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Six Year Trend Analysis 2020
New York State Dairy Farms
Selected Financial and Production Factors

Dairy Farm Business Summary
New York State
Same 122 Farms
2015 - 2020

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Same 122 Farms, 2015 – 2020

Jason Karszes and Lauren Augello[1]

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 opportunity. To provide benchmark trends of various financial and performance factors over time, data was utilized from 122 farms that have participated in the Dairy Farm Business Summary and Analysis Project(DFBS) in New York State for six years, from 2015 through 2020. 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 122 Farms
Table 2	Top 25% of Farms vs Remaining 75% of Farms, Percent Change and Differences
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Table 8	"Legal 21" Farm Financial Ratios, Same 31 Farms, Top 25%
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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, 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

PRO DAIRY

Selected Characteristics, Six Year Comparison

Same 122 Farms

New York State, Dairy Farm Business Summary & Analysis Program

Table 1

Size of Business	2015	2016	2017	2018	2019	2020	% Change
average number of cows	867	912	969	1,033	1,091	1,131	30.4%
percent heifers to cows	86%	87%	87%	85%	81%	79%	
milk sold, pounds	22,206,262	24,061,638	25,245,205	26,735,505	28,705,750	29,868,881	34.5%
worker equivalent	19.2	19.7	20.4	21.1	21.6	21.9	
tillable acres per cow	2.05	2.04	1.97	1.90	1.84	1.85	-9.8%
corn grain acres per cow	0.20	0.17	0.15	0.22	0.12	0.14	
Rates of Production							
milk sold per cow, pounds	25,619	26,383	26,063	25,891	26,318	26,402	3.1%
cull rate	35%	34%	34%	32%	35%	36%	
net calf & cow sales, per cow	569	417	379	302	270	274	
Labor Efficiency							
cows per worker	45.2	46.4	47.5	48.9	50.6	51.6	14.4%
milk sold per worker, pounds	1,156,576	1,224,511	1,238,724	1,266,485	1,332,053	1,363,876	17.9%
Cost Control and Milk Price							
dairy feed & crop expense per cwt. milk	$ 8.23	$ 7.21	$ 7.11	$ 7.12	$ 6.95	$ 7.44	
labor and machinery costs per cow	$ 1,755	$ 1,755	$ 1,687	$ 1,743	$ 1,695	$ 1,731	
hired labor cost per cwt.	$ 2.98	$ 2.84	$ 2.97	$ 2.98	$ 2.98	$ 3.09	
labor cost per hired worker equivalent	$ 39,931	$ 40,362	$ 42,468	$ 43,384	$ 45,505	$ 48,103	20.5%
operating cost of producing milk per cwt.[1]	$ 15.60	$ 14.46	$ 14.81	$ 14.95	$ 15.36	$ 15.78	
purch. input cost of producing milk per cwt.[1]	$ 17.28	$ 16.15	$ 16.56	$ 16.61	$ 16.96	$ 17.40	
total cost of producing milk per cwt.[1]	$ 19.69	$ 18.44	$ 18.83	$ 18.81	$ 19.07	$ 19.61	
net milk price per cwt.	$ 17.39	$ 16.11	$ 17.39	$ 16.03	$ 18.22	$ 17.19	
Capital Efficiency(average for year)							
farm capital per cow	$ 12,066	$ 12,112	$ 12,051	$ 11,696	$ 11,401	$ 11,773	-2.4%
machinery and equipment per cow	$ 1,997	$ 1,962	$ 1,886	$ 1,795	$ 1,743	$ 1,817	
net reinvestment per cow	$ 1,261	$ 902	$ 887	$ 559	$ 584	$ 823	
Profitability							
net farm income without appreciation	$ 234,043	$ 217,370	$ 479,048	$ 161,781	$ 697,874	$ 922,198	
net farm income w/o apprec. per cow	$ 270	$ 238	$ 495	$ 157	$ 640	$ 815	
labor & management income per oper.	$ (58,826)	$ (68,453)	$ 36,390	$ (98,521)	$ 119,831	$ 195,452	
rate of return on equity capital w/o apprec.	0.9%	0.6%	3.8%	-0.4%	6.1%	7.9%	
rate of return on all capital w/o apprec.	1.6%	1.5%	3.9%	1.3%	5.7%	6.6%	
Financial Summary							
farm net worth, end of year	7,405,173	7,545,664	8,017,361	7,800,775	8,492,779	9,570,298	12.1%
debt to asset ratio	0.31	0.33	0.33	0.35	0.33	0.31	
farm debt per cow	$ 3,837	$ 3,993	$ 4,043	$ 4,057	$ 3,828	$ 3,700	-3.6%
retained earnings	$ (39,995)	$ (34,508)	$ 280,879	$ (95,397)	$ 418,328	$ 663,476	
valuation equity change	$ 54,743	$ 41,517	$ 130,227	$ (236,513)	$ 216,855	$ 103,252	

[1]Due 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.

