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

Dairy Farm Business Summary
New York State
Same 128 Farms
2012-2017

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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 128 farms that have participated in the Dairy Farm Business Summary and Analysis Project in New York State for 6 years, from 2012 thru 2017. 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 size 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 128 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

PRO DAIRY

Selected Characteristics, Six Year Comparison

Same 128 Farms

New York State, Dairy Farm Business Summary & Analysis Program

Table 1

Size of Business	2012	2013	2014	2015	2016	2017	% Change
average number of cows	703	734	775	811	853	901	28.2%
percent heifers to cows	85%	86%	85%	85%	86%	87%	
milk sold, pounds	17,983,088	18,938,725	19,913,282	20,869,621	22,485,883	23,459,148	30.5%
worker equivalent	15.9	16.4	17.5	18.1	18.5	19.1	
tillable acres per cow	2.09	2.06	2.00	2.02	1.99	1.93	-7.7%
corn grain acres per cow	0.19	0.19	0.18	0.19	0.17	0.16	
Rates of Production							
milk sold per cow, pounds	25,570	25,785	25,701	25,729	26,357	26,050	1.9%
cull rate	35%	35%	34%	34%	34%	34%	
net calf & cow sales, per cow	382	394	496	561	410	376	
Labor Efficiency							
cows per worker	44.1	44.8	44.3	44.7	46.1	47.1	6.7%
milk sold per worker, pounds	1,128,882	1,154,800	1,139,204	1,151,110	1,214,141	1,226,302	8.6%
Cost Control and Milk Price							
dairy feed & crop expense per cwt. milk	$ 8.41	$ 8.88	$ 9.07	$ 8.31	$ 7.28	$ 7.20	
labor and machinery costs per cow	$ 1,640	$ 1,696	$ 1,751	$ 1,837	$ 1,768	$ 1,696	
hired labor cost per cwt.	$ 2.77	$ 2.78	$ 2.92	$ 2.99	$ 2.88	$ 2.98	
labor cost per hired worker equivalent	$ 37,030	$ 38,068	$ 38,808	$ 40,085	$ 40,734	$ 42,523	14.8%
operating cost of producing milk per cwt.	$ 15.44	$ 15.60	$ 16.54	$ 17.12	$ 15.75	$ 14.58	
purch. input cost of producing milk per cwt.	$ 16.84	$ 17.06	$ 18.07	$ 18.78	$ 17.42	$ 16.27	
total cost of producing milk per cwt.	$ 18.88	$ 19.15	$ 20.26	$ 21.11	$ 19.86	$ 18.61	
net milk price per cwt.	$ 20.83	$ 18.94	$ 20.83	$ 24.53	$ 17.38	$ 16.14	
Capital Efficiency(average for year)							
farm capital per cow	$ 9,524	$ 10,219	$ 10,766	$ 11,474	$ 12,125	$ 12,168	27.8%
machinery and equipment per cow	$ 1,546	$ 1,646	$ 1,759	$ 1,896	$ 2,009	$ 1,972	
net reinvestment per cow	$ (1,030)	$ (944)	$ (1,285)	$ (1,232)	$ (913)	$ (921)	
Profitability							
net farm income without appreciation	$ 804,362	$ 489,183	$ 681,355	$ 1,324,628	$ 188,002	$ 185,293	
net farm income w/o apprec. per cow	$ 1,200	$ 696	$ 928	$ 1,710	$ 232	$ 217	
labor & management income per oper.	$ 283,620	$ 114,903	$ 190,633	$ 463,125	$ (71,229)	$ (75,334)	
rate of return on equity capital w/o apprec.	7.2%	9.9%	18.8%	0.4%	0.2%	3.3%	
rate of return on all capital w/o apprec.	6.1%	7.9%	14.1%	1.2%	1.3%	3.6%	
Financial Summary							
farm net worth, end of year	5,087,628	5,659,764	6,844,985	6,978,509	7,129,481	7,519,831	69.5%
debt to asset ratio	0.32	0.31	0.28	0.31	0.33	0.34	
farm debt per cow	$ 3,421	$ 3,461	$ 3,469	$ 3,825	$ 3,985	$ 4,066	18.9%
retained earnings	$ 270,767	$ 428,916	$ 1,080,590	$ (77,767)	$ (48,077)	$ 233,731	$1,888,161
valuation equity	$ 54,638	$ 37,260	$ 83,472	$ 85,595	$ 53,780	$ 96,165	$410,910

