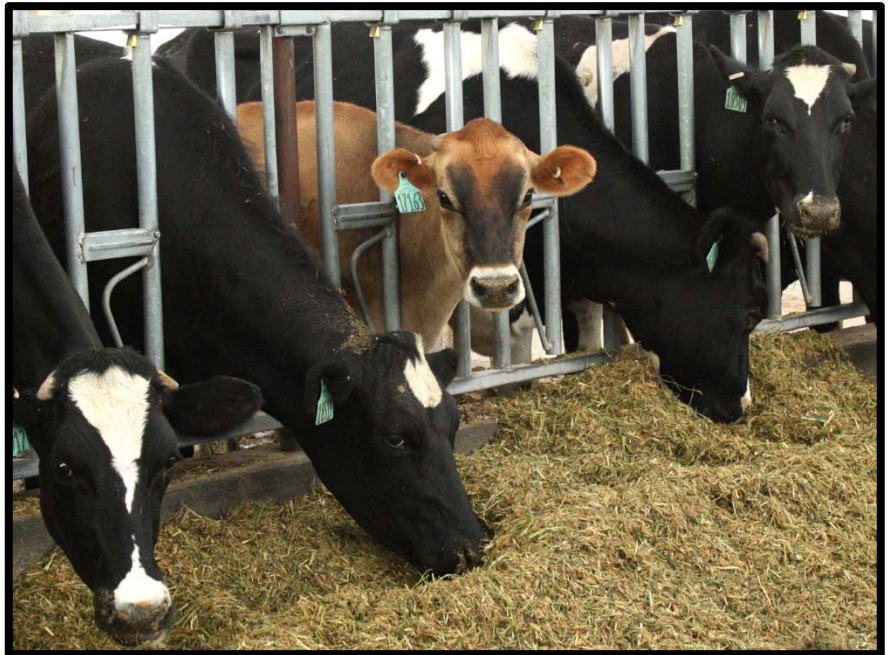


DAIRY FARM MANAGEMENT

BUSINESS SUMMARY NEW YORK STATE 2016



*You can't manage what you can't measure.
But if you measure it, you can improve it!*

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2016 NEW YORK STATE DAIRY FARM BUSINESS SUMMARY AND ANALYSIS*

INTRODUCTION

Dairy Farm Business Summary and Analysis (DFBS) projects are an integral part of Cornell Cooperative Extension's agricultural education program in New York State. The Charles H. Dyson School of Applied Economics and Management of the Cornell S.C. Johnson College of Business, The College of Agriculture and Life Sciences at Cornell University, PRO-DAIRY, and County and Regional Extension staff cooperate in sponsoring DFBS projects. In 2016, over 220 dairy farms participated, including dairy owners, renters, full-time, part-time, organic, and out-of-state farms. Business records submitted by dairy farmers from 36 New York counties provide the basis for continuing Extension programs, data for applied studies, and for use in the classroom. Regardless of the use of the data, confidentiality of individual farm data is maintained.

Cornell Cooperative Extension educators enroll the cooperators and collect the records. In addition, assistance is provided by Dehm Associates, Chuck Raddick, and by consultants from the Farm Credit East and Yankee Associations. Each cooperator receives a detailed summary and analysis of his or her business. All educators are using a web based program at their offices or on the farm to process and return the individual farm business reports for immediate use. The program used to generate the farm business reports can be found at the website <http://dfbs.cornell.edu>. Progress reports are prepared as farms are completed by Cornell faculty and used by DFBS cooperators and other farmers to compare their farm performance with the most current averages averages.

The DFBS program helps farmers improve accounting and financial analysis techniques, develop managerial skills, solve business and financial management problems, and plan the future of their business. For more information, please visit <http://dfbs.dyson.cornell.edu>.

Program Objective

The primary objective of the Dairy Farm Business Summary and Analysis Project (DFBS) is to help farm managers improve accounting and financial analysis techniques, develop managerial skills, solve business and financial management problems, and plan the future of their business through the appropriate use of historical farm data and the application of modern farm business analysis techniques.

Format

This report is comprised of five sections. The first section charts the progress of the average dairy farm business over two years. One hundred and sixty-two New York farms participated in the summary both years. The averages of selected business factors are presented for these farms and the changes that occurred from 2015 to 2016 are calculated.

The second section contains charts for additional analysis of New York dairy farms. The top 10 percent of farms (by rate of return on assets without appreciation) are compared to the average for all 173 dairy farms that participated in the 2016 DFBS program. Also presented is the progress of the same top 10 percent of farms from 2015 through 2016.

The third section, a summary and analysis section, lists the average data for the 173 farms that participated in the 2016 DFBS program. The format follows that of the individual farm DFBS printout and contains a brief explanation of each table and chart.

The fourth section presents a condensed summary, herd profiles, and progress of the farm business for farms with less than 200 cows, 200 to 549 cows, 550 to 849 cows, 850 to 1,199 cows, and farms with 1,200 and more cows.

The fifth section contains business charts for key measures of farm business and financial performance for all participating farms.

* This report was written by Jason Karszes, Senior Extension Associate, Abby Christman, Program Extension Admin, Ashley Howlett, Extension Support Specialist, with PRO-DAIRY in the Department of Animals Sciences, Kayla Windecker, Class of 2019, Department of Animal Science, and Wayne Knoblauch, Professor, Charles H. Dyson School of Applied Economics and Management at Cornell University.

PROGRESS OF THE FARM BUSINESS

The 2016 business year for the New York State dairy industry was similar to 2015, with a second year of decreasing milk prices, changing cost structures, and challenging growing conditions. While milk prices fell for the second straight year, costs also continued to decline. Herd size continued to grow and, along with a significant increase in milk production per cow, led to an increase in milk marketed off the farm. With the combination of changes during the year, a decrease in profits occurred, resulting in negative changes in the financial position of the average farm participating in the Dairy Farm Business Summary and Analysis Program in New York.

In both 2015 and 2016, 162 farms in New York participated in the Dairy Farm Business Summary and Analysis Project (DFBS), administered by Cornell Cooperative Extension and Cornell University. Tables 1 and 2 on the following pages show selected factors and receipts and expenses, on a per cow and per hundredweight basis, from the same 162 farms that participated in the DFBS project each of the last two years. Table 3 is a business chart of selected factors for the 173 farms participating in 2016.

Milk Income. Gross milk prices decreased 6.9 percent to \$17.06 per hundredweight, a decrease of \$1.26, resulting in the lowest gross milk price received on farm since 2009. Milk marketing expenses increased by \$0.01 per hundredweight, leading to a decrease of \$1.29 in net milk price received on farms. Milk production per cow increased 2.8 percent to 26,248 pounds per cow, with participating farms indicating that forage quality improvements led to the increase in milk production. With the increase in milk production offsetting some of the decrease in milk price, gross milk revenue per cow decreased 4.3 percent from the previous year. Average herd size for the participating farms increased by 4.9 percent to 821 cows. With both herd size and milk per cow increasing, total milk pounds shipped per farm increased by 7.8 percent. 2016 presented different growing challenges than 2015, with wet conditions becoming dry conditions around different parts of the state. Hay yields decreased 5.9 percent and corn silage yields decreased 3.4 percent. Along with milk prices falling, cattle prices decreased significantly, with cattle sales per cow falling 15 percent and dairy calf sales per cow decreasing 53.9 percent.

Cost Control. Costs continued to decrease on the participating farms. Purchased grain and concentrates led the decrease, decreasing \$0.87 per hundredweight to \$5.76 per hundredweight. Fuel decreased 15 cents per hundredweight. Machinery repair and land, building, fence repair declined a combined 16 cents per hundredweight. With producers focused on cost control, coupled with increased cow numbers and higher milk production, every expense item was either unchanged or lower than the previous year.

Worker equivalents increased 2.3 percent, but with the increase in cow numbers, cows per worker increased 2.7 percent to 45.9 cows per worker. With both cows per worker and milk sold per cow increasing, milk sold per worker equivalent increased to 1,204,786 pounds, a 5.5 percent increase. This increase in milk sold per worker was higher than the increase in the average cost per hired worker of 0.9 percent, leading to a decrease of 4.0 percent in hired labor cost per cwt.

The combination of these changes led to a decrease in farm operating costs of \$1.78, or 9.3 percent, to \$17.27 per hundredweight.

Capital Investment. The average investment in the farm stayed relatively unchanged at \$11,982 per cow. The increase in cow numbers offset increased investment that occurred during the year, leading to little change in investment per cow. The additional investment resulted in total depreciation (machinery and real estate) expenses increasing by \$16 per cow, but only \$0.02 cents per hundredweight due to the increase in milk sold per cow.

Decrease in Earnings. Profits fell in 2016, the second year of decreasing profits. The declines in milk prices and cow and calf revenue was only partially offset by the decrease in costs. This decrease in margin resulted in low to negative earnings for the year. Net farm income without appreciation fell to \$151,775. Net farm income with appreciation decreased to \$334,828.

- Labor and management income per operator/manager decreased 22.6 percent, from -\$67,270 in 2015 to -\$82,477 in 2016.
- Rate of return to all capital without appreciation decreased to 1.00 percent, from 1.20 percent in 2015. Rate of return on equity capital without appreciation fell to -0.2 percent.
- Farm net worth increased by 1.6 percent.
- Debt to asset ratio increased from 0.31 to 0.33, reflecting the increased borrowings for capital investment that is reflected in the 3.4 percent increase in debt per cow.

Overall, 2016 was a year of very low to slightly negative earnings and is the lowest earnings since 2009 for the average dairy farm participating in the DFBS in New York. While, on average, farms generated low earnings in 2016, the changes on individual farms varied, with some farms still reporting strong earnings. Changes to operating costs, milk production, and growing conditions offset much of the decrease in milk prices.

Table 1.

PROGRESS OF THE FARM BUSINESS
Same 162 New York Dairy Farms, 2015 & 2016, DFBS

SELECTED FACTORS	Average of 162 Farms		Percent Change
	2015	2016	
<i>Size of Business</i>			
Average number of cows	783	821	5%
Average number of heifers	670	711	6%
Milk sold, pounds	19,989,105	21,553,618	8%
Worker equivalent	17.5	17.9	2%
Total tillable acres	1,568	1,637	4%
<i>Rates of Production</i>			
Milk sold per cow, pounds	25,539	26,248	3%
Hay DM per acre, tons	3.4	3.20	-6%
Corn silage per acre, tons	17.9	17.30	-3%
<i>Labor Efficiency</i>			
Cows per worker	44.7	45.9	3%
Milk sold per worker, pounds	1,141,582	1,204,786	6%
<i>Cost Control and Milk Price</i>			
Grain & concentrate per cwt. milk	\$6.63	\$5.76	-13%
Net milk income over purchased grain & conc. per cow	\$2,505	\$2,475	-1%
Dairy feed & crop expense per cwt. milk	\$8.29	\$7.27	-12%
Labor and machinery costs per cow	\$1,765	\$1,697	-4%
Hired labor costs per cwt. milk	\$3.02	\$2.90	-4%
Hired labor costs per worker equivalent	\$40,395	\$40,768	1%
Operating cost of producing milk per cwt.	\$15.77	\$14.69	-7%
Purchased input cost of producing milk per cwt.	\$17.42	\$16.35	-6%
Total cost of producing milk per cwt.	\$19.86	\$18.66	-6%
Net milk price	\$17.37	\$16.10	-7%
<i>Capital Efficiency (average for year)</i>			
Farm capital per cow	\$11,970	\$11,982	0%
Machinery and equipment per cow	\$2,028	\$1,987	-2%
Asset turnover ratio	0.49	0.45	-8%
<i>Profitability</i>			
Net farm income without appreciation	\$180,489	\$151,775	-16%
Net farm income without appreciation per cow	\$231	\$185	-20%
Net farm income with appreciation	\$421,842	\$334,828	-21%
Net farm income with appreciation per cow	\$539	\$408	-24%
Labor & management income per operator/manager	-\$67,270	-\$82,477	-23%
Rate return on equity capital with appreciation	4.0%	2.6%	-35%
Rate return on equity capital without appreciation	0.3%	-0.2%	-163%
Rate return on all capital with appreciation	3.8%	2.9%	-24%
Rate return on all capital without appreciation	1.2%	1.0%	-16%
<i>Financial Summary (based on market value, excluding deferred taxes)</i>			
Farm net worth, end year	\$6,566,960	\$6,668,985	2%
Debt to asset ratio	0.31	0.33	6%
Farm debt per cow	\$3,860	\$3,993	3%
Debt coverage ratio	0.85	0.94	11%

Table 2.

RECEIPTS & EXPENSES PER COW AND PER HUNDREDWEIGHT

Same 162 New York Dairy Farms, 2015 & 2016, DFBS

Item	2015		2016		% Change Per Cwt.
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	
Average number of cows	783		821		
Cwt. of milk sold		199,891		215,536	
ACCRUAL OPERATING RECEIPTS					
Milk	\$4,680	\$18.32	\$4,477	\$17.06	-7%
Dairy cattle	\$480	\$1.88	\$408	\$1.55	-18%
Dairy calves	\$115	\$0.45	\$53	\$0.20	-56%
Other livestock	\$15	\$0.06	\$11	\$0.04	-33%
Crops	\$101	\$0.39	\$80	\$0.31	-21%
Miscellaneous receipts	<u>\$151</u>	<u>\$0.59</u>	<u>\$162</u>	<u>\$0.62</u>	5%
Total Operating Receipts	\$5,541	\$21.70	\$5,190	\$19.77	-9%
ACCRUAL OPERATING EXPENSES					
Hired labor	\$772	\$3.02	\$760	\$2.90	-4%
Dairy grain & concentrate	\$1,693	\$6.63	\$1,513	\$5.76	-13%
Dairy roughage	\$83	\$0.33	\$93	\$0.35	6%
Nondairy feed	\$0	\$0.00	\$0	\$0.00	NA
Professional nutritional services	\$1	\$0.00	\$1	\$0.01	NA
Machine hire, rent & lease	\$130	\$0.51	\$125	\$0.48	-6%
Machine repair & vehicle expense	\$255	\$1.00	\$238	\$0.91	-9%
Fuel, oil & grease	\$149	\$0.59	\$114	\$0.44	-25%
Replacement livestock	\$10	\$0.04	\$11	\$0.04	0%
Breeding	\$56	\$0.22	\$57	\$0.22	0%
Veterinary & medicine	\$173	\$0.68	\$167	\$0.64	-6%
Milk marketing	\$243	\$0.95	\$252	\$0.96	1%
Bedding	\$99	\$0.39	\$96	\$0.36	-8%
Milking supplies	\$101	\$0.39	\$92	\$0.35	-10%
Cattle lease	\$4	\$0.01	\$3	\$0.01	0%
Custom boarding	\$102	\$0.40	\$96	\$0.37	-8%
BST expense	\$44	\$0.17	\$32	\$0.12	-29%
Livestock professional fees	\$15	\$0.06	\$16	\$0.06	0%
Other livestock expense	\$23	\$0.09	\$19	\$0.07	-22%
Fertilizer & lime	\$145	\$0.57	\$112	\$0.43	-25%
Seeds & plants	\$127	\$0.50	\$120	\$0.46	-8%
Spray & other crop expense	\$63	\$0.24	\$62	\$0.24	0%
Crop professional fees	\$7	\$0.03	\$9	\$0.03	0%
Land, building & fence repair	\$89	\$0.35	\$73	\$0.28	-20%
Taxes	\$65	\$0.26	\$67	\$0.25	-4%
Real estate rent & lease	\$75	\$0.30	\$74	\$0.28	-7%
Insurance	\$59	\$0.23	\$48	\$0.18	-22%
Utilities	\$101	\$0.40	\$90	\$0.34	-15%
Interest paid	\$118	\$0.46	\$138	\$0.52	13%
Other professional fees	\$31	\$0.12	\$28	\$0.10	-17%
Miscellaneous	<u>\$31</u>	<u>\$0.12</u>	<u>\$27</u>	<u>\$0.10</u>	-17%
Total Operating Expenses	\$4,865	\$19.05	\$4,532	\$17.27	-9%
Expansion livestock	\$23	\$0.09	\$37	\$0.14	56%
Extraordinary expenses	\$2	\$0.01	\$0	\$0.00	-100%
Machinery depreciation	\$248	\$0.97	\$251	\$0.96	-1%
Real estate depreciation	<u>\$172</u>	<u>\$0.68</u>	<u>\$185</u>	<u>\$0.71</u>	4%
Total Expenses	\$5,310	\$20.80	\$5,005	\$19.08	-8%
Net Farm Income w/o Appreciation	\$231	\$0.90	\$185	\$0.70	-22%

Table 3.