PRODAIRY

Table 2

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

Percent Change and Differences, Selected Measures

Same 122 Farms, 2015 - 2020

Dairy Farm Business Summary, New York State

		2015	2020	Change	Percent Change	Percent Difference 2015	Percent Difference 2020
Average Herd Size, Milking & Dry							
	Top 25%	1,268	1,795	527	41.6%	73.7%	98.3%
	75%	730	905	175	24.0%		
Milk per Cow, Lbs.							
	Top 25%	26,185	26,812	627	2.4%	3.6%	2.6%
	75%	25,285	26,125	840	3.3%		
Milk Sold per Farm, Lbs.							
	Top 25%	33,200,924	48,129,541	14,928,617	45.0%	79.8%	103.5%
	75%	18,460,827	23,648,216	5,187,389	28.1%		
Cows per Worker							
	Top 25%	46.9	55.9	9.03	19.2%	6.3%	13.9%
	75%	44.1	49.1	4.97	11.3%		
Milk Sold per Worker, Lbs.							
	Top 25%	1,228,299	1,499,830	271,531	22.1%	10.0%	16.9%
	75%	1,116,132	1,283,137	167,005	15.0%		
Hired Labor Cost per Cwt.							
	Top 25%	$2.92	$3.00	$0.07	2.5%	-3.0%	-5.0%
	75%	$3.01	$3.15	$0.14	4.7%		
Cost per Hired Worker							
	Top 25%	$39,737	$48,665	$8,928	22.5%	-0.8%	1.9%
	75%	$40,044	$47,741	$7,697	19.2%		
Investment Per Cow							
	Top 25%	$11,416	$11,082	-$335	-2.9%	-8.3%	-9.5%
	75%	$12,450	$12,240	-$211	-1.7%		
Machinery Invest. per Cow							
	Top 25%	$1,874	$1,604	-$269.40	-14.4%	-9.5%	-18.2%
	75%	$2,071	$1,960	-$110.47	-5.3%		
Debt Per Cow, End of Year							
	Top 25%	$3,191	$2,883	-$308.00	-9.7%	-24.5%	-32.2%
	75%	$4,228	$4,251	$23.00	0.5%		
Net Worth, Beginning of 2014 to End of 2019							
	Top 25%	$10,365,323	$15,578,964	$5,213,641	50.3%	65.0%	107.1%
	75%	$6,282,306	$7,523,389	$1,241,083	19.8%		

PRODAIRY

Table 3

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

Selected Measures, Six Year Comparison

Same 122 Farms, 2015 - 2020

Dairy Farm Business Summary, New York State

	2015	2016	2017	2018	2019	2020
Net Reinvestment Per Cow[1]						
Top 25%	$1,223	$847	$1,177	$737	$684	$812
75%	$1,284	$934	$710	$446	$519	$831
Farm Capital per Cow						
Top 25%	$11,416	$11,514	$11,473	$10,985	$10,689	$11,082
75%	$12,450	$12,466	$12,403	$12,152	$11,871	$12,240
Tillable Acres per Cow						
Top 25%	1.97	1.94	1.83	1.76	1.67	1.65
75%	2.04	2.04	1.99	1.94	1.92	1.94
Corn Grain Acres per Cow						
Top 25%	0.13	0.11	0.09	0.19	0.10	0.10
75%	0.24	0.20	0.19	0.25	0.14	0.17
Crop Revenue, Per Cow						
Top 25%	$121	$113	$134	$134	$30	$67
75%	$106	$83	$131	$118	$63	$95
Cull Rate, Percent						
Top 25%	33%	33%	33%	30%	33%	35%
75%	36%	35%	35%	33%	36%	36%
Net Calf & Cow Income, per Cow[2]						
Top 25%	$593	$464	$401	$323	$280	$265
75%	$556	$388	$367	$290	$264	$281
Percent Heifers to Cows						
Top 25%	85%	87%	85%	81%	78%	75%
75%	87%	88%	89%	87%	83%	81%
Operating Cost to Produce Milk per Cwt.[3]						
Top 25%	$14.86	$13.57	$13.93	$14.19	$14.69	$15.06
75%	$16.05	$15.00	$15.36	$15.45	$15.81	$16.28
Total Cost to Produce Milk per Cwt.[3]						
Top 25%	$18.69	$17.39	$17.79	$17.77	$18.15	$18.64
75%	$20.31	$19.08	$19.47	$19.50	$19.69	$20.29
Net Farm Income Per Cow						
Top 25%	$491	$496	$772	$419	$870	$1,025
75%	$139	$86	$326	-$12	$488	$674
Net Milk Price per Cwt.						
Top 25%	$17.43	$16.17	$17.51	$16.15	$18.31	$17.40
75%	$17.37	$16.08	$17.31	$15.96	$18.17	$17.05
Farm Operating Receipts per Cwt.						
Top 25%	$21.79	$20.08	$21.64	$20.05	$21.62	$22.71
75%	$21.77	$19.69	$21.17	$19.54	$21.47	$22.88
Working Capital as Percent of Expenses						
Top 25%	29%	26%	27%	27%	30%	36%
75%	20%	16%	16%	15%	17%	22%