Table 2

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

Percent Change and Differences, Selected Measures

Same 128 Farms, 2012-2017

Dairy Farm Business Summary, New York State

		2012	2017	Change	Percent Change	Percent Difference 2012	Percent Difference 2017
Average Herd Size, Milking & Dry							
	Top 20%	1,094	1,515	421	38.5%	81.1%	103.6%
	80%	604	744	140	23.2%		
Milk per Cow, Lbs.							
	Top 20%	26,353	26,459	106	0.4%	4.5%	2.4%
	80%	25,208	25,838	630	2.5%		
Milk Sold per Farm, Lbs.							
	Top 20%	28,821,008	40,076,770	11,255,762	39.1%	89.4%	108.5%
	80%	15,220,481	19,223,284	4,002,803	26.3%		
Cows per Worker							
	Top 20%	47.8	49.8	1.93	4.0%	12.2%	8.7%
	80%	42.6	45.8	3.16	7.4%		
Milk Sold per Worker, Lbs.							
	Top 20%	1,260,210	1,316,582	56,372	4.5%	17.3%	11.3%
	80%	1,074,134	1,182,971	108,837	10.1%		
Hired Labor Cost per Cwt.							
	Top 20%	$2.68	$3.01	$0.33	12.4%	-4.9%	1.6%
	80%	$2.82	$2.97	$0.15	5.3%		
Cost per Hired Worker							
	Top 20%	$38,038	$43,463	$5,424	14.3%	4.0%	3.4%
	80%	$36,585	$42,035	$5,449	14.9%		
Investment Per Cow							
	Top 20%	$9,543	$11,809	$2,266	23.7%	-9.4%	-4.6%
	80%	$10,531	$12,379	$1,848	17.5%		
Machinery Invest. per Cow							
	Top 20%	$1,469	$1,732	$263.40	17.9%	-15.0%	-13.1%
	80%	$1,728	$1,993	$264.76	15.3%		
Debt Per Cow, End of Year							
	Top 20%	$2,539	$3,099	$560.00	22.1%	-33.7%	-32.2%
	80%	$3,829	$4,571	$742.00	19.4%		
Net Worth, Beginning of 2011 to End of 2016							
	Top 20%	$7,347,859	$13,760,978	$6,413,119	87.3%	83.0%	132.1%
	80%	$4,015,531	$5,928,950	$1,913,419	47.7%		

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Table 3

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

Selected Measures, Six Year Comparison

Same 128 Farms, 2012-2017

Dairy Farm Business Summary, New York State

		2012	2013	2014	2015	2016	2017
Net Investment Per Cow							
	Top 20%	$1,044	$1,002	$1,558	$1,122	$1,253	$1,254
	80%	$1,023	$916	$1,154	$1,286	$740	$749
Farm Capital per Cow							
	Top 20%	$9,543	$10,268	$11,094	$11,650	$11,677	$11,809
	80%	$10,531	$10,997	$11,656	$12,358	$12,418	$12,379
Tillable Acres per Cow							
	Top 20%	1.83	1.84	1.82	1.84	1.85	1.77
	80%	2.14	2.09	2.03	2.05	2.03	1.98
Corn Grain Acres per Cow							
	Top 20%	0.17	0.14	0.15	0.19	0.16	0.12
	80%	0.21	0.21	0.20	0.19	0.17	0.17
Crop Revenue, Per Cow							
	Top 20%	$176	$149	$152	$100	$54	$153
	80%	$216	$157	$147	$107	$125	$140
Cull Rate, Percent							
	Top 20%	34%	35%	33%	32%	33%	34%
	80%	36%	35%	35%	35%	34%	34%
Net Calf & Cow Income, per Cow(1)							
	Top 20%	$402	$388	$506	$579	$431	$352
	80%	$374	$397	$491	$552	$400	$389
Percent Heifers to Cows							
	Top 20%	85%	85%	84%	83%	84%	84%
	80%	86%	86%	85%	86%	87%	88%
Operating Cost to Produce Milk per Cwt.							
	Top 20%	$14.76	$15.49	$15.83	$14.69	$13.81	$14.11
	80%	$16.01	$17.06	$17.77	$16.29	$14.98	$15.36
Total Cost to Produce Milk per Cwt.							
	Top 20%	$17.90	$18.90	$19.53	$18.54	$17.62	$18.00
	80%	$19.76	$20.92	$21.90	$20.53	$19.13	$19.51
Net Farm Income Per Cow							
	Top 20%	$1,033	$1,344	$2,151	$587	$498	$735
	80%	$539	$734	$1,498	$58	$75	$329
Net Milk Price per Cwt.							
	Top 20%	$19.14	$21.12	$24.61	$17.56	$16.37	$17.54
	80%	$18.84	$20.70	$24.50	$17.28	$16.03	$17.31
Farm Operating Receipts per Cwt.							
	Top 20%	$22.90	$24.70	$28.87	$21.68	$20.03	$21.58
	80%	$23.17	$24.75	$28.58	$21.72	$19.86	$21.32
Working Capital as Percent of Expenses							
	Top 20%	29%	32%	41%	32%	29%	30%
	80%	20%	19%	26%	19%	15%	14%