Farm Business Chart

The Farm Business Chart is a tool which can be used in analyzing your business. Compare your business by drawing a line through or near the figure in each column, which represents your current level of performance. The five figures in each column represents the average of each 20 percent or quintile, of farms included in the summary. Use this information to identify business areas where more challenging goals are needed.

FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS

173 New York Dairy Farms, 2016

Size of Business			Rates of Production			Labor Efficiency	
Worker Equivalents	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
(14) ¹	(12)	(12)	(12)	(11)	(11)	(14)	(14)
39.5	1,905	50,703,535	28,759	4.6	22.7	59.8	1,533,277
22.9	1,055	28,606,347	27,030	3.5	19.7	49.1	1,255,300
15.9	709	18,164,853	25,943	3.0	17.7	44.0	1,114,515
8.4	361	8,725,497	24,386	2.4	15.6	38.6	961,661
3.1	108	2,210,338	17,924	1.5	10.3	28.9	609,339

Cost Control							
Grain Bought per Cow	Grain Bought per Cwt.	% Grain is of Milk Receipts	Machinery Costs per Cow	Labor & Machinery Costs/Cow	Feed & crop Expenses per Cow	Feed & Crop Expenses per Cwt. Milk	Hired Labor Cost per Wkr. Equivalent
(12)	(12)	(12)	(14)	(14)	(12)	(12)	(14)
\$894	\$4.27	25	\$557	\$1,288	\$1,184	\$5.59	\$20,809
\$1,311	\$5.25	31	\$754	\$1,623	\$1,653	\$6.68	\$34,810
\$1,479	\$5.74	34	\$838	\$1,781	\$1,844	\$7.17	\$38,343
\$1,603	\$6.20	36	\$944	\$1,918	\$2,015	\$7.70	\$41,792
\$1,828	\$7.04	41	\$1,191	\$2,288	\$2,309	\$8.98	\$50,487

Value of Production			Profitability				
Milk Receipts Per Cow	Milk Receipts Per Cwt.	Opr. Cost Milk Production per Cwt.	Total Cost Milk Production Per Cwt.	% Rate of Return on All Capital w/o Apprec.	Net Farm Income Without Apprec.	Labor & Management Income per Operator	Change in Net Worth with Apprec.
(12)	(12)	(12)	(12)	(4)	(4)	(4)	(8)
\$4,912	\$18.45	\$11.86	\$16.79	5.2	\$900,465	\$153,241	\$787,588
\$4,633	\$17.45	\$13.71	\$18.23	2.3	\$247,102	-\$3,477	\$166,915
\$4,409	\$17.01	\$14.55	\$19.30	0.1	\$66,897	-\$46,026	\$12,925
\$4,097	\$16.64	\$15.80	\$20.62	-2.2	-\$25,638	-\$129,216	-\$107,407
\$3,126	\$16.05	\$17.63	\$24.73	-6.3	-\$438,122	-\$473,827	-\$751,773

Financial Efficiency							
Investment per Cow	Machinery Investment per Cow	Asset Turnover Ratio	Operating Expense Ratio	Debt Coverage Ratio	Planned Debt Payments per Cow	Percent Equity	Working Capital as % of Opr. Expense
(14)	(14)	(14)	(14)	(10)	(12)	(7)	(7)
\$8,597	\$995	0.62	0.73	6.76	\$56	93	58
\$10,680	\$1,664	0.49	0.80	1.32	\$308	77	29
\$12,296	\$2,152	0.43	0.85	0.83	\$488	66	20
\$13,780	\$2,624	0.37	0.90	0.25	\$674	57	12
\$17,504	\$4,088	0.26	1.00	-0.79	\$955	43	-3

¹Page number of the participant's DFBS where the factor is located.

COMPARING TO THE TOP 10 PERCENT OF FARMS, 2016

There is a considerable range in business performance every year within the DFBS. To provide insight into areas of difference between farms, the top 10 percent of participating farms by return to all capital without appreciation are summarized and compared to the average of all farms. Table 4 reports on selected business and financial factors, while table 5 reports the per cow and per hundredweight income and expenses. Tables 6 and 7 report the progress and changes that the same farms from the top 10 percent of farms made from 2015 to 2016. Table 8 is a business chart for the top 10 percent of farms for 2016.

The top 10 percent of farms were 50 percent larger than the average herd size of participating farms. While they were 50 percent larger, they only utilized 36 percent more tillable land and 33 percent more labor. Cows per worker and milk sold per worker equivalent were both 13 percent higher. With slightly lower cost per hired worker coupled with the higher labor efficiency, hired labor costs per hundredweight was 8 percent lower for farms in the top 10 percent.

Milk production was very similar between the two groups, with very little or no difference in milk production per cow or percent butterfat and protein. While there was little difference in component production, the top 10% of farms did average a higher milk price for the year, averaging \$17.31 per hundredweight, or a difference of 26 cents per hundredweight. Along with a higher milk price, these farms also were higher in the dairy cattle, dairy calf, crop, and miscellaneous income categories. For the top 10 percent of farms, the total income per hundredweight averaged \$20.37, 62 cents higher than the average farm.

While milk production per cow was very similar, the purchased grain and concentrate costs of the top 10 percent of farms were 6 percent lower than the overall average, a difference of 35 cents per hundredweight. Out of the 31 operating expense categories, the top profit group was lower in 28 of them. Machinery hire, rent, and lease along with land and building rent were both higher than the average for the top 10 percent of farms. With all costs combined, total farm operating costs were 10 percent lower, averaging \$15.56 per cwt. This cost was \$1.74 lower than the average of all farms.

The combination of larger herd size, higher income, and lower costs for the top 10 percent of farms resulted in net farm income without appreciation averaging 604 percent higher. Return to all capital without appreciation averaged 6.5 percent vs 1.0 percent for the average of all farms.

Total investment per cow was relatively similar between the two groups, averaging \$11,905 for the average farm and \$11,965 for the top 10 percent. Debt per cow was \$1,391 lower per cow for the top 10 percent of farms, averaging \$2,571. These farms had an average net worth of 77 percent, vs 67 percent for the average of all farms.

The business chart for the top 10 percent of farms (Table 8) shows the quintile range for selected factors for the farms, with each category ranked from high to low. The reported range shows that for 2016, the highest profit farms tended to be larger, had above average milk production, higher labor efficiency, and lower debt than the range reported for these same factors for all farms.

Table 4.

DAIRY FARM BUSINESS SUMMARY SELECTED FACTORS173 New York Dairy Farms, All Farms vs Top10%², 2016

SELECTED FACTORS	Average of All Farms	Average of Top 10%	Percent Difference
<i>Size of Business</i>			
Average number of cows	820	1,231	50%
Average number of heifers	713	1,058	48%
Milk sold, pounds	21,474,336	32,243,632	50%
Worker equivalent	17.8	23.7	33%
Total tillable acres	1,618	2,202	36%
<i>Rates of Production</i>			
Milk sold per cow, pounds	26,180	26,192	0%
Hay DM per acre, tons	3.14	3.34	6%
Corn silage per acre, tons	17.23	18.25	6%
Cull rate, percent	34%	33%	-3%
<i>Labor Efficiency</i>			
Cows per worker	46.1	51.9	13%
Milk sold per worker, pounds	1,207,667	1,359,965	13%
<i>Cost Control and Milk Price</i>			
Grain & concentrate per cwt. milk	\$5.74	\$5.39	-6%
Grain & concentrate purchased as % milk sales	33.25	31.39	-6%
Dairy feed & crop expense per cwt. milk	\$7.26	\$6.72	-7%
Labor and machinery costs per cow	\$1,686	\$1,556	-8%
Hired labor costs per cwt. milk	\$2.88	\$2.65	-8%
Hired labor costs per worker equivalent	\$40,720	\$39,949	-2%
Operating cost of producing milk per cwt.	\$14.75	\$12.54	-15%
Purchased input cost of producing milk per cwt.	\$16.38	\$14.14	-14%
Total cost of producing milk per cwt.	\$18.68	\$16.43	-12%
Net milk price	\$16.10	\$16.37	2%
<i>Capital Efficiency (average for year)</i>			
Farm capital per cow	\$11,905	\$11,965	1%
Machinery and equipment per cow	\$1,948	\$1,942	0%
Asset turnover ratio	0.45	0.46	2%
<i>Profitability</i>			
Net farm income without appreciation	\$145,243	\$1,022,278	604%
Net farm income without appreciation per cow	\$177	\$830	369%
Net farm income with appreciation	\$317,571	\$1,206,848	280%
Net farm income with appreciation per cow	\$387	\$980	153%
Labor & management income per operator/manager	-\$84,793	\$225,671	366%
Rate return on equity capital with appreciation	2.3%	9.1%	293%
Rate return on equity capital without appreciation	-0.3%	7.5%	2785%
Rate return on all capital with appreciation	2.7%	7.7%	184%
Rate return on all capital without appreciation	1.0%	6.5%	579%
<i>Financial Summary (based on market value, excluding deferred taxes)</i>			
Farm net worth, end year	\$6,630,911	\$11,725,357	77%
Debt to asset ratio	0.33	0.23	-30%
Farm debt per cow	\$3,952	\$2,571	-35%
Debt coverage ratio ³	0.94	2.82	201%

² Average of 18 farms with highest rates of return to all capital (without appreciation).³ Farm participating both years

Table 4 Continued.

DAIRY FARM BUSINESS SUMMARY SELECTED FACTORS173 New York Dairy Farms, All Farms vs Top10%⁴, 2016

SELECTED FACTORS	Average of All Farms	Average of Top 10%	Percent Difference
<i>Income Generation</i>			
% Butterfat ⁵	3.81%	3.81%	0%
% Protein ⁵	3.11%	3.11%	0%
Lbs. of Butterfat and Protein per Cow ⁵	1,825	1,827	0%
Component Value per Cwt. ⁵	\$15.84	\$15.87	0%
Gross Milk Price	\$17.05	\$17.31	2%
<i>Balance Sheet Analysis</i>			
Working Capital as % of Operating Expenses	20%	41%	105%
Long Term Debt to Asset Ratio	0.29	0.15	-48%
Intermediate/Current Debt to Asset Ratio	0.36	0.27	-25%
Debt to Asset Ratio, Total	0.33	0.23	-30%
<i>Debt Analysis</i>			
Accounts payable as percent of total debt	3%	1%	-67%
Long-term debt as percent of total debt	40%	27%	-33%
Current & intermediate debt as percent of total debt	60%	73%	22%
Cost of term debt(weighted average)	4.1%	3.5%	-14%
<i>Net Worth Change</i>			
Retained earnings	-\$79,814	\$630,581	890%
Contributed capital	\$43,739	\$36,454	-17%
Valuation equity	\$52,223	\$37,753	-28%
<i>Cash Flow</i>			
Net provide by operating activities, per cow	\$362	\$682	89%
Net provided by investing activities, per cow	-\$795	-\$735	-7%
Net provided by financing activates, per cow	\$435	\$83	-81%
Net provided by reserves, per cow	-\$3	-\$29	899%
<i>Repayment Analysis</i>⁶			
Planned debt payments per Cow	\$519	\$364	-30%
Planned debt payments per Cwt.	\$1.98	\$1.39	-30%
Percent of total receipts	10%	7%	-30%
Percent of milk receipts	11%	8%	-30%
Cash flow coverage ratio	0.99	2.04	107%
Debt coverage ratio	0.94	2.82	201%
<i>Crop Program Analysis</i>			
Crop input costs per acre	\$139	\$139	0%
Total tillable acres per cow	2.00	1.79	-11%
Total forages acres per cow	1.76	1.60	-9%
Harvested dry matter per cow	7.89	7.86	0%
Percent tillable land owned	53%	52%	-1%
<i>Capital and Financial Efficiency</i>			
Farm capital per cow	\$11,905	\$11,965	1%
Real estate per cow	\$5,297	\$4,727	-11%
Machinery and equipment per cow	\$1,948	\$1,942	0%
Asset turnover	0.45	0.46	2%
Operating expense ratio	0.86	0.75	-13%
Interest expense ratio	0.03	0.02	-33%
Depreciation expense ratio	0.08	0.08	0%

⁴ Average of 18 farms with highest rates of return to all capital (without appreciation).⁵ Farms reporting data⁶ Farm participating two years

Table 5.