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

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

[3]Due 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

	2015	2016	2017	2018	2019	2020
Hired Labor Cost per Cwt.						
Top 25%	$2.92	$2.79	$2.93	$2.89	$2.87	$3.00
75%	$3.01	$2.87	$2.99	$3.03	$3.06	$3.15
Purchased Feed per Cwt.						
Top 25%	$6.60	$5.84	$5.73	$5.81	$5.69	$5.95
75%	$6.55	$5.64	$5.64	$5.69	$5.62	$6.03
Livestock Expenses, Total per Cwt.[4]						
Top 25%	$3.12	$2.91	$3.03	$3.01	$3.02	$3.23
75%	$3.62	$3.36	$3.40	$3.15	$3.24	$3.42
Machinery & Fuel Expenses per Cwt.[5]						
Top 25%	$1.95	$1.66	$1.79	$1.74	$1.81	$1.87
75%	$2.20	$1.92	$2.10	$2.05	$2.19	$2.12
Machinery Depreciation Expense per Cwt.						
Top 25%	$0.98	$0.99	$0.98	$0.86	$0.85	$0.87
75%	$0.98	$0.95	$0.97	$0.92	$0.85	$0.87
Crop Input Costs per Cwt.[6]						
Top 25%	$1.19	$1.11	$1.07	$0.98	$0.88	$0.97
75%	$1.45	$1.20	$1.15	$1.13	$1.04	$1.13
Additional Fixed Costs per Cwt.[7]						
Top 25%	$1.69	$1.45	$1.43	$1.41	$1.44	$1.48
75%	$1.78	$1.54	$1.61	$1.61	$1.58	$1.70
Interest Costs per Cwt.						
Top 25%	$0.36	$0.38	$0.46	$0.56	$0.58	$0.39
75%	$0.50	$0.60	$0.71	$0.81	$0.87	$0.65
Total Farm Operating Expenses per Cwt.						
Top 25%	$18.20	$16.45	$16.69	$16.70	$16.64	$17.25
75%	$19.40	$17.49	$17.96	$17.82	$17.92	$18.61

[4]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

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

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

[7]Fixed Costs = sum of land, building & fence repair, taxes, rent & lease, insurance, utilities, other professional fees, and miscellaneous expenses categories

PRO DAIRY

Six Year Per Cwt. Comparison

Table 4

Same 31 Farms, Top 25% Sorted by Return on Assets w/o Appreciation

New York State, Dairy Farm Business Summary & Analysis Program

	Year					
	2015	2016	2017	2018	2019	2020
number of cows	1,268	1,335	1,442	1,587	1,706	1,795
milk sales in pounds	33,200,924	35,923,590	38,152,975	41,869,799	45,794,942	48,129,541
milk per cow	26,185	26,916	26,466	26,384	26,841	26,812
RECEIPTS						
milk sales-$	$18.39	$17.12	$18.61	$17.39	$19.50	$18.74
dairy cattle sales	$1.93	$1.66	$1.61	$1.30	$1.22	$1.03
dairy calf sales	$0.39	$0.16	$0.19	$0.11	$0.08	$0.15
other livestock sales	$0.04	$0.10	$0.10	$0.10	$0.03	$0.05
crop sales	$0.46	$0.42	$0.50	$0.51	$0.11	$0.25
government receipts	$0.13	$0.18	$0.13	$0.11	$0.22	$1.95
custom machine work	$0.06	$0.07	$0.07	$0.07	$0.08	$0.09
gas tax refund	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
other	$0.38	$0.38	$0.43	$0.46	$0.37	$0.46
non-cash transfer (subtract)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Farm operating receipts	$21.79	$20.08	$21.64	$20.05	$21.62	$22.71
EXPENSES						
Hired labor	$2.92	$2.79	$2.93	$2.89	$2.87	$3.00
Feed						
dairy grain & concentrate	$6.60	$5.84	$5.73	$5.81	$5.69	$5.95
dairy roughage	$0.36	$0.30	$0.24	$0.29	$0.35	$0.35
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	$0.36	$0.37	$0.37	$0.39	$0.44	$0.49
machine repairs & parts	$1.02	$0.87	$0.94	$0.81	$0.88	$1.00
fuel, oil & grease	$0.57	$0.42	$0.48	$0.54	$0.49	$0.39