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

Table 3 Continued

	2012	2013	2014	2015	2016	2017
Hired Labor Cost per Cwt.						
Top 20%	$2.68	$2.64	$2.83	$2.88	$2.84	$3.01
80%	$2.82	$2.85	$2.96	$3.04	$2.90	$2.97
Purchased Feed per Cwt.						
Top 20%	$6.62	$6.88	$7.04	$6.42	$5.57	$5.54
80%	$6.74	$7.16	$7.53	$6.79	$5.89	$5.87
Livestock Expenses, Total (2) per Cwt.						
Top 20%	$2.95	$3.08	$3.22	$3.25	$3.08	$3.16
80%	$3.38	$3.43	$3.51	$3.49	$3.27	$3.33
Machinery & Fuel Expenses (3) per Cwt.						
Top 20%	$2.04	$2.11	$2.20	$1.91	$1.66	$1.83
80%	$2.33	$2.45	$2.58	$2.20	$1.89	$2.07
Machinery Depreciation Expense per Cwt.						
Top 20%	$0.74	$0.82	$0.90	$0.91	$0.90	$0.93
80%	$0.93	$0.96	$1.07	$1.01	$1.00	$1.02
Crop Input Costs (4) per Cwt.						
Top 20%	$1.11	$1.23	$1.22	$1.18	$1.06	$1.03
80%	$1.37	$1.44	$1.37	$1.40	$1.19	$1.14
Additional Fixed Costs (5) per Cwt.						
Top 20%	$1.45	$1.54	$1.73	$1.59	$1.35	$1.37
80%	$1.71	$1.78	$1.99	$1.89	$1.63	$1.66
Interest Costs per Cwt.						
Top 20%	$0.32	$0.31	$0.26	$0.28	$0.33	$0.43
80%	$0.54	$0.57	$0.52	$0.54	$0.62	$0.72
Total Farm Operating Expenses per Cwt.						
Top 20%	$17.68	$18.23	$18.89	$17.86	$16.27	$16.75
80%	$19.28	$20.13	$20.85	$19.66	$17.74	$18.10

(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

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Six Year Per Cwt. Comparison

Table 4

Same 26 Farms, Top 20% Sorted by Return on Assets w/o Appreciation

New York State, Dairy Farm Business Summary & Analysis Program

	Year					
	2012	2013	2014	2015	2016	2017
number of cows	1,094	1,144	1,234	1,314	1,414	1,515
milk sales in pounds	28,821,008	30,554,510	32,510,551	34,587,943	37,961,195	40,076,770
milk per cow	26,353	26,709	26,356	26,323	26,855	26,459
RECEIPTS						
milk sales-$	$19.94	$21.92	$25.50	$18.45	$17.26	$18.59
dairy cattle sales	$1.41	$1.37	$2.00	$1.87	$1.73	$1.49
dairy calf sales	$0.19	$0.16	$0.25	$0.40	$0.19	$0.20
other livestock sales	$0.02	$0.02	$0.04	$0.00	$0.06	$0.04
crop sales	$0.67	$0.56	$0.58	$0.38	$0.20	$0.58
government receipts	$0.18	$0.20	$0.02	$0.10	$0.10	$0.06
custom machine work	$0.13	$0.13	$0.13	$0.12	$0.12	$0.14
gas tax refund	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
other	$0.36	$0.34	$0.36	$0.36	$0.37	$0.47
non-cash transfer(subtract)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Farm operating receipts	$22.90	$24.70	$28.87	$21.68	$20.03	$21.58
EXPENSES						
Hired labor	$2.68	$2.64	$2.83	$2.88	$2.84	$3.01
Feed						
dairy grain & concentrate	$6.62	$6.88	$7.04	$6.42	$5.57	$5.54
dairy roughage	$0.51	$0.44	$0.40	$0.35	$0.38	$0.38
nondairy feed	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
professional nutritional services	$0.00	$0.01	$0.00	$0.00	$0.00	$0.00
Machinery						
machine hire, rent & lease	$0.36	$0.35	$0.43	$0.45	$0.42	$0.43
machine repairs & parts	$0.91	$0.96	$0.97	$0.91	$0.83	$0.91
fuel, oil & grease	$0.77	$0.80	$0.80	$0.55	$0.41	$0.49

