$ (9,129)	\$ 466,460	\$ 641,070	\$ 453,895	
net farm income w/o apprec. per cow	\$ 78	\$ 329	\$ (10)	\$ 508	\$ 683	\$ 474	
net farm income with appreciation	\$ 220,283	\$ 515,770	\$ (90,382)	\$ 747,708	\$ 855,467	\$ 760,391	
net farm income with apprec. per cow	\$ 276	\$ 613	\$ (103)	\$ 814	\$ 911	\$ 794	
labor & management income per oper.	\$ (111,145)	\$ (23,242)	\$ (141,344)	\$ 51,416	\$ 109,176	\$ 20,327	
net non-farm withdrawals per cwt.	\$ 1.06	\$ 0.81	\$ 0.74	\$ 0.88	\$ 0.82	\$ 0.91	
rate of return on equity capital with apprec.	0.8%	5.1%	-4.1%	8.2%	8.8%	6.9%	
rate of return on all capital with apprec.	1.8%	4.8%	-0.9%	7.1%	7.1%	5.6%	
rate of return on equity capital w/o apprec.	-1.6%	1.5%	-2.9%	4.1%	5.9%	3.1%	
rate of return on all capital w/o apprec.	0.2%	2.5%	-0.1%	4.5%	5.2%	3.1%	
Financial Summary							
farm net worth, end of year	\$ 6,445,369	\$ 6,768,645	\$ 6,539,536	\$ 7,023,087	\$ 7,822,524	\$ 8,260,746	26.1%
debt to asset ratio	0.36	0.36	0.38	0.36	0.34	0.34	
farm debt per cow	\$ 4,422	\$ 4,452	\$ 4,496	\$ 4,268	\$ 4,191	\$ 4,479	1.3%
debt coverage ratio	0.72	1.24	0.73	1.42	1.66	1.28	
working capital, as % of expenses	17%	16%	14%	17%	22%	23%	
retained earnings	\$ (155,429)	\$ 101,517	\$ (175,448)	\$ 257,051	\$ 441,035	\$ 240,253	
valuation equity change	\$ 13,705	\$ 140,407	\$ (148,748)	\$ 195,276	\$ 91,858	\$ 146,379	



Table 8

"Legal 21" Farm Financial Ratios
Same 30 Farms, Top 25% Sorted by ROA w/o Appreciation, New York State, DFBS
2016-2021

	DFBS page	2016	2017	2018	2019	2020	2021	6 Year Average	Your Farm
Liquidity									
Current Ratio	7	2.83	2.85	3.46	3.88	4.3	4.16	3.58	<input type="text"/>
Working Capital	7	\$1,906,839	\$2,122,994	\$2,417,223	\$2,871,222	\$3,745,197	\$4,135,181	\$2,866,443	<input type="text"/>
As % of Total Expense	7	30.0%	31.0%	32.0%	35.0%	42.0%	42.0%	35.3%	<input type="text"/>
As % of Gross Revenue ¹	calc	27.0%	26.4%	29.7%	29.8%	34.9%	36.9%	30.8%	<input type="text"/>
Solvency									
Debt/Asset Ratio	7	0.26	0.27	0.29	0.27	0.24	0.25	0.26	<input type="text"/>
Equity/Asset Ratio	7	0.74	0.73	0.71	0.73	0.76	0.75	0.74	<input type="text"/>
Debt/Equity Ratio(Leverage Ratio)	7	0.34	0.37	0.40	0.37	0.31	0.33	0.35	<input type="text"/>
Profitability									
Net Farm Income w/o Apprec. (Per Cow)	1	\$548	\$819	\$453	\$901	\$1,085	\$796	\$767	<input type="text"/>
ROA w/o Apprec.	4	4.2%	6.7%	4.1%	8.2%	9.2%	6.2%	6.4%	<input type="text"/>
ROE w/o Apprec.	4	4.5%	7.8%	3.9%	9.6%	11.2%	7.2%	7.4%	<input type="text"/>
Operating Profit Margin Ratio ²	calc	0.09	0.14	0.09	0.16	0.17	0.12	0.13	<input type="text"/>
EBITDA(Per Cow) ³	calc	\$946	\$1,237	\$881	\$1,328	\$1,468	\$1,169	\$1,171	<input type="text"/>
Repayment Capacity									
Capital Debt Repayment Capacity(per cow) ⁴	calc	\$781	\$1,167	\$662	\$1,156	\$1,343	\$883	\$999	<input type="text"/>
Capital Debt Repayment Margin(per cow) ⁵	calc	\$373	\$779	\$227	\$728	\$925	\$458	\$582	<input type="text"/>
Replacement Margin(per cow) ⁶	calc	\$520	\$912	\$440	\$934	\$1,118	\$654	\$763	<input type="text"/>
Term Debt Coverage Ratio	1	1.92	3.01	1.52	2.70	3.21	2.08	2.41	<input type="text"/>
Replacement Margin Coverage Ratio ⁷	calc	1.2	1.8	1.0	1.8	2.1	1.4	1.5	<input type="text"/>