Table 4 Continued

Livestock	2015	2016	2017	2018	2019	2020
replacement livestock	$0.00	$0.01	$0.01	$0.03	$0.08	$0.13
breeding fees	$0.19	$0.20	$0.21	$0.19	$0.15	$0.18
veterinary & medicine	$0.67	$0.61	$0.63	$0.59	$0.56	$0.53
milk marketing	$0.97	$0.95	$1.10	$1.24	$1.19	$1.33
bedding	$0.35	$0.34	$0.33	$0.30	$0.31	$0.31
milking supplies	$0.34	$0.33	$0.28	$0.28	$0.31	$0.32
cattle leased	$0.01	$0.00	$0.00	$0.00	$0.01	$0.00
custom boarding	$0.27	$0.24	$0.27	$0.26	$0.27	$0.28
bST	$0.18	$0.12	$0.03	$0.00	$0.00	$0.00
livestock, professional fees	$0.06	$0.06	$0.06	$0.05	$0.05	$0.06
other livestock expense	$0.08	$0.05	$0.11	$0.07	$0.08	$0.07
Crops						
fertilizer & lime	$0.54	$0.40	$0.38	$0.38	$0.36	$0.37
seeds & plants	$0.43	$0.44	$0.45	$0.37	$0.33	$0.40
spray & other crop expense	$0.21	$0.22	$0.22	$0.21	$0.18	$0.19
crop, professional fees	$0.02	$0.04	$0.02	$0.01	$0.01	$0.01
Real estate						
land, build., fence repair	$0.36	$0.25	$0.25	$0.26	$0.31	$0.34
taxes	$0.24	$0.24	$0.23	$0.22	$0.22	$0.21
rent & lease	$0.28	$0.27	$0.26	$0.27	$0.25	$0.30
Other cash expense						
insurance	$0.22	$0.17	$0.16	$0.15	$0.15	$0.16
utilities	$0.37	$0.31	$0.31	$0.33	$0.30	$0.28
interest paid	$0.36	$0.38	$0.46	$0.56	$0.58	$0.39
other, professional fees	$0.12	$0.11	$0.11	$0.11	$0.11	$0.10
miscellaneous	$0.11	$0.09	$0.10	$0.09	$0.10	$0.09
Farm operating expenses	$18.20	$16.45	$16.69	$16.70	$16.64	$17.25
Expansion Cattle	$0.06	$0.09	$0.28	$0.14	$0.18	$0.06
Extraordinary Expense	$0.00	$0.00	$0.03	$0.01	$0.00	$0.00
Machinery Depreciation	$0.98	$0.99	$0.98	$0.86	$0.85	$0.87
Building Depreciation	$0.68	$0.71	$0.75	$0.75	$0.72	$0.71
Total Accrual Expenses	$19.91	$18.24	$18.73	$18.46	$18.38	$18.89
Net Farm Income w/o Appreciation	$1.88	$1.84	$2.92	$1.59	$3.24	$3.82

PRO DAIRY

Selected Characteristics, Six Year Comparison

Table 5

Same 31 Farms, Top 25% Sorted by Return on Assets w/o Appreciation

New York State, Dairy Farm Business Summary & Analysis Program

	Year						
	2015	2016	2017	2018	2019	2020	Percent Change
Size of Business							
average number of cows	1,268	1,335	1,442	1,587	1,706	1,795	41.6%
average number of heifers	1,083	1,159	1,228	1,288	1,326	1,350	24.7%
percent heifers to cows	85%	87%	85%	81%	78%	75%	
milk sold, pounds	33,200,924	35,923,590	38,152,975	41,869,799	45,794,942	48,129,541	45.0%
worker equivalent	27.03	27.66	28.99	30.51	31.29	32.09	18.7%
total tillable acres	2,496	2,588	2,645	2,788	2,845	2,957	18.5%
Rates of Production							
milk sold per cow, pounds	26,185	26,916	26,466	26,384	26,841	26,812	2.4%
hay DM per acre, tons	3.40	3.20	3.50	3.20	3.30	3.00	-11.8%
corn silage per acre, tons	17.90	16.60	18.50	18.50	18.10	17.70	-1.1%
grain acres per cow	0.13	0.11	0.09	0.19	0.10	0.10	-21.0%
cull rate	33%	33%	33%	30%	33%	35%	6.1%
net calf & cow sales, per cow	$ 593	$ 464	$ 401	$ 323	$ 280	$ 265	
Labor Efficiency							
cows per worker	46.9	48.3	49.7	52.0	54.5	55.9	19.2%
milk sold per worker, pounds	1,228,299	1,298,756	1,316,074	1,372,330	1,463,565	1,499,830	22.1%
Cost Control and Milk Price							
grain & conc. purchased as % of milk sales	36%	34%	31%	33%	29%	32%	
dairy feed & crop expense per cwt. milk	$ 8.15	$ 7.24	$ 7.04	$ 7.08	$ 6.93	$ 7.28	
labor and machinery costs per cow	$ 1,696	$ 1,627	$ 1,663	$ 1,590	$ 1,617	$ 1,676	-1.2%
hired labor cost per cwt.	$ 2.92	$ 2.79	$ 2.93	$ 2.89	$ 2.87	$ 3.00	
labor cost per hired worker equivalent	$ 39,737	$ 40,082	$ 42,306	$ 43,201	$ 45,620	$ 48,665	22.5%
operating cost of producing milk per cwt.[1]	$ 14.86	$ 13.57	$ 13.93	$ 14.19	$ 14.69	$ 15.06	
purch. input cost of prod. milk per cwt.[1]	$ 16.52	$ 15.28	$ 15.69	$ 15.80	$ 16.25	$ 16.64	
total cost of producing milk per cwt.[1]	$ 18.69	$ 17.39	$ 17.79	$ 17.77	$ 18.15	$ 18.64	
net milk price per cwt.	$ 17.43	$ 16.17	$ 17.51	$ 16.15	$ 18.31	$ 17.40	