Table 4 Continued

Livestock	2012	2013	2014	2015	2016	2017
replacement livestock	$0.03	$0.04	$0.01	$0.01	$0.01	$0.01
breeding fees	$0.18	$0.19	$0.20	$0.20	$0.19	$0.22
veterinary & medicine	$0.64	$0.67	$0.65	$0.67	$0.64	$0.64
milk marketing	$0.80	$0.80	$0.89	$0.89	$0.89	$1.05
bedding	$0.41	$0.41	$0.41	$0.39	$0.37	$0.38
milking supplies	$0.30	$0.32	$0.31	$0.36	$0.36	$0.30
cattle leased	$0.03	$0.03	$0.03	$0.03	$0.03	$0.03
custom boarding	$0.25	$0.29	$0.39	$0.41	$0.37	$0.34
bST	$0.20	$0.18	$0.18	$0.17	$0.11	$0.03
livestock, professional fees	$0.06	$0.06	$0.05	$0.04	$0.05	$0.05
other livestock expense	$0.06	$0.09	$0.11	$0.08	$0.05	$0.11
Crops						
fertilizer & lime	$0.51	$0.56	$0.48	$0.52	$0.42	$0.40
seeds & plants	$0.39	$0.46	$0.51	$0.44	$0.43	$0.46
spray & other crop expense	$0.20	$0.19	$0.22	$0.20	$0.17	$0.16
crop, professional fees	$0.01	$0.03	$0.01	$0.01	$0.05	$0.01
Real estate						
land, build., fence repair	$0.35	$0.38	$0.42	$0.36	$0.28	$0.29
taxes	$0.20	$0.21	$0.24	$0.24	$0.25	$0.25
rent & lease	$0.23	$0.25	$0.24	$0.25	$0.22	$0.22
Other cash expense						
insurance	$0.15	$0.15	$0.17	$0.19	$0.15	$0.16
utilities	$0.33	$0.37	$0.43	$0.34	$0.30	$0.29
interest paid	$0.32	$0.31	$0.26	$0.28	$0.33	$0.43
other, professional fees	$0.09	$0.08	$0.09	$0.10	$0.07	$0.08
miscellaneous	$0.09	$0.10	$0.15	$0.09	$0.08	$0.08
Farm operating expenses	$17.68	$18.23	$18.89	$17.86	$16.27	$16.75
Expansion Cattle	$0.04	$0.04	$0.31	$0.06	$0.31	$0.35
Extraordinary Expense	$0.00	$0.00	$0.02	$0.00	$0.00	$0.01
Machinery Depreciation	$0.74	$0.82	$0.90	$0.91	$0.90	$0.93
Building Depreciation	$0.52	$0.58	$0.58	$0.63	$0.69	$0.76
Total Accrual Expenses	$18.98	$19.66	$20.70	$19.46	$18.17	$18.80
Net Farm Income w/o Appreciation	$3.92	$5.03	$8.17	$2.23	$1.86	$2.78

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Selected Characteristics, Six Year Comparison

Table 5

Same 28 Farms, Top 20%, Sorted by Return on Assets w/o Appreciation

New York State, Dairy Farm Business Summary & Analysis Program

	Year						
	2012	2013	2014	2015	2016	2017	Percent Change
Size of Business							
average number of cows	1,094	1,144	1,234	1,314	1,414	1,515	38.5%
average number of heifers	928	975	1,032	1,094	1,189	1,272	37.1%
percent heifers to cows	85%	85%	84%	83%	84%	84%	
milk sold, pounds	28,821,008	30,554,510	32,510,551	34,587,943	37,961,195	40,076,770	39.1%
worker equivalent	22.87	23.53	25.92	27.10	28.69	30.44	33.1%
total tillable acres	2,005	2,110	2,249	2,414	2,612	2,685	33.9%
Rates of Production							
milk sold per cow, pounds	26,353	26,709	26,356	26,323	26,855	26,459	0.4%
hay DM per acre, tons	3.00	3.70	3.40	3.30	3.30	3.30	10.0%
corn silage per acre, tons	17.00	18.30	19.20	19.00	17.30	18.90	11.2%
grain acres per cow	0.17	0.14	0.15	0.19	0.16	0.12	-27.6%
cull rate	34%	35%	33%	32%	33%	34%	0.0%
net calf & cow sales, per cow	$ 402	$ 388	$ 506	$ 579	$ 431	$ 352	
Labor Efficiency							
cows per worker	47.8	48.6	47.6	48.5	49.3	49.8	4.0%
milk sold per worker, pounds	1,260,210	1,298,534	1,254,265	1,276,308	1,323,151	1,316,582	4.5%
Cost Control and Milk Price							
grain & conc. purchased as % of milk sales	33%	31%	28%	35%	32%	30%	
dairy feed & crop expense per cwt. milk	$ 8.23	$ 8.54	$ 8.65	$ 7.94	$ 7.02	$ 6.95	
labor and machinery costs per cow	$ 1,584	$ 1,638	$ 1,715	$ 1,666	$ 1,606	$ 1,679	6.0%
hired labor cost per cwt.	$ 2.68	$ 2.64	$ 2.83	$ 2.88	$ 2.84	$ 3.01	
labor cost per hired worker equivalent	$ 38,038	$ 38,524	$ 39,406	$ 40,950	$ 41,468	$ 43,463	14.3%
operating cost of producing milk per cwt.	$ 14.76	$ 15.49	$ 15.83	$ 14.69	$ 13.81	$ 14.11	
purch. input cost of prod. milk per cwt.	$ 16.02	$ 16.89	$ 17.33	$ 16.22	$ 15.40	$ 15.81	
total cost of producing milk per cwt.	$ 17.90	$ 18.90	$ 19.53	$ 18.54	$ 17.62	$ 18.00	
net milk price per cwt.	$ 19.14	$ 21.12	$ 24.61	$ 17.56	$ 16.37	$ 17.54	