RECEIPTS AND EXPENSES PER COW AND PER HUNDREDWEIGHT

173 New York Dairy Farms, All Farms vs Top10%⁷, 2016

Item	Average of All Farms		Average of Top 10% Farms		% Difference
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	
Average number of cows	820		1,231		50%
Cwt. of milk sold		214,743		322,436	50%
ACCRUAL OPERATING RECEIPTS					
Milk	\$4,464	\$17.05	\$4,535	\$17.31	2%
Dairy cattle	\$404	\$1.54	\$423	\$1.62	5%
Dairy calves	\$52	\$0.20	\$54	\$0.21	3%
Other livestock	\$11	\$0.04	\$0	\$0.00	-96%
Crops	\$76	\$0.29	\$127	\$0.48	66%
Miscellaneous receipts	<u>\$162</u>	<u>\$0.62</u>	<u>\$196</u>	<u>\$0.75</u>	21%
Total Operating Receipts	\$5,170	\$19.75	\$5,335	\$20.37	3%
ACCRUAL OPERATING EXPENSES					
Hired labor	\$755	\$2.88	\$695	\$2.65	-8%
Dairy grain & concentrate	\$1,504	\$5.74	\$1,412	\$5.39	-6%
Dairy roughage	\$95	\$0.36	\$84	\$0.32	-12%
Nondairy feed	\$0	\$0.00	\$0	\$0.00	-100%
Professional nutritional services	\$1	\$0.01	\$2	\$0.01	26%
Machine hire, rent & lease	\$126	\$0.48	\$162	\$0.62	28%
Machine repair & vehicle expense	\$237	\$0.91	\$198	\$0.75	-17%
Fuel, oil & grease	\$114	\$0.43	\$101	\$0.39	-11%
Replacement livestock	\$11	\$0.04	\$3	\$0.01	-76%
Breeding	\$57	\$0.22	\$41	\$0.16	-29%
Veterinary & medicine	\$167	\$0.64	\$135	\$0.52	-19%
Milk marketing	\$249	\$0.95	\$248	\$0.95	0%
Bedding	\$97	\$0.37	\$90	\$0.34	-7%
Milking supplies	\$93	\$0.35	\$64	\$0.24	-31%
Cattle lease	\$3	\$0.01	\$1	\$0.00	-63%
Custom boarding	\$110	\$0.42	\$94	\$0.36	-15%
BST expense	\$32	\$0.12	\$7	\$0.03	-78%
Livestock professional fees	\$16	\$0.06	\$13	\$0.05	-18%
Other livestock expense	\$19	\$0.07	\$14	\$0.06	-24%
Fertilizer & lime	\$110	\$0.42	\$99	\$0.38	-11%
Seeds & plants	\$120	\$0.46	\$102	\$0.39	-15%
Spray & other crop expense	\$62	\$0.24	\$58	\$0.22	-6%
Crop professional fees	\$9	\$0.03	\$4	\$0.01	-55%
Land, building & fence repair	\$71	\$0.27	\$61	\$0.23	-15%
Taxes	\$66	\$0.25	\$58	\$0.22	-11%
Real estate rent & lease	\$75	\$0.29	\$80	\$0.30	6%
Insurance	\$50	\$0.19	\$45	\$0.17	-10%
Utilities	\$89	\$0.34	\$83	\$0.32	-6%
Interest paid	\$136	\$0.52	\$82	\$0.31	-40%
Other professional fees	\$27	\$0.10	\$18	\$0.07	-34%
Miscellaneous	<u>\$28</u>	<u>\$0.11</u>	<u>\$21</u>	<u>\$0.08</u>	-26%
Total Operating Expenses	\$4,530	\$17.30	\$4,075	\$15.56	-10%
Expansion livestock	\$36	\$0.14	\$8	\$0.03	-76%
Extraordinary expenses	\$0	\$0.00	\$0	\$0.00	-100%
Machinery depreciation	\$248	\$0.95	\$238	\$0.91	-4%
Real estate depreciation	<u>\$179</u>	<u>\$0.68</u>	<u>\$183</u>	<u>\$0.70</u>	2%
Total Expenses	\$4,993	\$19.07	\$4,505	\$17.20	-10%
Net Farm Income w/o Appreciation	\$177	\$0.68	\$830	\$3.17	369%

⁷ Average of 18 farms with highest rates of return to all capital (without appreciation).

Table 6.

PROGRESS OF THE FARM BUSINESSSame 17 New York Dairy Farms, Top 10%, 2015 & 2016, DFBS⁸

SELECTED FACTORS	Average of 17 Farms, Top 10%		Percent Change
	2015	2016	
<i>Size of Business</i>			
Average number of cows	1,139	1,208	6%
Average number of heifers	939	1,031	10%
Milk sold, pounds	28,768,235	31,744,948	10%
Worker equivalent	23.1	23.8	3%
Total tillable acres	2,160	2,264	5%
<i>Rates of Production</i>			
Milk sold per cow, pounds	25,252	26,280	4%
Hay DM per acre, tons	3.2	3.40	6%
Corn silage per acre, tons	18.4	18.40	0%
<i>Labor Efficiency</i>			
Cows per worker	49.3	50.7	3%
Milk sold per worker, pounds	1,244,839	1,332,701	7%
<i>Cost Control and Milk Price</i>			
Grain & concentrate per cwt. milk	\$6.36	\$5.45	-14%
Net milk income over purchased grain & conc. per cow	\$2,850	\$2,866	1%
Dairy feed & crop expense per cwt. milk	\$7.98	\$6.74	-16%
Labor and machinery costs per cow	\$1,677	\$1,591	-5%
Hired labor costs per cwt. milk	\$2.90	\$2.71	-6%
Hired labor costs per worker equivalent	\$40,253	\$39,909	-1%
Operating cost of producing milk per cwt.	\$14.98	\$12.66	-15%
Purchased input cost of producing milk per cwt.	\$16.65	\$14.29	-14%
Total cost of producing milk per cwt.	\$18.90	\$16.45	-13%
Net milk price	\$17.75	\$16.35	-8%
<i>Capital Efficiency (average for year)</i>			
Farm capital per cow	\$11,311	\$11,579	2%
Machinery and equipment per cow	\$2,080	\$1,978	-5%
Asset turnover ratio	0.51	0.48	-6%
<i>Profitability</i>			
Net farm income without appreciation	\$585,974	\$961,462	64%
Net farm income without appreciation per cow	\$514	\$796	55%
Net farm income with appreciation	\$921,303	\$1,163,174	26%
Net farm income with appreciation per cow	\$809	\$963	19%
Labor & management income per operator/manager	\$49,974	\$218,705	338%
Rate return on equity capital with appreciation	7.9%	9.6%	22%
Rate return on equity capital without appreciation	4.4%	7.6%	75%
Rate return on all capital with appreciation	6.7%	7.9%	18%
Rate return on all capital without appreciation	4.1%	6.5%	60%
<i>Financial Summary (based on market value, excluding deferred taxes)</i>			
Farm net worth, end year	\$9,740,371	\$10,794,989	11%
Debt to asset ratio	0.26	0.25	-4%
Farm debt per cow	\$2,967	\$2,757	-7%
Debt coverage ratio ⁹	1.43	2.82	97%

⁸ Top 10% of farms sorted by % return to all capital without appreciation⁹ Farm participating both years

Table 7.

RECEIPTS & EXPENSES PER COW AND PER HUNDREDWEIGHTSame 17 New York Dairy Farms, Top 10%, 2015 & 2016, DFBS¹⁰

Item	2015		2016		% Change Per Cwt.
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	
Average number of cows	1,139		1,208		
Cwt. of milk sold		287,682		317,449	
ACCRUAL OPERATING RECEIPTS					
Milk	\$4,720	\$18.69	\$4,551	\$17.32	-7%
Dairy cattle	\$465	\$1.84	\$431	\$1.64	-11%
Dairy calves	\$114	\$0.45	\$53	\$0.20	-56%
Other livestock	\$1	\$0.01	\$0	\$0.00	-100%
Crops	\$47	\$0.18	\$144	\$0.55	206%
Miscellaneous receipts	<u>\$153</u>	<u>\$0.60</u>	<u>\$201</u>	<u>\$0.76</u>	27%
Total Operating Receipts	\$5,499	\$21.78	\$5,380	\$20.47	-6%
ACCRUAL OPERATING EXPENSES					
Hired labor	\$733	\$2.90	\$713	\$2.71	-7%
Dairy grain & concentrate	\$1,606	\$6.36	\$1,433	\$5.45	-14%
Dairy roughage	\$76	\$0.30	\$59	\$0.22	-27%
Nondairy feed	\$0	\$0.00	\$0	\$0.00	NA
Professional nutritional services	\$0	\$0.00	\$2	\$0.01	NA
Machine hire, rent & lease	\$155	\$0.62	\$168	\$0.64	3%
Machine repair & vehicle expense	\$229	\$0.91	\$201	\$0.76	-16%
Fuel, oil & grease	\$150	\$0.60	\$106	\$0.40	-33%
Replacement livestock	\$0	\$0.00	\$3	\$0.01	NA
Breeding	\$39	\$0.15	\$41	\$0.16	7%
Veterinary & medicine	\$152	\$0.60	\$140	\$0.53	-12%
Milk marketing	\$238	\$0.94	\$254	\$0.97	3%
Bedding	\$91	\$0.36	\$90	\$0.34	-6%
Milking supplies	\$70	\$0.28	\$64	\$0.24	-14%
Cattle lease	\$0	\$0.00	\$1	\$0.00	NA
Custom boarding	\$113	\$0.45	\$102	\$0.39	-13%
BST expense	\$12	\$0.05	\$8	\$0.03	-40%
Livestock professional fees	\$13	\$0.05	\$13	\$0.05	0%
Other livestock expense	\$28	\$0.11	\$14	\$0.05	-55%
Fertilizer & lime	\$159	\$0.63	\$106	\$0.40	-37%
Seeds & plants	\$111	\$0.44	\$107	\$0.41	-7%
Spray & other crop expense	\$60	\$0.24	\$63	\$0.24	0%
Crop professional fees	\$4	\$0.01	\$4	\$0.02	100%
Land, building & fence repair	\$86	\$0.34	\$58	\$0.22	-35%
Taxes	\$61	\$0.24	\$58	\$0.22	-8%
Real estate rent & lease	\$87	\$0.34	\$82	\$0.31	-9%
Insurance	\$48	\$0.19	\$46	\$0.18	-5%
Utilities	\$90	\$0.36	\$85	\$0.32	-11%
Interest paid	\$88	\$0.35	\$88	\$0.34	-3%
Other professional fees	\$19	\$0.07	\$18	\$0.07	0%
Miscellaneous	<u>\$21</u>	<u>\$0.08</u>	<u>\$20</u>	<u>\$0.08</u>	0%
Total Operating Expenses	\$4,541	\$17.98	\$4,148	\$15.78	-12%
Expansion livestock	\$22	\$0.09	\$9	\$0.03	-67%
Extraordinary expenses	\$9	\$0.03	\$0	\$0.00	-100%
Machinery depreciation	\$236	\$0.93	\$240	\$0.91	-2%
Real estate depreciation	<u>\$178</u>	<u>\$0.71</u>	<u>\$187</u>	<u>\$0.71</u>	0%
Total Expenses	\$4,986	\$19.74	\$4,584	\$17.43	-12%
Net Farm Income w/o Appreciation	\$514	\$2.04	\$796	\$3.03	49%

¹⁰ Top 10% of farms sorted by % return to all capital without appreciation

Table 8.

FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS

18 New York Dairy Farms, Top 10%, 2016¹¹

Size of Business			Rates of Production			Labor Efficiency	
Worker Equivalents	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
(14) ¹²	(12)	(12)	(12)	(11)	(11)	(14)	(14)
47.6	2,238	57,366,636	28,834	4.5	24.2	68.3	1,734,472
27.7	1,653	43,178,787	27,244	3.9	22.5	56.3	1,543,820
21.3	1,209	33,012,817	26,149	3.4	20.1	53.5	1,443,147
17.7	921	24,344,600	25,423	3.0	16.6	46.0	1,166,182
11.3	492	12,329,858	24,315	2.4	14.2	39.0	1,005,287

Cost Control							
Grain Bought per Cow	Grain Bought per Cwt.	% Grain is of Milk Receipts	Machinery Costs per Cow	Labor & Machinery Costs/Cow	Feed & crop Expenses per Cow	Feed & Crop Expenses per Cwt. Milk	Hired Labor Cost per Wkr. Equivalent
(12)	(12)	(12)	(14)	(14)	(12)	(12)	(14)
\$1,197	\$4.81	28	\$612	\$1,182	\$1,528	\$6.04	\$31,983
\$1,311	\$5.01	30	\$748	\$1,493	\$1,623	\$6.38	\$36,710
\$1,444	\$5.45	31	\$796	\$1,623	\$1,792	\$6.76	\$39,901
\$1,569	\$5.88	34	\$891	\$1,779	\$1,946	\$7.23	\$41,047
\$1,749	\$6.47	37	\$1,081	\$1,987	\$2,165	\$7.97	\$49,437

Value of Production			Profitability				
Milk Receipts Per Cow	Milk Receipts Per Cwt.	Opr. Cost Milk Production per Cwt.	Total Cost Milk Production Per Cwt.	% Rate of Return on All Capital w/o Apprec.	Net Farm Income Without Apprec.	Labor & Management Income per Operator	Change in Net Worth with Apprec.
(12)	(12)	(12)	(12)	(4)	(4)	(4)	(8)
\$5,013	\$18.20	\$11.01	\$15.11	8.9	\$2,021,708	\$542,338	\$1,576,180
\$4,847	\$17.69	\$12.11	\$16.25	6.9	\$1,419,612	\$347,312	\$990,202
\$4,570	\$17.32	\$12.75	\$16.80	6.3	\$944,682	\$229,448	\$755,536
\$4,326	\$16.99	\$13.50	\$17.14	5.5	\$730,514	\$152,730	\$386,169
\$4,113	\$16.60	\$14.05	\$17.53	5.1	\$344,065	\$74,171	\$99,305

Financial Efficiency							
Investment per Cow	Machinery Investment per Cow	Asset Turnover Ratio	Operating Expense Ratio	Debt Coverage Ratio	Planned Debt Payments per Cow	Percent Equity	Working Capital as % of Opr. Expense
(14)	(14)	(14)	(14)	(10)	(12)	(7)	(7)
\$8,300	\$657	0.73	0.68	24.89	\$53	97	113
\$11,120	\$1,668	0.51	0.74	4.57	\$244	88	57
\$12,589	\$2,199	0.48	0.76	2.83	\$381	78	39
\$13,518	\$2,592	0.43	0.78	1.60	\$482	69	24
\$15,864	\$3,694	0.35	0.84	0.47	\$738	60	15

¹¹ Top 10% of farms sorted by % return to all capital without appreciation

¹² Page number of the participant's DFBS where the factor is located.

SUMMARY AND ANALYSIS OF THE FARM BUSINESS

Business Characteristics

Planning optimal management strategies is a crucial component of operating a successful farm. Various combinations of farm resources, enterprises, business arrangements, and management techniques are used by the dairy producers in this region. The following table shows important farm business characteristics and the number of farms with each characteristic.

Table 9.

BUSINESS CHARACTERISTICS 173 New York Dairy Farms, 2016

Type of Farm	Number	Type of Barn	Number
Dairy	173	Stanchion/Tie-Stall	16
Dairy – cash crop	0	Freestall	145
		Combination	11
Type of Ownership	Number	Milking System	Number
Owner	173	Pipeline	19
Renter	0	Herringbone Conventional	42
		Herringbone Rapid Exit	15
Type of Business	Number	Parallel	69
Single proprietorship	32	Parabone	4
Partnership	23	Rotary	4
Limited Liability Corporation	101	Other	19
Subchapter S Corporation	14		
Subchapter C Corporation	2		
Business Record System	Number	Milking Frequency	Number
Account Book	9	2x/day	52
Accounting Service	19	3x/day	109
On-Farm Computer	141	Other	12
Other	2		
BST Usage (reporting this is optional)	Number	Production Records	Number
Used consistently	1	Testing Service	131
Used inconsistently	0	On-Farm System	29
Started Use in 2016	0	Other	2
Stopped Use in 2016	0	None	8
Not Used	11		
Average % bst usage of those reporting	98%	Breed	Percent
		Holstein	92
		Jersey	4
		Other	4

Accounting Procedures

Accrual accounting adjustments are made to cash receipts and expenses to accurately measure annual receipts, expenses, and farm profitability. These procedures express the true value and cost of production for the year, regardless of whether cash was received or expended in this year. Cash expenses and cash receipts are used when evaluating the cash flow position of the business.