Financial Efficiency**Table 8 Continued**

Asset Turnover Ratio ⁸	14	0.48	0.51	0.45	0.55	0.55	0.54	0.51	
Operating Expense Ratio	14	0.8	0.76	0.81	0.75	0.74	0.79	0.78	
Depreciation Expense Ratio	14	0.08	0.08	0.08	0.07	0.07	0.07	0.08	
Interest Expense Ratio	14	0.02	0.02	0.03	0.03	0.02	0.01	0.02	
Net Farm Income from Operations Ratio	4	0.10	0.14	0.09	0.16	0.18	0.13	0.13	

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 $(\text{Capital Debt Repayment Capacity} - \text{Unfunded(cash) Capital Replacement Allowance} - \text{Annual machinery depreciation expense utilized to represent unfunded capital replacement requirement}) / \text{Average Cows}$

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 120 Farms, New York State, DFBS
2016-2021**

	DFBS page	2016	2017	2018	2019	2020	2021	6 Year Average	Your Farm
Liquidity									
Current Ratio	7	2.25	2.28	2.27	2.63	3.13	3.05	2.60	<input type="text"/>
Working Capital	7	\$987,536	\$1,060,988	\$1,076,630	\$1,327,256	\$1,776,841	\$1,960,042	\$1,364,882	<input type="text"/>
As % of Total Expense	7	21.0%	21.0%	21.0%	24.0%	30.0%	30.0%	24.5%	<input type="text"/>
As % of Gross Revenue ¹	calc	20.4%	19.4%	20.1%	21.1%	25.7%	27.2%	22.3%	<input type="text"/>
Solvency									
Debt/Asset Ratio	7	0.32	0.33	0.35	0.33	0.3	0.31	0.32	<input type="text"/>
Equity/Asset Ratio	7	0.68	0.67	0.65	0.67	0.70	0.69	0.68	<input type="text"/>
Debt/Equity Ratio(Leverage Ratio)	7	0.48	0.49	0.53	0.49	0.43	0.45	0.48	<input type="text"/>
Profitability									
Net Farm Income w/o Apprec. (Per Cow)	1	\$245	\$505	\$161	\$656	\$838	\$599	\$501	<input type="text"/>
ROA w/o Apprec.	4	1.5%	3.9%	1.4%	5.8%	6.7%	4.3%	3.9%	<input type="text"/>
ROE w/o Apprec.	4	0.7%	3.9%	-0.3%	6.2%	8.0%	4.8%	3.9%	<input type="text"/>
Operating Profit Margin Ratio ²	calc	0.04	0.09	0.03	0.12	0.13	0.09	0.08	<input type="text"/>
EBITDA(Per Cow) ³	calc	\$633	\$922	\$586	\$1,088	\$1,223	\$952	\$901	<input type="text"/>
Repayment Capacity									
Capital Debt Repayment Capacity(per cow) ⁴	calc	\$534	\$896	\$519	\$1,010	\$1,173	\$838	\$828	<input type="text"/>
Capital Debt Repayment Margin(per cow) ⁵	calc	\$30	\$372	-\$19	\$444	\$618	\$285	\$288	<input type="text"/>
Replacement Margin(per cow) ⁶	calc	\$281	\$644	\$290	\$787	\$947	\$615	\$594	<input type="text"/>
Term Debt Coverage Ratio	1	1.06	1.71	0.96	1.78	2.11	1.52	1.52	<input type="text"/>
Replacement Margin Coverage Ratio ⁷	calc	0.7	1.2	0.7	1.3	1.5	1.1	1.1	<input type="text"/>

Financial Efficiency

Table 9 Continued

Asset Turnover Ratio ⁸	14	0.45	0.48	0.42	0.52	0.53	0.52	0.49
Operating Expense Ratio	14	0.84	0.8	0.85	0.78	0.77	0.82	0.81
Depreciation Expense Ratio	14	0.08	0.08	0.08	0.07	0.07	0.07	0.075
Interest Expense Ratio	14	0.03	0.03	0.04	0.03	0.02	0.02	0.028
Net Farm Income from Operations Ratio	4	0.05	0.09	0.03	0.12	0.14	0.10	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)
2023-01	Size Year Trend Analysis 2021 – New York State Dairy Farms – Selected Financial and Production Factors		Karszes, J. and Augello, L
2022-03	Economic Impact Assessment of Public Incentives to Support Farm-to-schools food purchases		Krasnoff, S., Schmit, T., and Bilinski, C.
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