Table 5 Continued

Capital Efficiency(average for year)	2012	2013	2014	2015	2016	2017	
farm capital per cow	$ 9,543	$ 10,268	$ 11,094	$ 11,650	$ 11,677	$ 11,809	23.7%
machinery and equipment per cow	$ 1,469	$ 1,618	$ 1,763	$ 1,894	$ 1,833	$ 1,732	17.9%
asset turnover ratio	0.65	0.66	0.71	0.52	0.48	0.50	
net reinvestment per cow	$ (1,044)	$ (1,002)	$ (1,558)	$ (1,122)	$ (1,253)	$ (1,254)	
Profitability							
net farm income without appreciation	$ 1,130,323	$ 1,536,982	$ 2,654,763	$ 771,089	$ 704,528	$ 1,112,949	$7,910,634
net farm income w/o apprec. per cow	$ 1,033	$ 1,344	$ 2,151	$ 587	$ 498	$ 735	
net farm income with appreciation	$ 1,337,306	$ 1,783,044	$ 2,950,199	$ 1,227,248	$ 1,035,321	$ 1,455,473	
net farm income with apprec. per cow	$ 1,222	$ 1,559	$ 2,391	$ 934	$ 732	$ 961	
labor & management income per oper.	$ 324,925	$ 473,390	$ 920,944	$ 71,132	$ 28,523	$ 185,464	$2,004,378
net non-farm withdrawals per cwt.	$ 1.24	$ 1.46	$ 1.35	$ 1.63	$ 0.94	$ 0.67	
rate of return on equity capital with apprec.	15.1%	18.2%	26.2%	8.6%	6.5%	9.3%	
rate of return on all capital with apprec.	12.1%	14.5%	20.8%	7.3%	5.8%	7.9%	
rate of return on equity capital w/o apprec.	12.4%	15.4%	23.4%	4.7%	3.9%	6.8%	
rate of return on all capital w/o apprec.	10.1%	12.4%	18.6%	4.3%	3.8%	6.0%	
Financial Summary							
farm net worth, end of year	$ 8,177,264	$ 9,418,840	$ 11,697,767	$ 12,141,158	$ 12,909,576	$ 13,760,978	87.3%
debt to asset ratio	0.26	0.24	0.22	0.22	0.25	0.26	
farm debt per cow	$ 2,539	$ 2,559	$ 2,665	$ 2,592	$ 2,867	$ 3,099	22.1%
debt coverage ratio	2.93	3.48	5.34	1.65	1.87	2.93	
working capital, as % of expenses	29%	32%	41%	32%	29%	30%	
retained earnings	$ 772,778	$ 1,090,583	$ 2,217,187	$ 208,913	$ 346,669	$ 844,705	$5,480,835
valuation equity	$ (13,728)	$ (431)	$ 31,035	$ 166,293	$ 52,686	$ (35,036)	$200,819

Six Year Per Cwt. Comparison

Table 6

Same 102 Farms, Remaining 80% Sorted by ROA w/o Appreciation

New York State, Dairy Farm Business Summary & Analysis Program

	Year					
	2012	2013	2014	2015	2016	2017
number of cows	604	630	658	683	710	744
milk sales in pounds	15,220,481	15,977,839	16,702,214	17,372,794	18,541,196	19,223,284
milk per cow	25,208	25,357	25,387	25,438	26,104	25,838
RECEIPTS						
milk sales-$	$19.70	$21.55	$25.40	$18.25	$17.02	$18.41
dairy cattle sales	$1.57	$1.61	$1.77	$1.86	$1.46	$1.53
dairy calf sales	$0.17	$0.16	$0.31	$0.45	$0.20	$0.20
other livestock sales	$0.86	$0.62	$0.58	$0.42	$0.06	$0.07
crop sales	$0.86	$0.62	$0.58	$0.42	$0.48	$0.54
government receipts	$0.31	$0.23	$0.04	$0.20	$0.23	$0.19
custom machine work	$0.08	$0.07	$0.05	$0.05	$0.04	$0.04
gas tax refund	$0.00	$0.01	$0.00	$0.00	$0.00	$0.00
other	$0.40	$0.43	$0.36	$0.36	$0.38	$0.33
non-cash transfer(subtract)	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Farm operating receipts	$23.17	$24.75	$28.58	$21.72	$19.86	$21.32
EXPENSES						
Hired labor	$2.82	$2.85	$2.96	$3.04	$2.90	$2.97
Feed						
dairy grain & concentrate	$6.74	$7.16	$7.53	$6.79	$5.89	$5.87
dairy roughage	$0.38	$0.46	$0.38	$0.31	$0.34	$0.33
nondairy feed	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
professional nutritional services	$0.00	$0.00	$0.00	$0.01	$0.01	$0.01
Machinery						
machine hire, rent & lease	$0.45	$0.50	$0.52	$0.54	$0.49	$0.57
machine repairs & parts	$0.99	$1.05	$1.15	$1.05	$0.95	$0.98
fuel, oil & grease	$0.90	$0.90	$0.91	$0.61	$0.45	$0.52