The accrual accounting adjustments consider changes in accounts payable and receivable, prepaid expenses, and changes in inventory of not only such items as crops and livestock, but also the inventory of production items such as fertilizer, seed, and fuel. In this manner, the total cost of production and the total value of production are obtained to provide an accurate representation of profitability in that year.

Accrual adjustments are complemented by accounting procedures used to separate changes in inventory of capital assets into changes caused by price and those caused by quality or quantity changes. Separating price changes (appreciation) from physical changes in the farm inventory are important in determining farm profitability. Appreciation of farm assets is included in the return to farm capital, but excluded from the return to labor and management.

Income Statement - Expenses

The accrual income statement begins with an accounting of all farm business expenses. Farm business expenditures are grouped into the following nine major categories:

1. Hired labor includes gross wages plus the farm share of social security, workers' compensation insurance, employee health insurance and other employee benefits paid by the farm employer.
2. Feed expenses are divided into purchased dairy grain and concentrate, purchased dairy roughage and all feed purchased for nondairy livestock to allow for a more thorough analysis of dairy herd feeding costs. The costs of growing grain and roughage are not included in cash and accrual feed expenses.
3. Machinery costs represent all the operating costs of using machinery on the farm. Ownership costs are excluded here but are included in the analysis of machinery costs presented on page 27.
4. Livestock expenses include the cost of supplies and services directly associated with the care and maintenance of the dairy herd, such as breeding, veterinary, bedding, milking supplies, and custom boarding expenses plus milk marketing costs. The purchase of replacement cattle is considered a herd maintenance expense while expansion livestock is not.
5. Crop expenses include the costs of fertilizer, lime, seeds, spray, and other crop supplies.
6. Real estate expenses are the direct costs associated with owning and maintaining farm land and buildings.
7. Other includes insurance, the farm-share of utilities, interest paid on all farm indebtedness, and miscellaneous costs.
8. Expansion livestock is purchased dairy cattle and other livestock that cause an increase in herd size from the beginning to the end of the year. It is a non-operating cost included in total expenses.
9. Depreciation of machinery and buildings are non-operating costs included in total expenses. Depreciation charges are based on those reported for income tax purposes.

Cash and accrual farm expenses are summarized on the following page.

Cash paid is the actual cash outlay during the year and does not necessarily represent the cost of goods and services actually used in 2016.

Change in inventory: Increases in inventories of supplies and other purchased inputs are subtracted in computing accrual expenses because they represent purchased inputs not actually used during the year. Decreases in purchased inventories are added to expenses because they represent inputs purchased in a prior year and used this year.

Table 10.

CASH AND ACCRUAL FARM EXPENSES
173 New York Dairy Farms, 2016

Expense Item	Cash Paid	- Change in Inventory or Prepaid Expense	+	Change in Accounts Payable	=	Accrual Expenses
<u>Hired Labor</u>	\$619,411	\$-623<<		\$-915		\$619,119
<u>Feed</u>						
Dairy grain & concentrate	1,173,309	-45,739		14,551		1,233,598
Dairy roughage	69,809	-7,261		1,035		78,105
Nondairy	322	0		0		322
Professional nutritional services	1,127	5<<		29		1,150
<u>Machinery</u>						
Machinery hire, rent/lease	100,069	-231<<		3,219		103,519
Mach. repair & farm vehicle exp.	194,034	760		1,306		194,580
Fuel, oil & grease	92,693	86		741		93,348
<u>Livestock</u>						
Replacement livestock	8,540	0<<		211		8,751
Breeding	45,946	-576		523		47,044
Vet & medicine	135,715	-524		1,128		137,367
Milk marketing	205,571	8<<		-1,551		204,012
Bedding	79,670	328		351		79,693
Milk supplies	75,377	56		895		76,217
Cattle lease/rent	2,464	0<<		-31		2,434
Custom boarding	89,801	-62<<		678		90,541
bST expense	25,336	-703		264		26,303
Livestock professional fees	12,627	-121<<		169		12,916
Other livestock expense	15,225	-30		318		15,573
<u>Crops</u>						
Fertilizer & lime	87,185	-4,272		-823		90,634
Seeds & plants	94,360	-2,491		1,586		98,437
Spray, other crop exp.	48,736	-1611		372		50,719
Crop professional fees	7,132	-10<<		23		7,164
<u>Real Estate</u>						
Land/bldg./fence repair	57,480	-312		605		58,397
Taxes	53,634	-57<<		78		53,770
Rent & lease	61,387	-197<<		-8		61,576
<u>Other</u>						
Insurance	40,426	-593<<		104		41,123
Utilities (farm share)	72,761	28<<		94		72,827
Interest paid	110,746	-11<<		767		111,524
Other professional fees	22,071	115<<		102		22,058
Miscellaneous	23,480	169		-128		23,184
Total Operating Expenses	\$3,626,452	\$-63,868		\$25,694		\$3,716,014
Expansion livestock	29,443	0<<		16		29,459
Extraordinary expense	35	0<<		0		35
Machinery depreciation						203,086
Building depreciation						146,810
Total Accrual Expenses						\$4,095,404

Change in prepaid expenses (noted above by <<) is a net change in non-inventory expenses that have been paid in advance of their use. If 2016 funds used to prepay 2017 leases exceed the amount of 2016 leases prepaid in 2015, the amount of this excess is subtracted to exclude it from 2016 accrual lease expenses. The excess prepaid lease is charged against the future year's business operation. A decrease in prepaid lease is added to accrual expenses because it represents use of resources during this year that were paid for in past years.

Change in accounts payable: An increase in accounts payable from beginning to end of year is added when calculating accrual expenses because these expenses were incurred (resources used) in 2016 but not paid for. A decrease is subtracted because the resource was used before 2016.

Accrual expenses are the costs of inputs actually used in this year's production. They are the total of cash paid, as well as changes in inventory, prepaid expenses, and accounts payable.

Income Statement – Receipts

Cash and accrual farm receipts are presented in the following table. Accrual receipts are generally greater than cash receipts due to an increase in account receivables, grown feed inventories, and herd growth. However, if these changes for inventories and account receivables are negative for the year, the accrual revenue can be less than the cash.

Table 11.

CASH AND ACCRUAL FARM RECEIPTS 173 New York Dairy Farms, 2016

Receipt Item	Cash Receipts	+	Change in Inventory	+	Change in Accounts Receivable	=	Accrual Receipts
Milk sales	\$3,695,670				\$-33,684		\$3,661,986
Dairy cattle	230,154		103,680		-2,548		331,287
Dairy calves	36,200		6,466		-12		42,654
Other livestock	14,943		-5,937		148		9,155
Crops	39,251		23,281		4		62,536
Government receipts	38,294		1 ¹³		-716		37,579
Custom machine work	12,485				-218		12,267
Gas tax refund	547				0		547
Other	<u>81,315</u>				<u>1,319</u>		82,635
Less nonfarm noncash cap.			<u>0¹⁴</u>				<u>0</u>
Total Receipts	\$4,148,861		\$127,492		\$-35,706		\$4,240,647

¹³ Change in advanced government receipts.

¹⁴ Gifts or inheritances of cattle or crops included in inventory

Cash receipts include the gross value of milk checks received during the year plus all other payments received from the sale of farm products, services, and government programs. Nonfarm income is not included in calculating farm profitability.

Changes in inventory of assets produced by the business are calculated by subtracting beginning of year values from end of year values, excluding appreciation. Increases in livestock inventory caused by herd growth and/or quality are added, and decreases caused by herd reduction and/or quality are subtracted. Changes in inventories of crops grown are also included. An annual increase in advanced government receipts is subtracted from cash income because it represents income received in 2016 for the 2017 crop year in excess of funds earned for 2016. Likewise, a decrease is added to cash government receipts because it represents funds earned for 2016 but received in 2015.

Changes in accounts receivable are calculated by subtracting beginning year balances from end year balances. The January milk check for this December's marketing's compared with the previous January's check is included as a change in accounts receivable.

Accrual receipts represent the value of all farm commodities produced and services actually generated by the farm business during the year.

Nonfarm noncash capital transfers are gifts and inheritances of cattle and crops received by the farm owner/operator, and included in inventory or used in the business during the year. They are deducted from growth in inventory and reduce accrual receipts because they came from outside the farm business.

Profitability Analysis

Farm operators¹⁵ contribute labor, management, and equity capital to their businesses and the combination of these resources, and the other resources used in the business, determines profitability. Farm profitability can be measured as the return to all family resources or as the return to one or more individual resources, such as labor and management.

Net farm income is the return to the farm operators and other unpaid family members for their labor, management, and equity capital. It is the farm family's net annual return from working, managing, financing, and owning the farm business. This is not a measure of cash available from the year's business operation. Cash flow is evaluated later in this report.

Net farm income is computed both with and without appreciation. Appreciation represents the change in values caused by annual changes in prices of livestock, machinery, real estate inventory, and stocks and certificates (other than Farm Credit). Appreciation is a major factor contributing to changes in farm net worth and must be included for a complete profitability analysis.

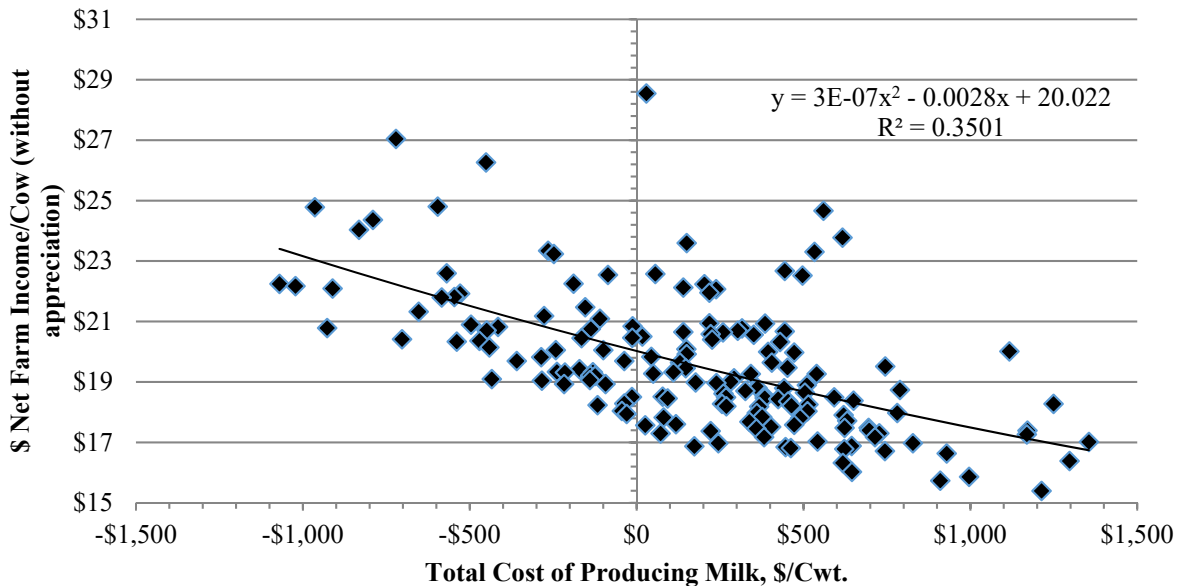
Table 12.

NET FARM INCOME
173 New York Dairy Farms, 2016

Item	Average 173 Farms	
	Total	Per Cow
Total accrual receipts	\$ 4,240,647	
Appreciation: Livestock	-207	
Machinery	18,988	
Real Estate	145,645	
Other Stock/Certificates	7,902	
Total Including Appreciation	\$ 4,412,975	
Total accrual expenses	<u>4,095,404</u>	
Net Farm Income (with appreciation)	\$ 317,571	\$387
Net Farm Income (without appreciation)	\$ 145,243	\$177

Chart 1.

TOTAL COST OF PRODUCING MILK VS. NET FARM INCOME PER COW
164 New York Dairy Farms, 2016



¹⁵ Operators are the individuals who are integrally involved in the operation and management of the farm business. They are not limited to those who own the farm or are formal members of the partnership or corporation.

Labor and management income is the return which farm operators receive for their labor and management used in operating the farm business. Appreciation is not included as part of the return to labor and management because it results from ownership of assets rather than management of the farm business. Labor and management income is calculated by deducting a charge for unpaid family labor and the opportunity cost of using equity capital, at a real interest rate of five percent, from net farm income excluding appreciation. The interest charge of five percent reflects the long-term average rate of return above inflation that a farmer might expect to earn in comparable risk investments.

Table 13.

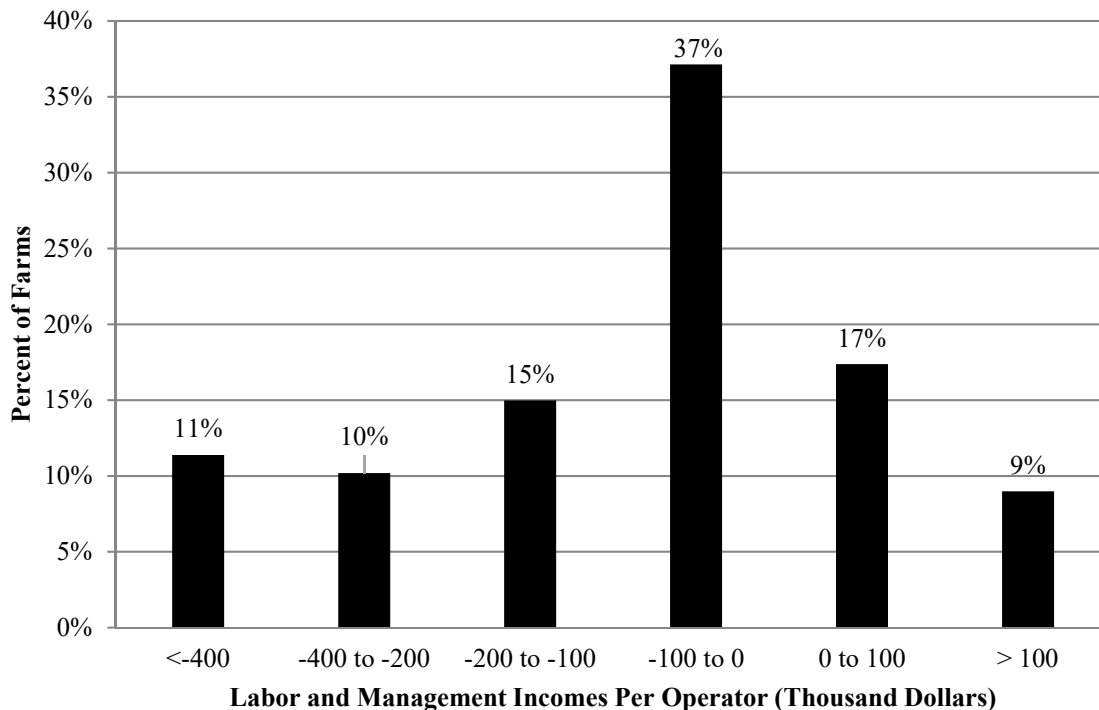
LABOR AND MANAGEMENT INCOME
173 New York Dairy Farms, 2016

Item	Average 173 Farms
Net farm income without appreciation	\$ 145,243
Family labor unpaid @ \$3,051 per month	- 2,660
Interest on \$6,622,719 average equity capital @ 5% real rate	- 331,280
Labor & Management Income per Farm (2.23 operators/farm)	\$ -189,087
Labor & Management Income per Operator/Manager	\$ -84,793

Labor and management income per operator averaged \$-84,793 on these 173 Farms in 2016. Returns to labor and management were less than \$0 on 73 percent of the farms, with 22% of the farms showing a return to labor & management less than \$-200,000. Labor and management income per operator ranged from \$-100,000 to \$0 on 37 percent of the farms while 26 percent showed labor and management incomes per operator greater than \$0, with only 9% of the farms showing a return to labor & management greater \$100,000 this year.