[1]Due 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)	2015	2016	2017	2018	2019	2020	
farm capital per cow	$ 11,416	$ 11,514	$ 11,473	$ 10,985	$ 10,689	$ 11,082	-2.9%
machinery and equipment per cow	$ 1,874	$ 1,861	$ 1,739	$ 1,601	$ 1,525	$ 1,604	-14.4%
asset turnover ratio	0.52	0.49	0.52	0.46	0.57	0.57	
net reinvestment per cow	$ 1,223	$ 847	$ 1,177	$ 737	$ 684	$ 812	
Profitability							
net farm income without appreciation	$ 622,545	$ 662,095	$ 1,112,747	$ 665,262	$ 1,484,928	$ 1,839,465	$6,387,043
net farm income w/o apprec. per cow	$ 491	$ 496	$ 772	$ 419	$ 870	$ 1,025	
net farm income with appreciation	$ 972,275	$ 990,496	$ 1,496,709	$ 326,206	$ 1,959,353	$ 2,225,708	
net farm income with apprec. per cow	$ 767	$ 742	$ 1,038	$ 206	$ 1,149	$ 1,240	
labor & management income per oper.	$ 40,778	$ 43,839	$ 224,592	$ 23,598	$ 373,321	$ 497,423	$1,203,550
net non-farm withdrawals per cwt.	$ 1.47	$ 1.04	$ 0.74	$ 1.29	$ 1.12	$ 0.93	
rate of return on equity capital with apprec.	7.4%	7.1%	10.9%	0.9%	13.5%	13.7%	
rate of return on all capital with apprec.	6.2%	6.0%	8.8%	2.0%	10.9%	11.0%	
rate of return on equity capital w/o apprec.	4.1%	4.1%	7.6%	3.7%	9.8%	11.0%	
rate of return on all capital w/o apprec.	3.8%	3.9%	6.5%	3.9%	8.3%	9.0%	
Financial Summary							
farm net worth, end of year	$ 10,701,524	$ 11,418,834	$ 12,323,131	$ 12,132,266	$ 13,482,992	$ 15,578,964	50.3%
debt to asset ratio	0.28	0.28	0.29	0.31	0.29	0.25	
farm debt per cow	$ 3,191	$ 3,144	$ 3,285	$ 3,286	$ 3,051	$ 2,883	-9.7%
debt coverage ratio	1.50	1.78	2.75	1.42	2.48	2.98	
working capital, as % of expenses	29%	26%	27%	27%	30%	36%	
retained earnings	$ 134,056	$ 288,284	$ 829,961	$ 123,832	$ 972,105	$ 1,389,551	
valuation equity change	$ 83,210	$ 133,343	$ 70,504	$ (510,912)	$ 317,615	$ 172,577	

PRO DAIRY

Six Year Per Cwt. Comparison

Table 6

Same 91 Farms, Remaining 75% Sorted by ROA w/o Appreciation

New York State, Dairy Farm Business Summary & Analysis Program

	Year					
	2015	2016	2017	2018	2019	2020
number of cows	730	768	808	844	881	905
milk sales in pounds	18,460,827	20,020,753	20,848,053	21,579,867	22,884,156	23,648,216
milk per cow	25,285	26,067	25,818	25,575	25,972	26,125
RECEIPTS						
milk sales-$	$18.30	$17.01	$18.36	$17.11	$19.31	$18.37
dairy cattle sales	$1.90	$1.51	$1.48	$1.14	$1.04	$1.04
dairy calf sales	$0.47	$0.21	$0.21	$0.07	$0.08	$0.16
other livestock sales	$0.42	$0.32	$0.51	$0.46	$0.04	$0.05
crop sales	$0.42	$0.32	$0.51	$0.46	$0.24	$0.36
government receipts	$0.20	$0.19	$0.18	$0.17	$0.23	$2.37
custom machine work	$0.08	$0.06	$0.07	$0.06	$0.06	$0.07
gas tax refund	$0.01	$0.00	$0.01	$0.00	$0.00	$0.00
other	$0.31	$0.36	$0.34	$0.43	$0.46	$0.47
non-cash transfer(subtract)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Farm operating receipts	$21.77	$19.69	$21.17	$19.54	$21.47	$22.88
EXPENSES						
Hired labor	$3.01	$2.87	$2.99	$3.03	$3.06	$3.15
Feed						
dairy grain & concentrate	$6.55	$5.64	$5.64	$5.69	$5.62	$6.03
dairy roughage	$0.29	$0.34	$0.35	$0.33	$0.31	$0.40
nondairy feed	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
professional nutritional services	$0.01	$0.01	$0.01	$0.00	$0.01	$0.00
Machinery						
machine hire, rent & lease	$0.61	$0.53	$0.61	$0.56	$0.65	$0.65
machine repairs & parts	$0.99	$0.94	$0.96	$0.88	$0.96	$1.04
fuel, oil & grease	$0.60	$0.45	$0.53	$0.62	$0.58	$0.43