Table 6 Continued

Livestock	2012	2013	2014	2015	2016	2017
replacement livestock	$0.06	$0.08	$0.06	$0.05	$0.05	$0.05
breeding fees	$0.23	$0.22	$0.25	$0.23	$0.23	$0.23
veterinary & medicine	$0.65	$0.69	$0.71	$0.68	$0.64	$0.66
milk marketing	$0.86	$0.85	$0.90	$0.97	$0.99	$1.09
bedding	$0.40	$0.39	$0.37	$0.37	$0.35	$0.32
milking supplies	$0.38	$0.40	$0.40	$0.41	$0.34	$0.36
cattle leased	$0.02	$0.01	$0.02	$0.01	$0.00	$0.00
custom boarding	$0.44	$0.45	$0.43	$0.42	$0.39	$0.40
bST	$0.20	$0.19	$0.21	$0.19	$0.14	$0.05
livestock, professional fees	$0.07	$0.08	$0.07	$0.07	$0.06	$0.07
other livestock expense	$0.08	$0.08	$0.11	$0.09	$0.09	$0.09
Crops						
fertilizer & lime	$0.58	$0.63	$0.55	$0.59	$0.43	$0.36
seeds & plants	$0.48	$0.52	$0.53	$0.53	$0.47	$0.46
spray & other crop expense	$0.27	$0.25	$0.27	$0.25	$0.26	$0.27
crop, professional fees	$0.03	$0.04	$0.03	$0.03	$0.03	$0.05
Real estate						
land, build., fence repair	$0.34	$0.33	$0.46	$0.37	$0.27	$0.27
taxes	$0.24	$0.26	$0.26	$0.27	$0.26	$0.26
rent & lease	$0.28	$0.32	$0.30	$0.31	$0.31	$0.34
Other cash expense						
insurance	$0.18	$0.19	$0.21	$0.26	$0.20	$0.19
utilities	$0.41	$0.42	$0.48	$0.41	$0.36	$0.37
interest paid	$0.54	$0.57	$0.52	$0.54	$0.62	$0.72
other, professional fees	$0.14	$0.13	$0.14	$0.14	$0.12	$0.11
miscellaneous	$0.12	$0.13	$0.13	$0.13	$0.11	$0.12
Farm operating expenses	$19.28	$20.13	$20.85	$19.66	$17.74	$18.10
Expansion Cattle	$0.21	$0.13	$0.08	$0.09	$0.08	$0.18
Extraordinary Expense	$0.00	$0.00	$0.00	$0.01	$0.00	$0.02
Machinery Depreciation	$0.93	$0.96	$1.07	$1.01	$1.00	$1.02
Building Depreciation	$0.61	$0.62	$0.66	$0.73	$0.75	$0.73
Total Accrual Expenses	$21.03	$21.85	$22.67	$21.49	$19.57	$20.05
Net Farm Income w/o Appreciation	$2.14	$2.89	$5.91	$0.23	$0.29	$1.27

Selected Characteristics, Six Year Comparison

Table 7

Same 102 Farms, Remaining 80% Sorted by ROA w/o Appreciation

New York State, Dairy Farm Business Summary & Analysis Program

	Year						
	2012	2013	2014	2015	2016	2017	Percent Change
Size of Business							
average number of cows	604	630	658	683	710	744	23.2%
average number of heifers	518	541	560	585	616	654	26.3%
percent heifers to cows	86%	86%	85%	86%	87%	88%	
milk sold, pounds	15,220,481	15,977,839	16,702,214	17,372,794	18,541,196	19,223,284	26.3%
worker equivalent	14.17	14.58	15.33	15.84	15.93	16.25	14.7%
total tillable acres	1,293	1,319	1,336	1,403	1,442	1,471	13.8%
Rates of Production							
milk sold per cow, pounds	25,208	25,357	25,387	25,438	26,104	25,838	2.5%
hay DM per acre, tons	3.00	3.50	3.50	3.40	3.30	3.50	16.7%
corn silage per acre, tons	16.70	17.70	19.00	17.60	17.70	18.20	9.0%
grain acres per cow	0.21	0.21	0.20	0.19	0.17	0.17	-15.5%
cull rate, %	36%	35%	35%	35%	34%	34%	-5.6%
net calf & cow sales, per cow	$ 374	$ 397	$ 491	$ 552	$ 400	$ 389	
Labor Efficiency							
cows per worker	42.6	43.2	42.9	43.1	44.6	45.8	7.4%
milk sold per worker, pounds	1,074,134	1,095,874	1,089,512	1,096,767	1,163,917	1,182,971	10.1%
Cost Control and Milk Price							
grain & conc. purchased as % of milk sales	34.00	33.00	30.00	37.00	35.00	32.00	
dairy feed & crop expense per cwt. milk	$ 8.49	$ 9.05	$ 9.28	$ 8.50	$ 7.42	$ 7.33	
labor and machinery costs per cow	$ 1,747	$ 1,804	$ 1,895	$ 1,818	$ 1,742	$ 1,797	2.9%
hired labor cost per cwt.	$ 2.82	$ 2.85	$ 2.96	$ 3.04	$ 2.90	$ 2.97	
labor cost per hired worker equivalent	$ 36,585	$ 37,867	$ 38,530	$ 39,682	$ 40,369	$ 42,035	14.9%
operating cost of producing milk per cwt.	$ 16.01	$ 17.06	$ 17.77	$ 16.29	$ 14.98	$ 15.36	
purch. input cost of prod. milk per cwt.	$ 17.56	$ 18.65	$ 19.50	$ 18.03	$ 16.73	$ 17.13	
total cost of producing milk per cwt.	$ 19.76	$ 20.92	$ 21.90	$ 20.53	$ 19.13	$ 19.51	
net milk price per cwt.	$ 18.84	$ 20.70	$ 24.50	$ 17.28	$ 16.03	$ 17.31	