Chart 2.

DISTRIBUTION OF LABOR AND MANAGEMENT INCOMES PER OPERATOR
167 New York Dairy Farms, 2016



Return on equity capital measures the net return remaining for the farmer's equity or owned capital after a charge has been made for the owner-operator's labor and management. The earnings or amount of net farm income allocated to labor and management is the opportunity cost of operators' labor and management estimated by the cooperators. Return on equity capital is calculated with and without appreciation. The rate of return on equity capital is determined by dividing the amount returned by the average farm net worth or equity capital. Return on all capital is calculated by adding interest paid to the return on equity capital and then dividing by average farm assets to calculate the rate of return on total capital.

Table 14.

RETURN ON EQUITY CAPITAL AND RETURN ON TOTAL CAPITAL
173 New York Dairy Farms, 2016

Item	Average 173 Farms
Net farm income with appreciation	\$ 317,571
Family labor unpaid @ \$3,051 per month	- 2,660
Value of operators' labor & management	- 160,682
Return on equity capital with appreciation	\$ 153,834
Interest paid	+ 111,524
Return on total capital with appreciation	\$ 265,363
Return on equity capital without appreciation	\$ -18,489
Return on total capital without appreciation	\$ 93,035
Rate of return on average equity capital:	
with appreciation	2.3%
without appreciation	-0.3%
Rate of return on average total capital:	
with appreciation	2.7%
without appreciation	1.0%
Net farm income from operations ratio	0.03

Farm and Family Financial Status

The first step in evaluating the financial position of the farm is to construct a balance sheet which identifies all the assets and liabilities of the business. The second step is to evaluate the relationship between assets, liabilities, and net worth and changes that occurred during the year.

Financial lease obligations are included in the balance sheet. The present value of all future payments is listed as a liability since the farmer is committed to make the payments by signing the lease. The present value is also listed as an asset, representing the future value the item has to the business. For 2016, leases were discounted by 7 percent.

Advanced government receipts are included as current liabilities. Government payments received in 2016 that are for participation in the 2017 program are the end year balance and payments received in 2015 for participation in the 2016 program are the beginning year balance.

Current Portion or principal due in the next year for intermediate and long term debt is included as a current liability.

Table 15.

2016 FARM BUSINESS & NONFARM MARKET VALUE BALANCE SHEET

173 New York Dairy Farms, 2016

Farm Assets	Jan. 1	Dec. 31	Farm Liabilities & Net Worth	Jan. 1	Dec. 31
<u>Current</u>			<u>Current</u>		
Farm cash, checking & savings	\$ 83,938	\$ 86,336	Accounts payable	\$ 80,967	\$106,677
Accounts receivable	412,205	376,498	Operating debt	242,844	250,171
Prepaid expenses	9,225	7,477	Short Term	5,477	16,186
Feed & supplies	1,085,439	1,046,601	Advanced govt. receipts	1	0
			Current Portion:		
			Intermediate	225,206	233,083
			Long Term	<u>103,230</u>	<u>106,406</u>
Total Current	\$ 1,590,807	\$ 1,516,912	Total Current	\$ 675,784	\$ 729,793
<u>Intermediate</u>			<u>Intermediate</u>		
Dairy cows:			Structured debt		
owned	\$ 1,162,535	\$ 1,226,732	1-10 years	\$1,110,803	\$1,267,184
leased	82	42	Financial lease		
Heifers	669,898	716,268	(cattle/machinery)	9,141	7,576
Bulls/other livestock	683	617	Farm Credit stock	<u>1,185</u>	<u>1,184</u>
Mach./equipment owned	1,590,632	1,588,160	Total Intermediate	\$1,171,084	\$1,327,466
Mach./equipment leased	9,059	7,534			
Farm Credit stock	1185	1,184			
Other stock/certificate	<u>342,887</u>	<u>378,554</u>			
Total Intermediate	\$ 3,798,660	\$ 3,934,293			
<u>Long Term</u>			<u>Long Term</u>		
Land/buildings:			Structured debt		
owned	\$ 4,191,189	\$ 4,482,904	>10 years	\$ 1,187,274	\$1,314,731
leased	<u>5,699</u>	<u>10,272</u>	Financial lease		
Total Long Term	\$ 4,196,888	\$ 4,493,175	(structures)	<u>5,699</u>	<u>10,272</u>
			Total Long Term	\$1,249,912	\$1,384,028
			Total Farm Liab.	\$3,096,779	\$3,441,287
Total Farm Assets	\$ 9,586,355	\$9,944,380	FARM NET WORTH	\$6,489,575	\$6,503,093
Nonfarm Assets, Liabilities & Net Worth (Average of 46 farms reporting)					
Assets	Jan. 1	Dec. 31	Liabilities & Net Worth	Jan. 1	Dec. 31
Personal cash, checking & savings	\$ 10,961	\$ 10,739	Nonfarm Liabilities	\$2,526	\$1,987
Cash value life insurance	85,317	95,527			
Nonfarm real estate	112,174	112,174			
Auto (personal share)	8,913	7,859			
Stocks & bonds	304,198	318,860			
Household furnishings	4,174	4,272			
All other nonfarm assets	<u>157,076</u>	<u>159,510</u>			
Total Nonfarm Assets	\$682,813	\$705,939	NONFARM NET WORTH	\$680,287	\$703,953
Farm & Nonfarm Assets, Liabilities, and Net Worth ¹⁶				Jan. 1	Dec. 31
Total Assets				\$10,269,168	\$10,650,319
Total Liabilities				<u>3,099,305</u>	<u>3,443,274</u>
TOTAL FARM & NONFARM NET WORTH				\$ 7,169,862	\$ 7,207,046

¹⁶ Assumes that average nonfarm assets and liabilities for the nonreporting farms were the same as for those reporting.

Balance sheet analysis involves examination of relative asset and debt levels for the business. Percent equity is calculated by dividing end of year net worth by end of year assets. The debt to asset ratio is compiled by dividing liabilities by assets. The leverage ratio is the dollars of debt per dollar of equity, computed by dividing total farm liabilities by farm net worth. Low debt to asset ratios reflect business solvency and the potential capacity to borrow. Debt levels per productive unit represent old standards that are still useful if used with measures of cash flow and repayment ability.

Table 16.

BALANCE SHEET ANALYSIS		Average
173 New York Dairy Farms, 2016		173 Farms
Item		
<u>Financial Ratios - Farm:</u>		
Percent equity		67%
Debt/asset ratio: total		0.33
long-term		0.29
intermediate/current		0.36
Leverage Ratio		0.50
Current Ratio		2.13
Working Capital: \$804,390	as % of Total Expenses:	20%
<u>Farm Debt Analysis:</u>		
Accounts payable as % of total debt		3%
Long-term liabilities as a % of total debt		40%
Current & intermediate liabilities as a % of total debt		60%
Cost of term debt (weighted average)		4.06%
<u>Average 173 Farms</u>		
<u>Farm Debt Levels:</u>	<u>Per Cow</u>	<u>Per Tillable Acre Owned</u>
Total farm debt	\$3,952	\$3,900
Long-term debt	1,580	1,599
Long-term & intermediate	3,102	3,061
Intermediate & current debt	2,372	2,340

Farm inventory balance is an accounting of the value of assets used on the balance sheet and the changes that occur from the beginning to end of year. Changes in the livestock inventory are included in the dairy analysis. Net investment indicates whether the capital stock is being expanded (positive) or depleted (negative).

Table 17.

FARM INVENTORY BALANCE		Average of 173 Farms	
Item		<u>Real Estate</u>	<u>Machinery & Equipment</u>
Value beginning of year		\$ 4,191,189	\$ 1,590,632
Purchases	\$ 418,140 ¹⁷		\$ 199,075
Gift/inheritance	+ 0		+ 0
Lost capital	- 120,105		
Sales	- 5,156		- 17,488
Depreciation	- 146,810		- 203,086
Net investment		= 146,070	= -21,460
Appreciation		+ 145,645	+ 18,988
Value end of year		\$ 4,482,904	\$ 1,588,160

¹⁷ \$136,548 land and \$281,592 buildings and/or depreciable improvements.

Statement of Owner Equity

The Statement of Owner Equity has two purposes. It allows (1) verification that the accrual income statement and market value balance sheet are interrelated and consistent (in accountant's terms, they reconcile) and (2) identification of the causes of change in equity that occurred on the farm during the year. The Statement of Owner Equity allows you to determine to what degree the change in equity was caused by (1) earnings from the business, and nonfarm income, in excess of withdrawals being retained in the business (called retained earnings), (2) outside capital being invested in the business or farm capital being removed from the business (called contributed/withdrawn capital) and (3) increases or decreases in the value (price) of assets owned by the business (called change in valuation equity).

Retained earnings is an excellent indicator of farm generated financial progress.

Table 18.

STATEMENT OF OWNER EQUITY (RECONCILIATION)
173 New York Dairy Farms, 2016

Item	Average 173 Farms	
Beginning of year farm net worth		\$ 6,614,528
Net farm income without appreciation	\$ 145,243	
+ Nonfarm cash income	+ 8,066	
- Personal withdrawals & family expenditures excluding nonfarm borrowings	<u>- \$ 233,124</u>	
Retained Earnings		+\$ -79,814
Nonfarm noncash transfers to farm	\$ 0	
+ Cash used in business from nonfarm capital	+ 43,739	
- Note/mortgage from farm real estate sold (nonfarm)	<u>0</u>	
Contributed/Withdrawn Capital	=	+\$ 43,739
Appreciation	\$ 172,328	
- Lost capital	<u>- 120,105</u>	
Change in Valuation Equity		+\$ 52,223
Imbalance/Error		<u>- 235</u>
End of year farm net worth ¹⁸		= \$ 6,630,911
Change in net worth with appreciation		\$ 16,383
<hr/>		
<u>Change in Net Worth</u>		
Without appreciation		\$ -155,945
With appreciation		<u>\$ 16,383</u>

¹⁸May not add due to rounding.

Cash Flow Statement

Completing an annual cash flow statement is an important step in understanding the sources and uses of funds for the business. Understanding last year's cash flow is the first step toward planning and managing cash flow for the current and future years.

The annual cash flow statement is structured to show net cash provided by operating activities, investing activities, financing activities, and from reserves. All cash inflows and outflows, including beginning and end balances, are included. Therefore, the sum of net cash provided from all four activities should be zero. Any imbalance is the error from incorrect accounting of cash inflows/outflows.

Table 19.

ANNUAL CASH FLOW STATEMENT
173 New York Dairy Farms, 2016

Item	Average 173 Farms	
<u>Cash Flow from Operating Activities</u>		
Cash farm receipts	\$ 4,148,861	
- Cash farm expenses	3,626,452	
- Extraordinary expense	35	
= Net cash farm income		\$ 522,373
Personal withdrawals/family expenses including nonfarm debt payments	\$ 233,635	
- Nonfarm income	<u>8,066</u>	
- Net cash withdrawals from the farm		<u>\$ 225,569</u>
= Net Provided by Operating Activities		\$ 296,804
<u>Cash Flow From Investing Activities</u>		
Sale of Assets: Machinery	\$ 17,448	
+ real estate	5,156	
+ other stock & certificates	<u>13,964</u>	
= Total asset sales		\$ 36,569
Capital purchases: expansion livestock	\$ 29,443	
+ machinery	199,075	
+ real estate	418,140	
+ other stock & certificates	<u>41,730</u>	
- Total invested in farm assets		<u>\$ 688,388</u>
= Net Provided by Investment Activities		\$ -651,819
<u>Cash Flow From Financing Activities</u>		
Money borrowed (intermediate & long term)	\$ 617,660	
+ Money borrowed (short-term)	17,458	
+ Increase in operating debt	7,327	
+ Cash from nonfarm capital used in business	43,739	
+ Money borrowed - nonfarm	<u>511</u>	
= Cash inflow from financing		\$ 686,696
Principal payments (intermediate & long-term)	\$ 322,769	
+ Principal payments (short-term)	6,749	
+ Decrease in operating debt	<u>0</u>	
- Cash outflow for financing		<u>\$ 329,518</u>
= Net Provided by Financing Activities		\$ 357,178
<u>Cash Flow From Business</u>		
Beginning farm cash, checking & savings	\$ 83,938	
- Ending farm cash, checking & savings	<u>86,336</u>	
= Net Provided from Reserves		<u>\$ -2,398</u>
<u>Imbalance (error)</u>		<u>\$ -235</u>

Repayment Analysis

A valuable use of cash flow analysis is to compare the debt payments planned for the last year with the amount actually paid. The measures listed below provide a number of different perspectives on the repayment performance of the business. However, the critical question for many farmers and lenders is whether planned payments can be made in 2017. The cash flow projection worksheet on the next page can be used to estimate repayment ability, which can then be compared to planned 2017 debt payments shown below.

Table 20.

FARM DEBT PAYMENTS PLANNED New York Dairy Farms, 2015 & 2016

Debt Payments	Same 162 Dairy Farms		
	2016 Payments		Planned 2017
	Planned	Made	
Long-term	\$ 137,815	\$ 151,026	\$ 164,199
Intermediate-term	266,749	287,261	293,751
Short-term	1,505	7,508	6,706
Operating (net reduction)	16,283	52,194	5,067
Accounts payable (net reduction)	<u>3,426</u>	<u>12,696</u>	<u>555</u>
Total	\$ 425,779	\$ 510,686	\$ 470,277
Per cow	\$ 519	\$ 622	
Per cwt. 2016 milk	\$ 1.98	\$ 2.37	
Percent of total 2016 receipts	10.2%	12.0%	
Percent of 2016 milk receipts	11.5%	13.9%	

The cash flow coverage ratio and debt coverage ratio measure the ability of the farm business to meet its planned debt payments schedule. The ratios show the percentage of payments planned for 2016 (as of December 31, 2015) that could have been made with the amount available for debt service in 2016. Farmers who did not participate in DFBS in 2015 have their 2016 cash flow coverage ratio based on planned debt payments for 2017.