Table 6 Continued

Livestock	2015	2016	2017	2018	2019	2020
replacement livestock	$0.05	$0.06	$0.06	$0.02	$0.06	$0.07
breeding fees	$0.24	$0.23	$0.22	$0.22	$0.20	$0.22
veterinary & medicine	$0.68	$0.64	$0.65	$0.60	$0.61	$0.58
milk marketing	$0.92	$0.94	$1.05	$1.15	$1.15	$1.32
bedding	$0.41	$0.37	$0.35	$0.34	$0.37	$0.36
milking supplies	$0.42	$0.34	$0.37	$0.35	$0.35	$0.37
cattle leased	$0.02	$0.02	$0.02	$0.02	$0.02	$0.02
custom boarding	$0.54	$0.48	$0.46	$0.32	$0.33	$0.32
bST	$0.19	$0.14	$0.05	$0.00	$0.00	$0.00
livestock, professional fees	$0.06	$0.06	$0.07	$0.06	$0.06	$0.07
other livestock expense	$0.10	$0.09	$0.10	$0.09	$0.10	$0.09
Crops						
fertilizer & lime	$0.61	$0.44	$0.39	$0.40	$0.37	$0.42
seeds & plants	$0.54	$0.48	$0.48	$0.48	$0.44	$0.46
spray & other crop expense	$0.26	$0.26	$0.25	$0.22	$0.20	$0.22
crop, professional fees	$0.04	$0.03	$0.04	$0.03	$0.03	$0.03
Real estate						
land, build., fence repair	$0.36	$0.28	$0.30	$0.24	$0.26	$0.33
taxes	$0.25	$0.25	$0.26	$0.26	$0.26	$0.27
rent & lease	$0.30	$0.28	$0.31	$0.34	$0.33	$0.36
Other cash expense						
insurance	$0.23	$0.18	$0.17	$0.18	$0.18	$0.18
utilities	$0.40	$0.35	$0.37	$0.40	$0.35	$0.35
interest paid	$0.50	$0.60	$0.71	$0.81	$0.87	$0.65
other, professional fees	$0.11	$0.10	$0.09	$0.09	$0.10	$0.10
miscellaneous	$0.12	$0.10	$0.11	$0.10	$0.10	$0.10
Farm operating expenses	$19.40	$17.49	$17.96	$17.82	$17.92	$18.61
Expansion Cattle	$0.12	$0.18	$0.20	$0.06	$0.05	$0.05
Extraordinary Expense	$0.02	$0.00	$0.01	$0.02	$0.01	$0.00
Machinery Depreciation	$0.98	$0.95	$0.97	$0.92	$0.85	$0.87
Building Depreciation	$0.70	$0.73	$0.75	$0.77	$0.76	$0.78
Total Accrual Expenses	$21.21	$19.36	$19.90	$19.58	$19.60	$20.31
Net Farm Income w/o Appreciation	$0.55	$0.33	$1.27	-$0.05	$1.88	$2.58

PRO DAIRY

Selected Characteristics, Six Year Comparison

Table 7

Same 91 Farms, Remaining 75% Sorted by ROA w/o Appreciation

New York State, Dairy Farm Business Summary & Analysis Program

	Year						
	2015	2016	2017	2018	2019	2020	Percent Change
Size of Business							
average number of cows	730	768	808	844	881	905	24.0%
average number of heifers	632	672	717	737	733	736	16.5%
percent heifers to cows	87%	88%	89%	87%	83%	81%	
milk sold, pounds	18,460,827	20,020,753	20,848,053	21,579,867	22,884,156	23,648,216	28.1%
worker equivalent	16.54	16.91	17.44	17.91	18.24	18.43	11.4%
total tillable acres	1,492	1,569	1,609	1,636	1,687	1,756	17.7%
Rates of Production							
milk sold per cow, pounds	25,285	26,067	25,818	25,575	25,972	26,125	3.3%
hay DM per acre, tons	3.30	3.20	3.30	3.20	3.20	3.10	-6.1%
corn silage per acre, tons	18.00	17.50	18.00	19.10	18.60	18.40	2.2%
grain acres per cow	0.24	0.20	0.19	0.25	0.14	0.17	-27.6%
cull rate, %	36%	35%	35%	33%	36%	36%	0.0%
net calf & cow sales, per cow	$ 556	$ 388	$ 367	$ 290	$ 264	$ 281	
Labor Efficiency							
cows per worker	44.1	45.4	46.3	47.1	48.3	49.1	11.3%
milk sold per worker, pounds	1,116,132	1,183,959	1,195,416	1,204,906	1,254,614	1,283,137	15.0%
Cost Control and Milk Price							
grain & conc. purchased as % of milk sales	36.00	33.00	31.00	33.00	29.00	33.00	
dairy feed & crop expense per cwt. milk	$ 8.28	$ 7.19	$ 7.15	$ 7.15	$ 6.97	$ 7.56	
labor and machinery costs per cow	$ 1,790	$ 1,722	$ 1,792	$ 1,762	$ 1,806	$ 1,831	2.3%
hired labor cost per cwt.	$ 3.01	$ 2.87	$ 2.99	$ 3.03	$ 3.06	$ 3.15	
labor cost per hired worker equivalent	$ 40,044	$ 40,532	$ 42,566	$ 43,503	$ 45,429	$ 47,741	19.2%
operating cost of producing milk per cwt. [1]	$ 16.05	$ 15.00	$ 15.36	$ 15.45	$ 15.81	$ 16.28	
purch. input cost of prod. milk per cwt. [1]	$ 17.74	$ 16.68	$ 17.10	$ 17.15	$ 17.44	$ 17.93	
total cost of producing milk per cwt. [1]	$ 20.31	$ 19.08	$ 19.47	$ 19.50	$ 19.69	$ 20.29	
net milk price per cwt.	$ 17.37	$ 16.08	$ 17.31	$ 15.96	$ 18.17	$ 17.05	

[1]Due 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.