Table 7 Continued

Capital Efficiency(average for year)	2012	2013	2014	2015	2016	2017	
farm capital per cow	$ 10,531	$ 10,997	$ 11,656	$ 12,358	$ 12,418	$ 12,379	17.5%
machinery and equipment per cow	$ 1,728	$ 1,825	$ 1,960	$ 2,065	$ 2,043	$ 1,993	15.3%
asset turnover ratio	0.58	0.59	0.65	0.48	0.44	0.47	
net reinvestment per cow	$ (1,023)	$ (916)	$ (1,154)	$ (1,286)	$ (740)	$ (749)	
Profitability							
net farm income without appreciation	$ 325,755	$ 462,299	$ 985,575	$ 39,372	$ 52,940	$ 245,011	
net farm income w/o apprec. per cow	$ 539	$ 734	$ 1,498	$ 58	$ 75	$ 329	
net farm income with appreciation	$ 497,783	$ 615,246	$ 1,236,059	$ 282,641	$ 218,239	$ 475,678	
net farm income with apprec. per cow	$ 824	$ 977	$ 1,879	$ 414	$ 307	$ 639	
labor & management income per oper.	$ 54,848	$ 110,506	$ 337,066	$ (110,925)	$ (103,641)	$ (20,770)	
net non-farm withdrawals per cwt.	$ 1.21	$ 1.27	$ 1.16	$ 1.09	$ 1.09	$ 0.87	
rate of return on equity capital with apprec.	8.9%	10.6%	21.2%	2.3%	1.0%	5.3%	
rate of return on all capital with apprec.	7.1%	8.2%	15.4%	2.7%	2.0%	4.9%	
rate of return on equity capital w/0 apprec.	4.8%	7.2%	16.4%	-2.0%	-1.9%	1.3%	
rate of return on all capital w/o apprec.	4.4%	6.0%	12.1%	-0.2%	0.1%	2.4%	
Financial Summary							
farm net worth, end of year	$ 4,300,074	$ 4,701,568	$ 5,608,001	$ 5,662,540	$ 5,656,123	$ 5,928,950	47.7%
debt to asset ratio	0.35	0.34	0.31	0.35	0.37	0.37	
farm debt per cow	$ 3,829	$ 3,881	$ 3,847	$ 4,451	$ 4,565	$ 4,571	19.4%
debt coverage ratio	1.43	1.71	3.16	0.62	0.70	1.25	
working capital, as % of expenses	20%	19%	26%	19%	15%	14%	
retained earnings	$ 142,804	$ 260,256	$ 790,869	$ (150,842)	$ (148,698)	$ 77,992	$972,381
valuation equity	$ 72,065	$ 46,867	$ 96,838	$ 65,025	$ 54,059	$ 129,608	$464,463

Table 8

"Legal 21" Farm Financial Ratios
Same 26 Farms, Top 20% Sorted by ROA w/o Appreciation, New York State, DFBS
2012-2017

	DFBS page	2012	2013	2014	2015	2016	2017	6 Year Average	Your Farm
Liquidity									
Current Ratio	7	3.31	3.3	4.01	3.39	3.21	3.31	3.44	
Working Capital	7	$1,567,359	$1,895,090	$2,748,077	$2,154,384	$2,014,496	$2,229,418	$2,075,881	
As % of Total Expense	7	29.0%	32.0%	41.0%	32.0%	29.0%	30.0%	32.6%	
As % of Gross Revenue[1]	calc	23.7%	25.1%	29.3%	28.7%	26.5%	25.8%	26.7%	
Solvency									
Debt/Asset Ratio	7	0.26	0.24	0.22	0.22	0.25	0.26	0.24	
Equity/Asset Ratio	7	0.74	0.76	0.78	0.78	0.75	0.74	0.76	
Debt/Equity Ratio(Leverage Ratio)	7	0.34	0.32	0.28	0.29	0.33	0.35	0.31	
Profitability									
Net Farm Income w/o Apprec. (Per Cow)	1	$1,034	$1,344	$2,152	$587	$498	$735	$1,123	
ROA w/o Apprec.	4	10.1%	12.4%	18.6%	4.3%	3.8%	6.0%	9.9%	
ROE w/o Apprec.	4	12.4%	15.4%	23.4%	4.7%	3.9%	6.8%	12.0%	
Operating Profit Margin Ratio[2]	calc	0.16	0.19	0.27	0.09	0.08	0.12	0.159	
EBITDA(Per Cow)[3]	calc	$1,449	$1,800	$2,610	$1,066	$1,014	$1,293	$1,588	
Repayment Capacity									
Capital Debt Repayment Capacity(per cow)[4]	calc	$1,122	$1,410	$2,255	$638	$760	$1,116	$1,237	
Capital Debt Repayment Margin(per cow)[5]	calc	$740	$1,004	$1,833	$251	$354	$735	$836	
Replacement Margin(per cow)[6]	calc	$928	$1,191	$2,018	$398	$520	$871	$1,011	
Term Debt Coverage Ratio	1	2.93	3.48	5.34	1.65	1.87	2.93	3.05	
Replacement Margin Coverage Ratio[7]	calc	1.9	2.3	3.4	1.0	1.2	1.8	1.96	