Table 21.

COVERAGE RATIOS Same 162 New York Dairy Farms, 2015 & 2016

Item	Average	Item	Average
<u>Cash Flow Coverage Ratio</u>		<u>Debt Coverage Ratio</u>	
Cash farm receipts	\$ 4,164,512	Net farm income (without appreciation)	\$ 151,775
- Cash farm expenses	3,633,102	+ Depreciation	358,455
+ Interest paid (cash)	112,479	+ Interest paid (accrual)	112,971
- Net personal withdrawals from farm ¹⁹	<u>224,275</u>	- Net personal withdrawals from farm ¹⁹	<u>224,275</u>
(A) = Amount Available for Debt Service	\$ 419,614	(A') = Repayment Capacity	\$ 398,926
(B) = Debt Payments Planned for 2016 (as of December 31, 2015)	\$ 425,779	(B) = Debt Payments Planned for 2016 (as of December 31, 2015)	\$ 425,779
(A/B) = Cash Flow Coverage Ratio for 2016	0.99	(A'/B) = Debt Coverage Ratio for 2016	0.94

¹⁹ Personal withdrawals and family expenditures less nonfarm income and nonfarm money borrowed. If family withdrawals are excluded, or inaccurately included, the cash flow coverage ratio will be incorrect.

Table 22.

ANNUAL CASH FLOW WORKSHEET
173 New York Dairy Farms, 2016

Item	Average 173 Farms		Total
	Per Cow	Per Cwt.	
Number cows and cwt. Milk	820	214,743	
<u>Accrual Operating Receipts</u>			
Milk	\$4,464	\$17.05	\$ 3,661,986
Dairy cattle	404	1.54	331,287
Dairy calves	52	0.20	42,654
Other livestock	11	0.04	9,155
Crops	76	0.29	62,536
Misc. receipts	<u>162</u>	<u>0.62</u>	<u>133,028</u>
Total Operating Receipts	\$5,170	\$19.75	\$ 4,240,647
<u>Accrual Operating Expenses</u>			
Hired labor	\$ 755	\$ 2.88	\$ 619,119
Dairy grain & concentrate	1,504	5.74	1,233,598
Dairy roughage	95	0.36	78,105
Nondairy feed	0	0.40	332
Professional nutritional services	1	0.01	1,150
Machinery hire/rent/lease	126	0.48	103,519
Machinery repair & farm vehicle expense	237	0.91	194,580
Fuel, oil & grease	114	0.43	93,348
Replacement livestock	11	0.04	8,751
Breeding	57	0.22	47,044
Veterinary & medicine	167	0.64	137,367
Milk marketing	249	0.95	204,012
Bedding	97	0.37	79,693
Milking supplies	93	0.35	76,217
Cattle lease	3	0.01	2,434
Custom boarding	110	0.42	90,541
bST expense	32	0.12	26,303
Livestock professional fees	16	0.06	12,916
Other livestock expense	19	0.07	15,573
Fertilizer & lime	111	0.42	90,634
Seeds & plants	120	0.46	98,437
Spray/other crop expenses	62	0.24	50,719
Crop professional fees	9	0.03	7,164
Land, building, fence repair	71	0.27	58,397
Taxes	66	0.25	53,770
Real estate rent/lease	75	0.29	61,576
Insurance	50	0.19	41,123
Utilities	89	0.34	72,827
Other professional fees	27	0.10	22,058
Miscellaneous	<u>28</u>	<u>0.11</u>	<u>23,184</u>
Total Less Interest Paid	\$4,394	\$16.79	\$ 3,604,499
<u>Net Accrual Operating Income</u>			
(without interest paid)	\$ 776	\$ 2.96	\$ 636,157
- Change in livestock/crop inventory ²⁰	155	0.59	127,492
- Change in accounts receivable	-44	-0.17	-35,706
- Change in feed/supply inventory ²¹	-78	-0.30	-63,868
+ Change in accounts payable ²²	<u>30</u>	<u>0.12</u>	<u>24,927</u>
NET CASH FLOW	\$ 772	\$ 2.95	\$ 633,165
- Net personal withdrawals from farm (see footnote on page 24)	<u>274</u>	<u>1.05</u>	<u>224,460</u>
Available for Farm Debt Payments & Investments	\$ 498	\$ 1.90	\$ 408,705
- Farm debt payments	<u>606</u>	<u>2.31</u>	<u>496,981</u>
Available for Farm Investment	\$ -108	\$ -0.41	\$ -88,276
- Capital purchases: cattle, machinery & improvements	<u>839</u>	<u>3.21</u>	<u>688,388</u>
Additional Capital Needed	\$ -947	\$ -3.62	\$ -776,664

²⁰Includes change in advance gov. receipts. ²¹Includes change in prepaid expenses. ²²Excludes change in interest account payable.

Cropping Analysis

The cropping program is an important part of the dairy farm business and often represents opportunities for improved productivity and profitability. A complete evaluation of what the available land resources are, how they are being used, how well crops are producing, and what it costs to produce them is important to evaluating alternative cropping and feed purchasing alternatives.

Table 23.

LAND RESOURCES AND CROP PRODUCTION 173 New York Dairy Farms, 2016

Item	Average 173 Farms		
	Owned	Rented	Total
<u>Land</u>			
Tillable	850	768	1,618
Nontillable	35	10	45
Other nontillable	<u>173</u>	<u>5</u>	<u>178</u>
Total	1,057	783	1,840
<u>Crop Yields</u>	<u>Farms</u>	<u>Acres</u> ²³	<u>Prod/Acre</u>
Hay crop	169	716	3.14 tn DM
Corn silage	166	698	17.23 tn
Other forage	45	197	3.25 tn DM
Total forage	170	1,446	4.50 tn DM
Corn grain	80	269	140 bu
Oats	6	45	46 bu
Wheat	32	163	77 bu
Other crops	52	151	
Tillable pasture	12	143	
Idle tillable	25	115	
Total Tillable Acres	173	1,618	

²³This column represents the average acreage for the farms producing that crop. Average acreages including those farms not producing were corn grain 124, oats 2, wheat 30, tillable pasture 10, and idle 17.

Average crop acres and yields compiled for the region are for the farms reporting each crop. Yields of forage crops have been converted to tons of dry matter using dry matter coefficients reported by the farmers. Grain production has been converted to bushels of dry grain equivalent based on dry matter information provided.

The following crop/dairy ratios indicate the relationship between forage production, forage production resources, and the dairy herd.

Table 24

CROP/DAIRY RATIOS 170 New York Dairy Farms, 2016 ²⁴

Item	Average 170 Farms
Total tillable acres per cow	2.00
Total forage acres per cow	1.76
Harvested forage dry matter, tons per cow	7.89

²⁴ Excludes farms that do not harvest forages.

A number of cooperators have allocated crop expenses among the hay crop, corn, and other crops produced. Fertilizer and lime, seeds and plants, and spray and other crop expenses have been computed per acre and per production unit for hay and corn. Additional expense items such as fuels, labor, and machinery repairs are not included. Rotational grazing was used on ten farms.

Table 25.

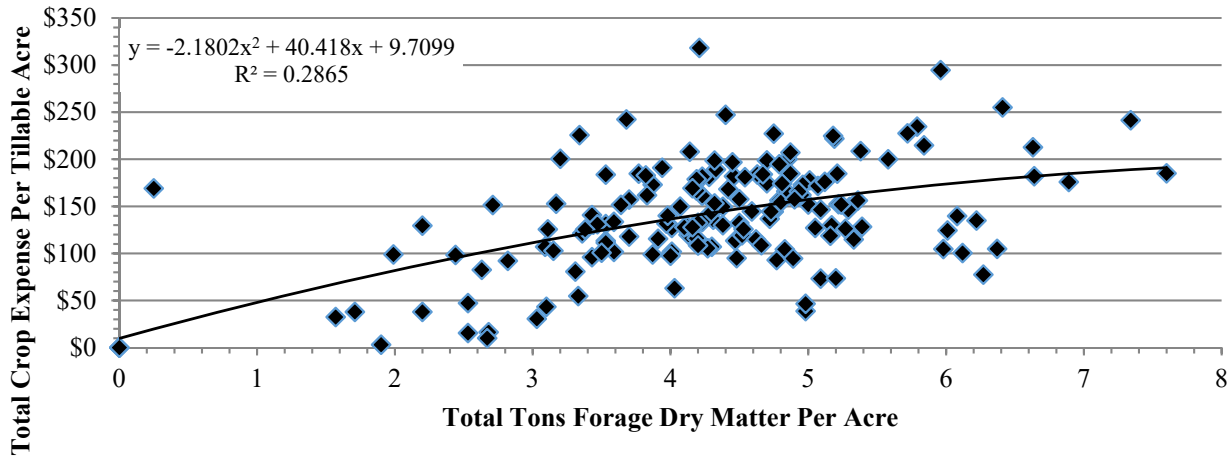
CROP RELATED ACCRUAL EXPENSES
New York Dairy Farms Reporting, 2016

Item	Total	All	Corn Silage	Corn Grain	Hay Crop	
	Per Till. Acre	Corn Per Acre	Per Ton DM	Per Dry Sh. Bu.	Per Acre	Per Ton DM
No. of farms reporting	170 ²⁵	5			5	
Ave. number of acres	1,446	823			770	
Fertilizer/lime	\$ 55.09	\$ 13.39	\$ 10.31	\$ 0.28	\$ 42.07	\$ 13.39
Seed/plants	54.98	13.88	18.00	0.36	42.80	13.88
Spray/other crop exp.	<u>28.80</u>	<u>4.94</u>	<u>8.53</u>	<u>0.14</u>	<u>12.05</u>	<u>4.94</u>
TOTAL	\$ 138.87	\$ 32.21	\$ 36.84	\$ 0.78	\$ 96.92	\$ 32.21

²⁵ Excludes farms that do not harvest forages.

Chart 3.

CROP EXPENSE PER ACRE BY TOTAL FORAGE PRODUCTION PER ACRE
167 New York Dairy Farms That Grow Forages, 2016



Most machinery costs are associated with crop production and should be analyzed with the crop enterprise. Total machinery expenses include the major fixed costs (interest and depreciation), as well as the accrual operating costs. Although machinery costs have not been allocated to individual crops, they are shown below per total tillable acre.

Table 26.

ACCRUAL MACHINERY EXPENSES ²⁶
170 New York Dairy Farms, 2016

Machinery Expense Item	Average 173 Farms	
	Total Expenses	Per Tillable Acre
Fuel, oil & grease	\$94,500	\$ 57.46
Machinery repairs & farm vehicle exp.	196,786	119.65
Machine hire, rent & lease	104,258	63.39
Interest (5%)	80,917	49.20
Depreciation	<u>205,483</u>	<u>124.94</u>
Total	\$681,943	\$414.64

²⁶ Excludes farms that do not harvest forages.

The trend lines on charts on the previous and following pages were completed using regression techniques. The predictive formulas and R^2 are presented for each relationship. An R^2 of 1.00 indicates a perfect relationship between the data and the trend line. An R^2 of .30 for example, is interpreted as the trend line explaining 30% of the variability in the relationship. The higher the R^2 , the better the trend line fits the data. With a low R^2 , other factors, not measured, are important in explaining the relationship.

The charts below show the relationship between the stocking rate (forage and grazing acres per cow) and labor and management income per operator per cow and real estate investment per cow. Stocking rate is total tillable acres plus non-tillable pasture acres less corn grain acres, all divided by the average number of cows.

Chart 4.

**REAL ESTATE INVESTMENT PER COW BY FORAGE AND GRAZING ACRES PER COW
167 New York Dairy Farms, 2016**

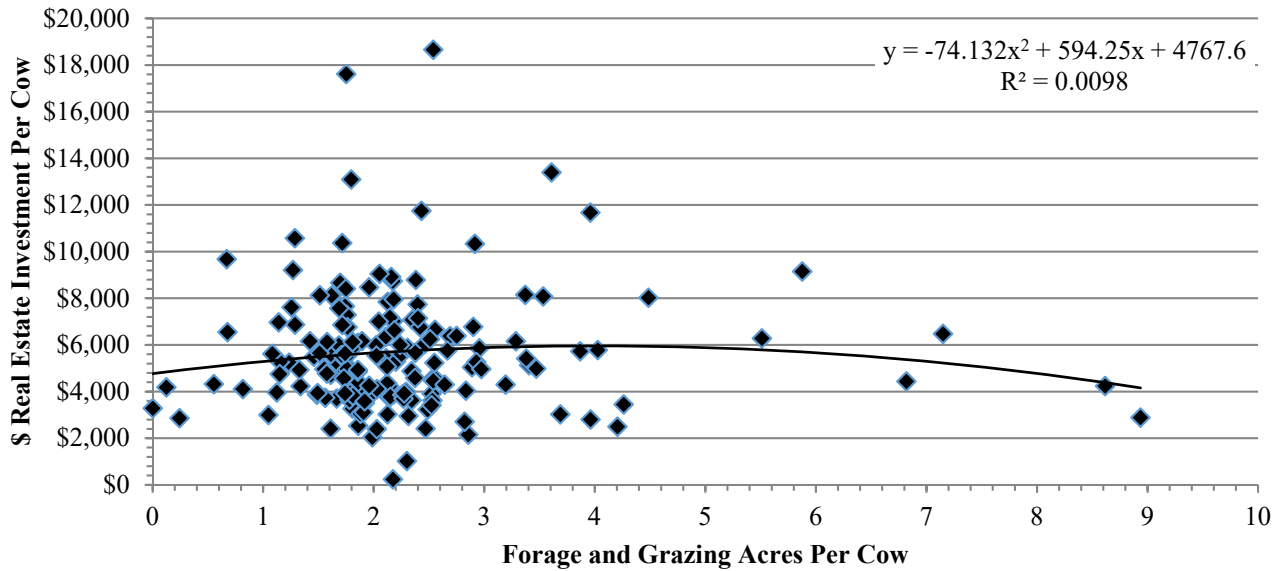
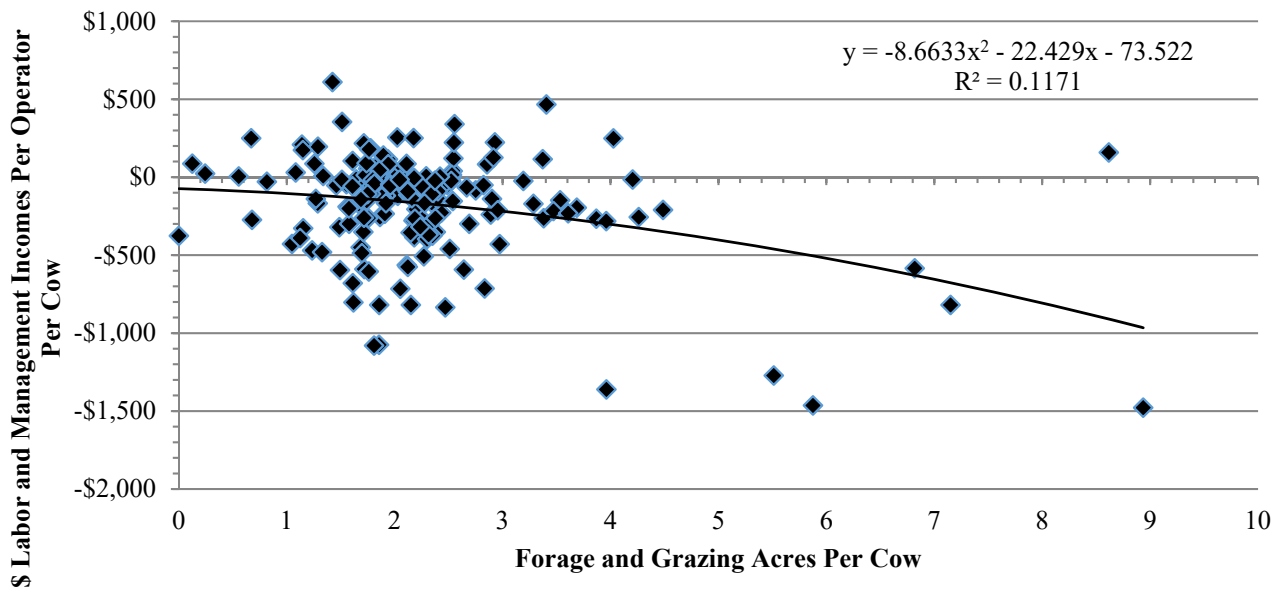


Chart 5.