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Table 7 Continued

Capital Efficiency(average for year)	2015	2016	2017	2018	2019	2020	
farm capital per cow	$ 12,450	$ 12,466	$ 12,403	$ 12,152	$ 11,871	$ 12,240	-1.7%
machinery and equipment per cow	$ 2,071	$ 2,021	$ 1,976	$ 1,920	$ 1,887	$ 1,960	-5.3%
asset turnover ratio	0.47	0.43	0.46	0.40	0.50	0.51	
net reinvestment per cow	$ 1,284	$ 934	$ 710	$ 446	$ 519	$ 831	
Profitability							
net farm income without appreciation	$ 101,697	$ 65,871	$ 263,173	$ (9,733)	$ 429,977	$ 609,723	
net farm income w/o apprec. per cow	$ 139	$ 86	$ 326	$ (12)	$ 488	$ 674	
net farm income with appreciation	$ 355,734	$ 217,030	$ 506,793	$ (88,089)	$ 701,975	$ 807,671	
net farm income with apprec. per cow	$ 487	$ 283	$ 627	$ (104)	$ 797	$ 892	
labor & management income per oper.	$ (93,341)	$ (107,226)	$ (24,953)	$ (136,803)	$ 40,807	$ 101,381	
net non-farm withdrawals per cwt.	$ 1.08	$ 1.06	$ 0.81	$ 0.74	$ 0.88	$ 0.82	
rate of return on equity capital with apprec.	3.1%	0.8%	5.2%	-4.2%	7.8%	8.5%	
rate of return on all capital with apprec.	3.2%	1.8%	4.8%	-1.0%	6.8%	6.9%	
rate of return on equity capital w/o apprec.	-0.9%	-1.6%	1.4%	-3.0%	3.7%	5.7%	
rate of return on all capital w/o apprec.	0.4%	0.2%	2.4%	-0.2%	4.2%	5.1%	
Financial Summary							
farm net worth, end of year	$ 6,282,240	$ 6,226,233	$ 6,550,561	$ 6,325,212	$ 6,792,817	$ 7,523,389	19.8%
debt to asset ratio	0.33	0.36	0.36	0.38	0.36	0.34	
farm debt per cow	$ 4,228	$ 4,503	$ 4,524	$ 4,564	$ 4,352	$ 4,251	0.5%
debt coverage ratio	0.77	0.72	1.24	0.73	1.40	1.64	
working capital, as % of expenses	20%	16%	16%	15%	17%	22%	
retained earnings	$ (99,287)	$ (144,469)	$ 93,829	$ (170,080)	$ 229,679	$ 416,132	
valuation equity change	$ 45,046	$ 10,235	$ 150,572	$ (143,036)	$ 182,531	$ 79,636	

PRO DAIRY

Table 8

"Legal 21" Farm Financial Ratios
Same 31 Farms, Top 25% Sorted by ROA w/o Appreciation, New York State, DFBS
2015-2020

	DFBS page	2015	2016	2017	2018	2019	2020	6 Year Average	Your Farm
Liquidity									
Current Ratio	7	3.02	2.58	2.64	2.91	3.49	3.72	2.93	
Working Capital	7	$1,907,969	$1,701,544	$1,898,712	$2,052,178	$2,508,646	$3,270,974	$2,013,810	
As % of Total Expense	7	29.0%	26.0%	27.0%	27.0%	30.0%	36.0%	27.8%	
As % of Gross Revenue[1]	calc	26.4%	23.6%	23.0%	24.4%	25.3%	29.9%	24.5%	
Solvency									
Debt/Asset Ratio	7	0.28	0.28	0.29	0.31	0.29	0.25	0.29	
Equity/Asset Ratio	7	0.72	0.72	0.71	0.69	0.71	0.75	0.71	
Debt/Equity Ratio(Leverage Ratio)	7	0.38	0.38	0.41	0.45	0.40	0.34	0.40	
Profitability									
Net Farm Income w/o Apprec. (Per Cow)	1	$491	$496	$772	$419	$870	$1,025	$610	
ROA w/o Apprec.	4	3.8%	3.9%	6.5%	3.9%	8.3%	9.0%	5.3%	
ROE w/o Apprec.	4	4.1%	4.1%	7.6%	3.7%	9.8%	11.0%	5.9%	
Operating Profit Margin Ratio[2]	calc	0.08	0.08	0.13	0.08	0.15	0.16	0.11	
EBITDA(Per Cow)[3]	calc	$867	$907	$1,206	$858	$1,311	$1,424	$1,030	
Repayment Capacity									
Capital Debt Repayment Capacity(per cow)[4]	calc	$634	$776	$1,154	$651	$1,144	$1,303	$872	
Capital Debt Repayment Margin(per cow)[5]	calc	$213	$340	$734	$194	$682	$866	$433	
Replacement Margin(per cow)[6]	calc	$379	$510	$894	$424	$917	$1,071	$625	
Term Debt Coverage Ratio	1	1.50	1.78	2.75	1.42	2.48	2.98	1.99	
Replacement Margin Coverage Ratio[7]	calc	0.9	1.1	1.7	1.0	1.7	1.9	1.27	