Financial Efficiency **Table 8 Continued**

Asset Turnover Ratio[8]	14	0.65	0.66	0.71	0.52	0.48	0.50	0.60	
Operating Expense Ratio	14	0.76	0.73	0.66	0.81	0.81	0.77	0.75	
Depreciation Expense Ratio	14	0.05	0.06	0.05	0.07	0.08	0.08	0.06	
Interest Expense Ratio	14	0.01	0.01	0.01	0.01	0.02	0.02	0.01	
Net Farm Income from Operations Ratio	4	0.17	0.20	0.28	0.10	0.09	0.13	0.17	

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)/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 128 Farms, New York State, DFBS
2012-2017

	DFBS page	2012	2013	2014	2015	2016	2017	6 Year Average	Your Farm
Liquidity									
Current Ratio	7	2.46	2.49	3.01	2.42	2.15	2.11	2.44	
Working Capital	7	$816,607	$923,213	$1,341,581	$988,854	$856,568	$888,811	$969,272	
As % of Total Expense	7	22.0%	23.0%	31.0%	23.0%	20.0%	19.0%	0.23	
As % of Gross Revenue[1]	calc	19.7%	19.7%	23.5%	21.8%	19.1%	17.7%	0.20	
Solvency									
Debt/Asset Ratio	7	0.32	0.31	0.28	0.31	0.33	0.34	0.32	
Equity/Asset Ratio	7	0.68	0.69	0.72	0.69	0.67	0.66	0.69	
Debt/Equity Ratio(Leverage Ratio)	7	0.48	0.46	0.39	0.44	0.49	0.50	0.46	
Profitability									
Net Farm Income w/o Apprec. (Per Cow)	1	$696	$928	$1,710	$232	$217	$468	$709	
ROA w/o Apprec.	4	6.1%	7.9%	14.1%	1.2%	1.3%	3.6%	0.06	
ROE w/o Apprec.	4	7.2%	9.9%	18.8%	0.4%	0.2%	3.3%	0.07	
Operating Profit Margin Ratio[2]	calc	0.11	0.13	0.22	0.03	0.03	0.08	0.10	
EBITDA(Per Cow)[3]	calc	$1,187	$1,444	$2,244	$778	$801	$1,079	$1,256	
Repayment Capacity									
Capital Debt Repayment Capacity(per cow)[4]	calc	$877	$1,103	$1,929	$450	$528	$872	$960	
Capital Debt Repayment Margin(per cow)[5]	calc	$391	$591	$1,413	-$64	$5	$349	$448	
Replacement Margin(per cow)[6]	calc	$654	$866	$1,669	$200	$274	$616	$713	
Term Debt Coverage Ratio	1	1.80	2.15	3.74	0.88	1.01	1.67	1.88	
Replacement Margin Coverage Ratio[7]	calc	1.2	1.5	2.5	0.6	0.7	1.1	1.26	

Financial Efficiency **Table 9 Continued**

Asset Turnover Ratio[8]	14	0.6	0.61	0.67	0.49	0.45	0.48	0.55	
Operating Expense Ratio	14	0.8	0.77	0.7	0.86	0.85	0.81	0.80	
Depreciation Expense Ratio	14	0.06	0.06	0.06	0.08	0.09	0.08	0.07	
Interest Expense Ratio	14	0.02	0.02	0.02	0.02	0.03	0.03	0.02	
Net Farm Income from Operations Ratio	4	0.12	0.15	0.23	0.04	0.04	0.08	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)/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)
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2018-07	Production Agriculture Diversification for Each State in the United States		Tauer W., L
2018-06	Dairy Farm Business Summary New York State 2017		Karszes, J., Christman, A., Howlett, A., Knoblauch, W.
2018-05	Dairy Farm Management: Business Summary New York State 2016		Karszes, J., Christman, A., Howlett, A., Windecker, K., and W. Knoblauch
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