**LABOR AND MANAGEMENT INCOMES/OPERATOR/COW BY FORAGE AND GRAZING ACRES/COW
167 New York Dairy Farms, 2016**



Dairy Analysis

Analysis of the dairy enterprise can reveal a great deal about the strengths and weaknesses of the dairy farm business. Information on the following pages should be used in conjunction with Dairy Herd Improvement (DHI) and other dairy production information. Changes in dairy herd size and market values that occur during the year are identified in the table below. The change in inventory value without appreciation is attributed to physical changes in herd size and quality. Any change in inventory is included as an accrual farm receipt when calculating all of the profitability measures for the business.

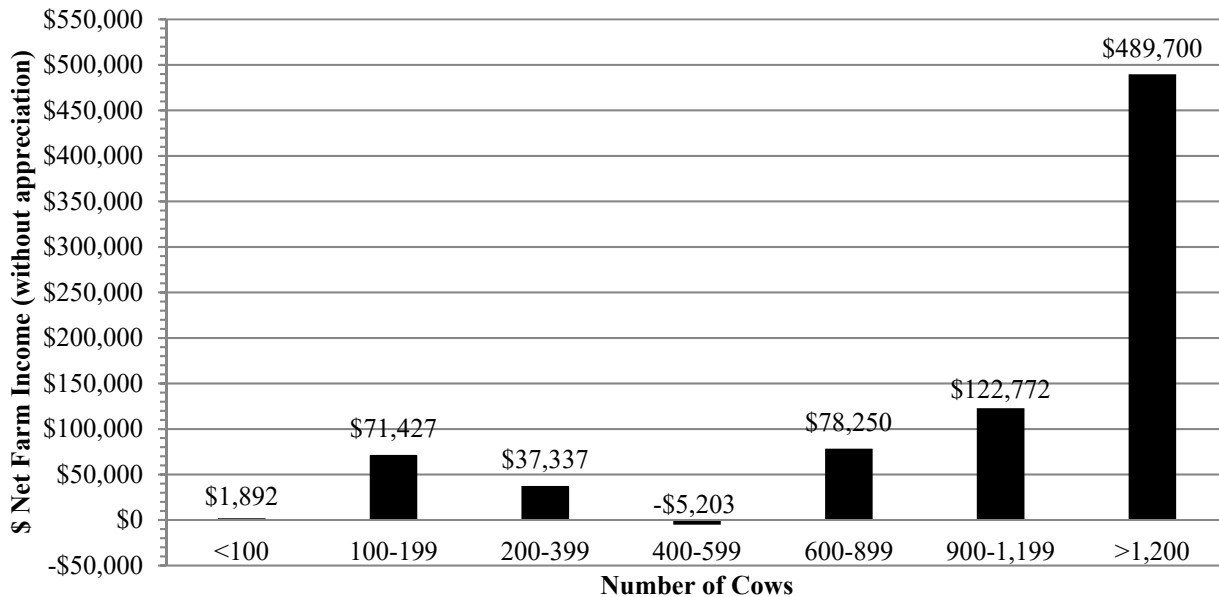
Table 27.

Item	Dairy Cows		Heifers					
	No.	Value	No.	Bred Value	No.	Open Value	No.	Calves Value
DAIRY HERD INVENTORY								
173 New York Dairy Farms, 2016								
<u>Average 173 Farms:</u>								
Beginning year (owned)	788	\$1,162,535	250	\$357,655	234	\$210,254	200	\$101,989
+ Change w/o appreciation		62,091		20,336		21,253		6,466
+ Appreciation		<u>2,105</u>		<u>1,315</u>		<u>-1,000</u>		<u>-2,001</u>
End year (owned)	830	\$1,226,732	262	\$379,305	258	\$230,508	212	\$106,455
End including leased	838							
Average number	820		713 (all age groups)					

Historically, there has been a strong relationship between farm size and net farm income on well-managed dairy farms. In 2016, this relationship varied, with income rising, then falling through herd sizes up to 600 cows, and then rising for the following three herd size groups.

Chart 6.

NET FARM INCOME (WITHOUT APPRECIATION) BY HERD SIZE
167 New York Dairy Farms, 2016



Total milk sold and milk sold per cow along with components produced are extremely valuable measures of size and productivity, respectively, on the dairy farm. These measures of milk output are based on pounds of milk marketed during the year. Farm managers that receive milk weights should compare milk sold per cow with their rolling herd average on the test date nearest December 31st to see how close the estimate of milk produced is to actual milk sales.

Table 28.

MILK PRODUCTION
173 New York Dairy Farms, 2016

Item	Average 173 Farms
Total milk sold, lbs.	21,474,336
Milk sold per cow, lbs.	26,180
Butterfat per cow, lbs.	1,006 ²⁷
Protein per cow, lbs.	820 ²⁷
Total butterfat and protein per cow, lbs	1,825 ²⁷
Other solids per cow, lbs.	1,521 ²⁷
Total components per cow, lbs.	3,347 ²⁷

²⁷ This data is an average for the 130 farms that provided the data.

Table 29.

ANIMALS LEAVING THE HERD
173 New York Dairy Farms, 2016

	Average 173 Farms	
	Number	Percent ²⁸
Cows sold for beef	228	27.8
Cows sold for dairy	12	1.5
Cows died	47	5.8
Culling rate ²⁹	---	34.0

²⁸Percent of average number of cows in the herd.

²⁹Cows sold for beef plus cows died.

The relationship between milk output per cow and net farm income on all dairy farms is shown in Table 30 and diagrammed in Charts 7 and 8. Each spot on the diagrams represents one of the 167 farms. Farms with higher rates of production tend to have higher net farm incomes. This is also influenced by larger herd sizes. The combination of high production per cow and more cows per farm generally has led to higher net farm incomes.

Table 30.

MILK SOLD PER COW AND FARM INCOME MEASURES
167 New York Dairy Farms, 2016

Pounds of Milk Sold Per Cow	Number of Farms	Average Number of Cows	Net Farm Income without Appreciation	Net Farm Income Per Cow	Labor & Management Income/Operator
Under 17,000	17	235	\$49,498	\$241	-\$36,887
17,000 to 19,999	6	84	\$39,451	\$355	-\$19,842
20,000 to 21,999	8	362	\$228,620	\$613	\$8,550
22,000 to 23,999	28	566	\$119,385	\$175	-\$100,604
24,000 to 25,999	50	871	\$101,828	\$130	-\$127,383
26,000 to 27,999	49	1,039	\$350,949	\$299	-\$80,090
28,000 & over	10	1,021	\$155,396	\$161	-\$95,831

Historically, net farm income per cow has increased as pounds of milk sold per cow increased. However, in 2016 this relationship did not hold true, with total net farm income and net farm income per cow relatively flat and unchanging over the range of milk production per cow.

Chart 7.

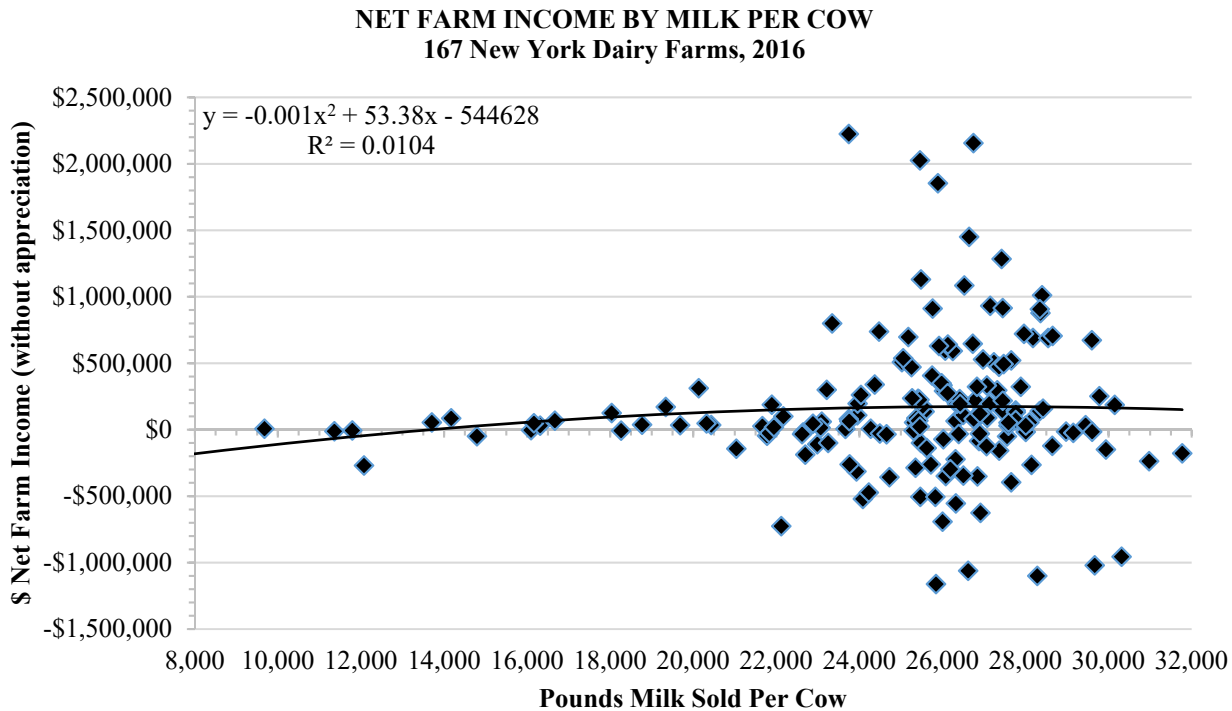
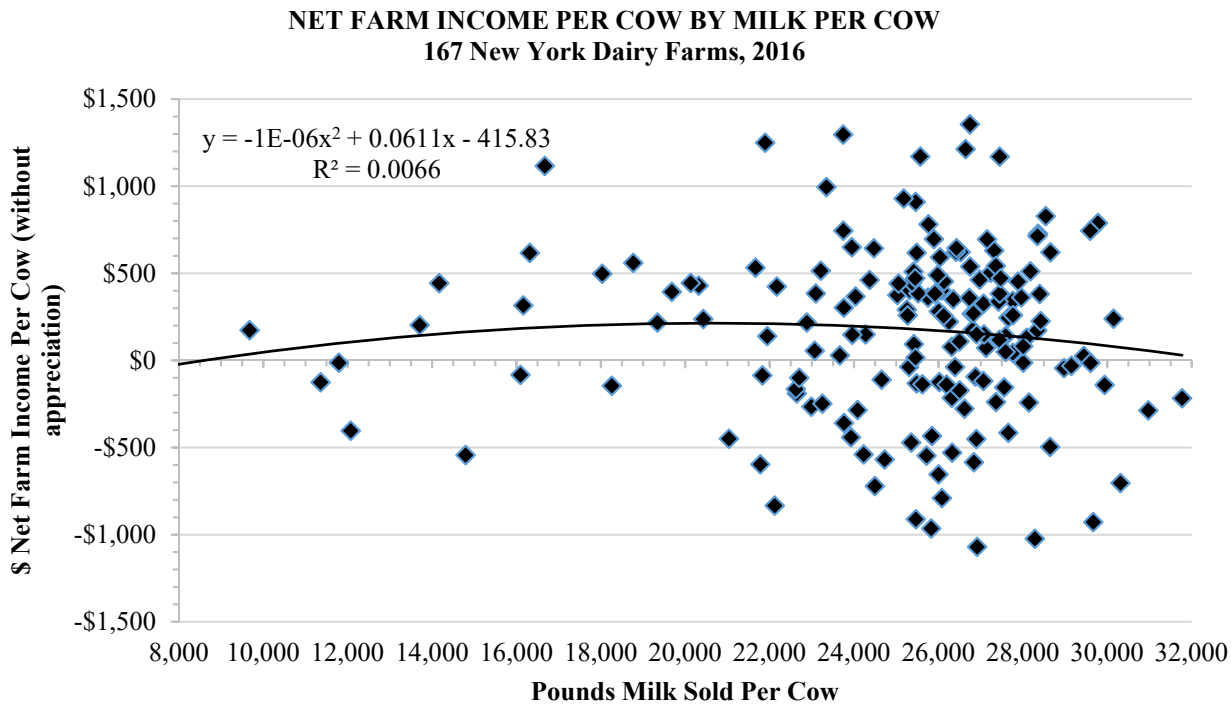


Chart 8.



Cost of Producing Milk

The cost of producing milk has been compiled using the whole farm method and is featured in the following table. Accrual receipts from milk sales can be compared with the accrual costs of producing milk per cow and per hundredweight of milk. Using the whole farm method, operating costs of producing milk are estimated by deducting non-milk accrual receipts from total accrual operating expenses including expansion livestock purchased. Purchased inputs cost of producing milk are the operating costs plus depreciation. Total costs of producing milk include the operating costs of producing milk plus depreciation on machinery and buildings, the value of unpaid family labor, the value of operators' labor and management, and the interest charge for using equity capital.

The following steps are used in the calculations:

1. The cost of expansion livestock is added to total accrual operating expenses to offset any related inventory increase included in accrual receipts.
2. Accrual milk sales are deducted from total accrual receipts to get total accrual non-milk receipts which are used to represent total non-milk operating costs.
3. Total accrual non-milk receipts are subtracted from total accrual operating expenses including expansion livestock to calculate the operating costs of producing milk.
4. Machinery depreciation and building depreciation are added to operating costs to determine the purchased inputs cost of producing milk.
5. The opportunity costs of equity capital, operator's labor and operator's management, and the value of unpaid family labor are added to all other costs to obtain the total costs of producing milk. This cost includes all the operating, depreciation, and imputed costs of producing milk.