Financial Efficiency **Table 8 Continued**

Asset Turnover Ratio[8]	14	0.52	0.49	0.52	0.46	0.57	0.57	0.51	
Operating Expense Ratio	14	0.82	0.8	0.76	0.81	0.75	0.74	0.79	
Depreciation Expense Ratio	14	0.08	0.08	0.08	0.08	0.07	0.07	0.08	
Interest Expense Ratio	14	0.02	0.02	0.02	0.03	0.03	0.02	0.02	
Net Farm Income from Operations Ratio	4	0.09	0.09	0.13	0.08	0.15	0.17	0.11	

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

2 (Net Farm Income + Interest Paid - Unpaid Family Labor - Owner Value)/Gross Revenue

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

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

5 (Capital Debt Repayment Capacity - Scheduled Principle and Interested on Term Loans/Average Cows

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

7 (Capital Debt Repayment Capacity/(Scheduled Principle & Interest on Term Loans + 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 122 Farms, New York State, DFBS
2015-2020

	DFBS page	2015	2016	2017	2018	2019	2020	6 Year Average	Your Farm
Liquidity									
Current Ratio	7	2.51	2.14	2.18	2.15	2.5	2.94	2.40	
Working Capital	7	$1,074,444	$905,826	$974,531	$979,610	$1,211,763	$1,623,774	$1,128,325	
As % of Total Expense	7	23.0%	20.0%	20.0%	19.0%	22.0%	28.0%	0.22	
As % of Gross Revenue[1]	calc	22.2%	19.0%	18.1%	18.6%	19.6%	23.8%	0.20	
Solvency									
Debt/Asset Ratio	7	0.31	0.33	0.33	0.35	0.33	0.31	0.33	
Equity/Asset Ratio	7	0.69	0.67	0.67	0.65	0.67	0.69	0.67	
Debt/Equity Ratio(Leverage Ratio)	7	0.45	0.49	0.50	0.55	0.50	0.44	0.49	
Profitability									
Net Farm Income w/o Apprec. (Per Cow)	1	$270	$238	$495	$157	$640	$815	$436	
ROA w/o Apprec.	4	1.6%	1.5%	3.9%	1.3%	5.7%	6.6%	3.4%	
ROE w/o Apprec.	4	0.9%	0.6%	3.8%	-0.4%	6.1%	7.9%	3.2%	
Operating Profit Margin Ratio[2]	calc	0.03	0.03	0.08	0.03	0.12	0.13	0.07	
EBITDA(Per Cow)[3]	calc	$631	$640	$922	$589	$1,076	$1,205	$844	
Repayment Capacity									
Capital Debt Repayment Capacity(per cow)[4]	calc	$497	$546	$900	$524	$1,001	$1,159	$771	
Capital Debt Repayment Margin(per cow)[5]	calc	$2	$27	$366	-$24	$426	$597	$232	
Replacement Margin(per cow)[6]	calc	$247	$291	$645	$293	$777	$930	$530	
Term Debt Coverage Ratio	1	1.00	1.05	1.69	0.96	1.74	2.06	1.42	
Replacement Margin Coverage Ratio[7]	calc	0.7	0.7	1.1	0.7	1.3	1.5	0.98	

Financial Efficiency **Table 9 Continued**

Asset Turnover Ratio[8]	14	0.49	0.45	0.49	0.42	0.52	0.53	0.48	
Operating Expense Ratio	14	0.85	0.84	0.8	0.85	0.78	0.77	0.82	
Depreciation Expense Ratio	14	0.08	0.09	0.08	0.08	0.07	0.07	0.08	
Interest Expense Ratio	14	0.02	0.03	0.03	0.04	0.03	0.02	0.03	
Net Farm Income from Operations Ratio	4	0.05	0.05	0.09	0.03	0.11	0.14	0.08	

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

2 (Net Farm Income + Interest Paid - Unpaid Family Labor - Owner Value)/Gross Revenue

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

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

5 (Capital Debt Repayment Capacity - Scheduled Principle and Interest on Term Loans/Average Cows

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

7 (Capital Debt Repayment Capacity/(Scheduled Principle & Interest on Term Loans + 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)
2022-01	Six Year Trend Analysis 2020 - New York State Dairy Farms - Selected Financial and Production Factors		Karszes, J. and Augello, L.
2021-07	Progress of the Dairy Farm Report, Selected Financial and Production Factors, Dairy Farm Business Summary, New York State, 2020		Karszes, J. and Augello, L.
2021-06	Effects of NY Overtime Laws on Agricultural Production Costs and Competitiveness		Wolf, C, Stup, R, And Karszes, J.
2021-05	Hired Labor on New York State Dairy Farms: Cost, Efficiency & Change from 2011 through 2020		Karszes, J. and Wolf, C.
2021-04	The Economic Contributions of Agriculture to the New York State Economy: 2019		Schmit, T.
2021-03	2020 New York Berry Price Information		Yang, Z., Park, K.S., and Gómez, M.I.
2021-02	Central NY Farmland Cash Rental Rate Survey Findings		Ifft, J., and Tommell, N.
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.

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