Table 31. COST OF PRODUCING MILK WHOLE FARM METHOD CALCULATIONS
173 New York Dairy Farms, 2016

Item	Average 173 Farms	
Total Accrual Operating Expenses	\$	3,626,452
Expansion Livestock, Accrual	+	<u>29,459</u>
1. Total Accrual Operating Expenses, Including Expansion Livestock		\$ 4,095,404
Total Accrual Receipts	\$	4,240,647
Milk Sales, Accrual	-	<u>3,661,986</u>
2. Total Accrual Nonmilk Receipts		- <u>578,660</u>
3. Operating Costs of Producing Milk		\$ 3,166,812
Cwt. of Milk Sold	÷	214,743
Operating Costs/Cwt.	=	\$14.75
Machinery Depreciation	+	203,086
Building Depreciation	+	146,810
Extraordinary Expenses	+	<u>35</u>
4. Purchased Inputs Cost of Producing Milk		\$ 3,516,743
Cwt. of Milk Sold	÷	214,743
Purchased Inputs Cost/Cwt.	=	\$16.38
Family Labor Unpaid (\$2,660/month)	+	3,051
Real Interest on Equity Capital	+	331,280
Value of Operators' Labor & Management	+	<u>160,682</u>
5. Total Costs of Producing Milk		\$ 4,011,756
Cwt. Milk Sold	÷	214,743
Total Costs/Cwt.	=	<u>\$18.68</u>

The three measures of the accrual cost of producing milk on a per cow and per hundredweight basis are compared with accrual receipts from milk sales in Table 32.

Table 32.

ACCRUAL RECEIPTS FROM DAIRY AND COST OF PRODUCING MILK
173 New York Dairy Farms, 2016

Item	Average 173 Farms		
	Total	Per Cow	Per Cwt.
<u>Accrual Costs of Producing Milk</u>			
Operating costs	\$ 3,166,812	\$ 3,861	\$ 14.75
Purchased inputs costs	\$ 3,516,743	\$ 4,287	\$ 16.38
Total Costs	\$ 4,011,756	\$ 4,891	\$ 18.68
<u>Accrual Receipts From Milk</u>			
Net Milk Receipts	\$ 3,661,986	\$ 4,464	\$ 17.05
Net Farm Income	\$ 3,457,975	\$ 3,981	\$ 16.10
without appreciation	\$ 145,243	\$ 177	\$ 0.68
Net Farm Income with appreciation	\$ 317,571	\$ 387	\$ 1.48

The operating cost of producing milk on all 173 dairy farms averaged \$14.75 per hundredweight, leaving \$2.30 to cover depreciation, unpaid labor and operator resources.

The total cost of producing milk on the 173 dairy farms averaged \$18.68 per hundredweight, \$1.63 more than the average price received for milk sold from these farms during 2016. The imputed costs or charge for the operator's labor, management and equity capital averaged \$2.30 per hundredweight in 2016; however, the farm operator received only \$0.67 per hundredweight for these inputs.

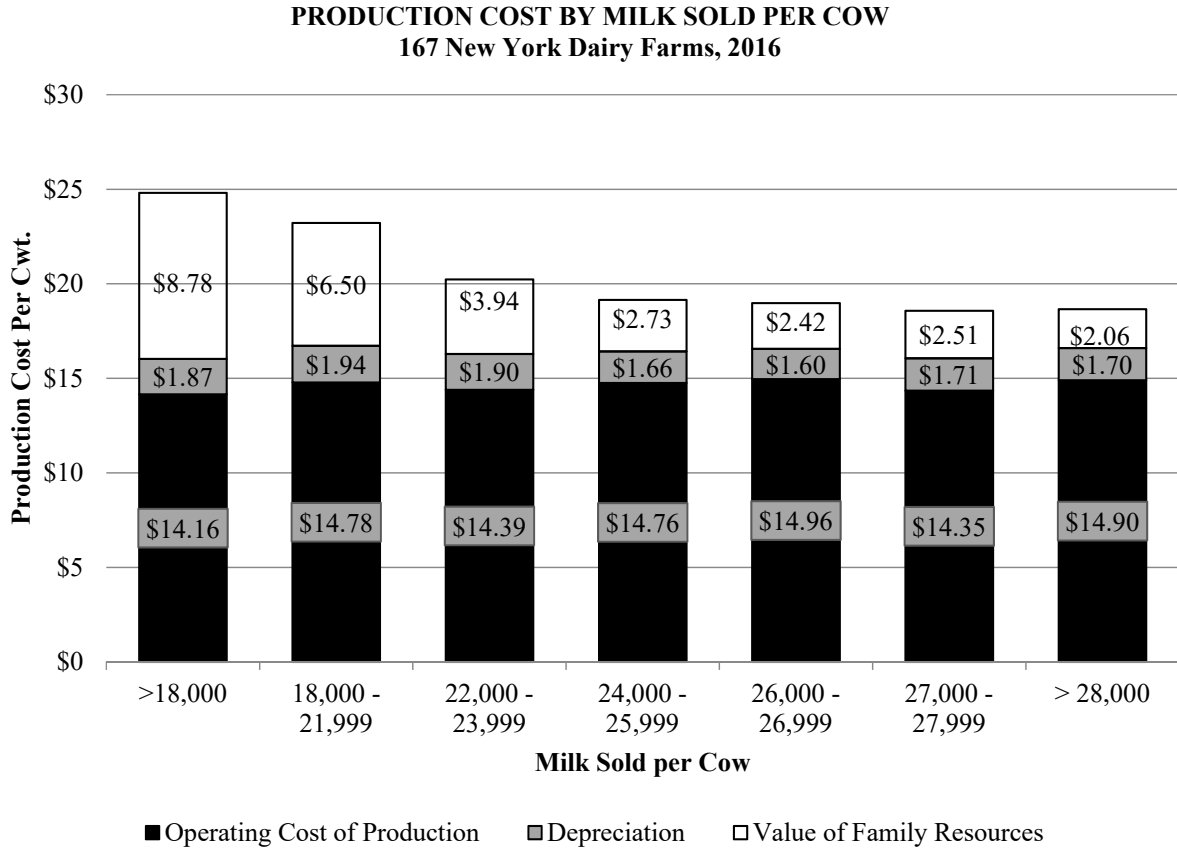
The strong relationship between milk output per cow and the total cost of producing milk is shown in Table 33 and Chart 9. Farms selling less than 24,000 pounds of milk per cow had average total costs of production of \$22.75 per hundredweight while those selling 24,000 pounds and over averaged \$18.84 for a difference of \$3.91 per hundredweight.

Table 33.

FARM COST OF PRODUCING MILK BY MILK SOLD PER COW
167 New York Dairy Farms, 2016

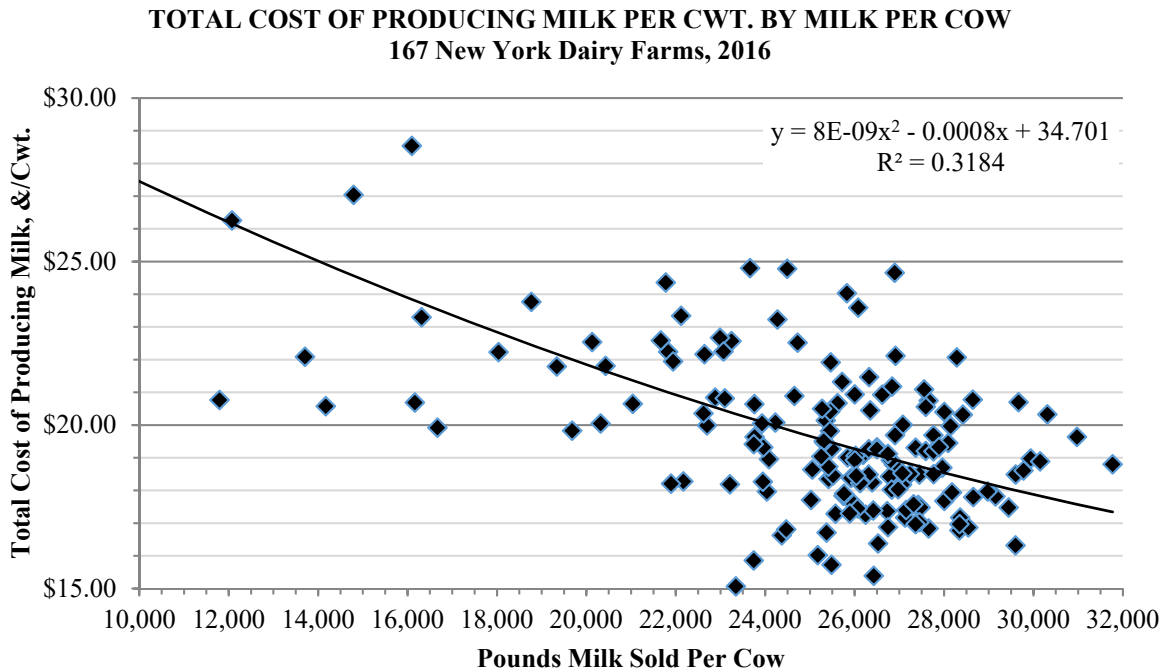
Pounds Milk Sold Per Cow	Costs per Hundredweight					Accrual Receipts From Milk Per Cwt.	Return Per Cwt. To Operator's Labor, Mgmt. & Capital
	Operating Costs		Costs of Producing Milk				
	Hired Labor	Dairy Grain & Concentrate	Total Operating	Purchased Inputs	Total		
Under 18,000	\$2.37	\$4.38	\$14.16	\$16.03	\$24.81	\$17.11	\$-0.13
18,000-21,999	2.03	5.71	14.78	16.72	23.22	17.94	0.76
22,000-23,999	2.48	5.61	14.39	16.29	20.23	16.95	0.62
24,000-25,999	2.73	5.65	14.76	16.42	19.15	17.04	0.61
26,000-26,999	2.83	5.82	14.96	16.56	18.98	17.03	0.46
27,000-27,999	2.85	5.69	14.35	16.06	18.57	17.03	0.96
28,000 & over	2.71	5.91	14.90	16.60	18.66	16.89	0.28

Chart 9.



The relationship between total cost of producing milk and milk sold per cow is diagrammed in Chart 10. As milk sold per cow increases, on average, total cost of production generally decreases.

Chart 10.



Data in Table 34 and Chart 11 show that the average total cost of production generally declines as herd size increases. This is attributable to spreading the value of family resources over more units of output.

Total operating costs are lowest at the 100-199 herd size group, followed by the farms greater than 1,300 cows. As hired labor provides a higher percentage of labor on farms, operating costs tend to increase. However, as farm size continues to increase, there appears to be labor efficiencies that offset increases in hired labor and also cost efficiencies in other areas of the business.

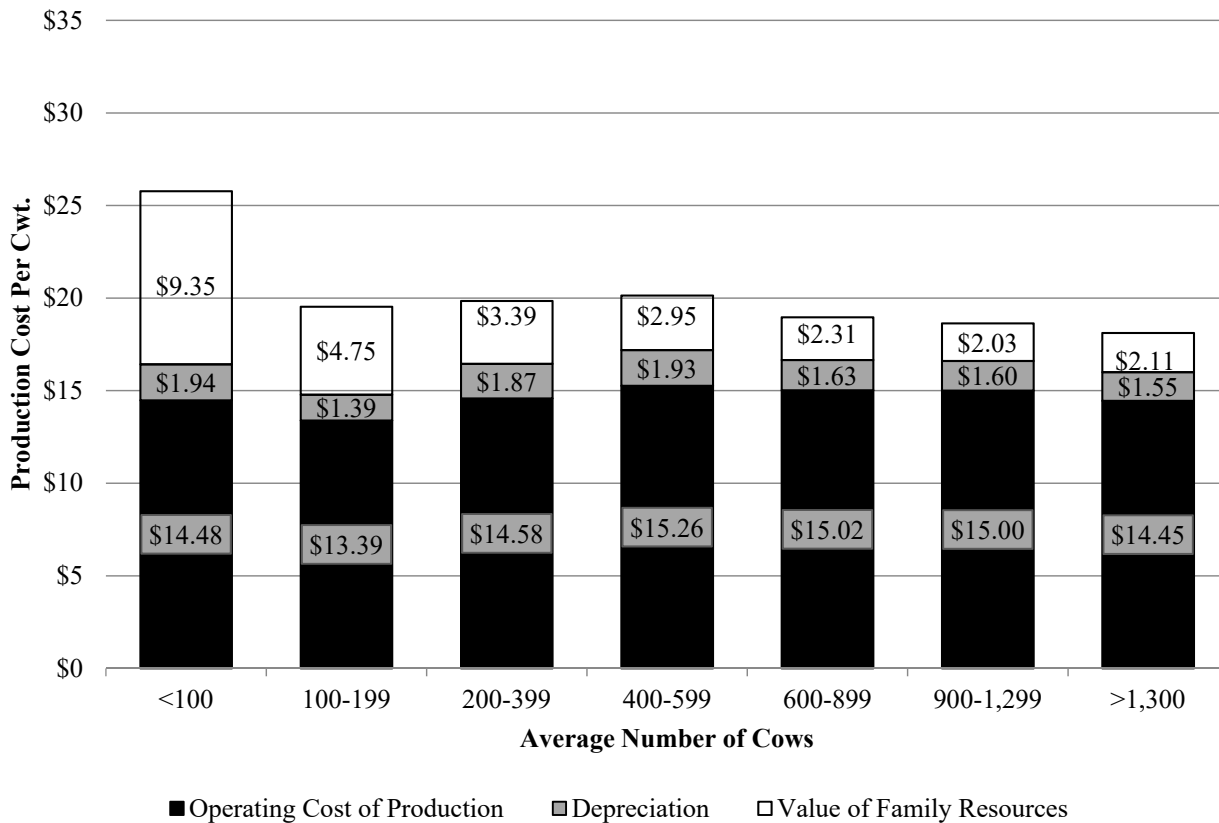
Table 34.

**FARM COST OF PRODUCING MILK BY HERD SIZE
167 New York Dairy Farms, 2016**

Number of Cows	Costs per Hundredweight					Accrual Receipts From Milk	Return Per Cwt. To Operator's Labor, Mgmt. & Capital
	Operating Costs		Costs of Producing Milk				
	Hired Labor	Dairy Grain & Concentrate	Total Operating	Purchased Inputs	Total		
Under 100	\$1.39	\$5.02	\$14.48	\$16.42	\$25.77	\$16.58	\$0.16
100 to 199	1.78	5.37	13.39	14.78	19.53	17.03	2.25
200 to 399	2.73	5.80	14.58	16.45	19.84	17.03	0.58
400 to 599	2.91	5.52	15.26	17.19	20.14	17.15	-0.04
600 to 899	2.71	5.91	15.02	16.65	18.96	17.04	0.40
900 to 1,299	2.91	5.82	15.00	16.60	18.63	17.21	0.61
1,300 and over	2.99	5.68	14.45	16.00	18.11	16.95	0.95

Chart 11.

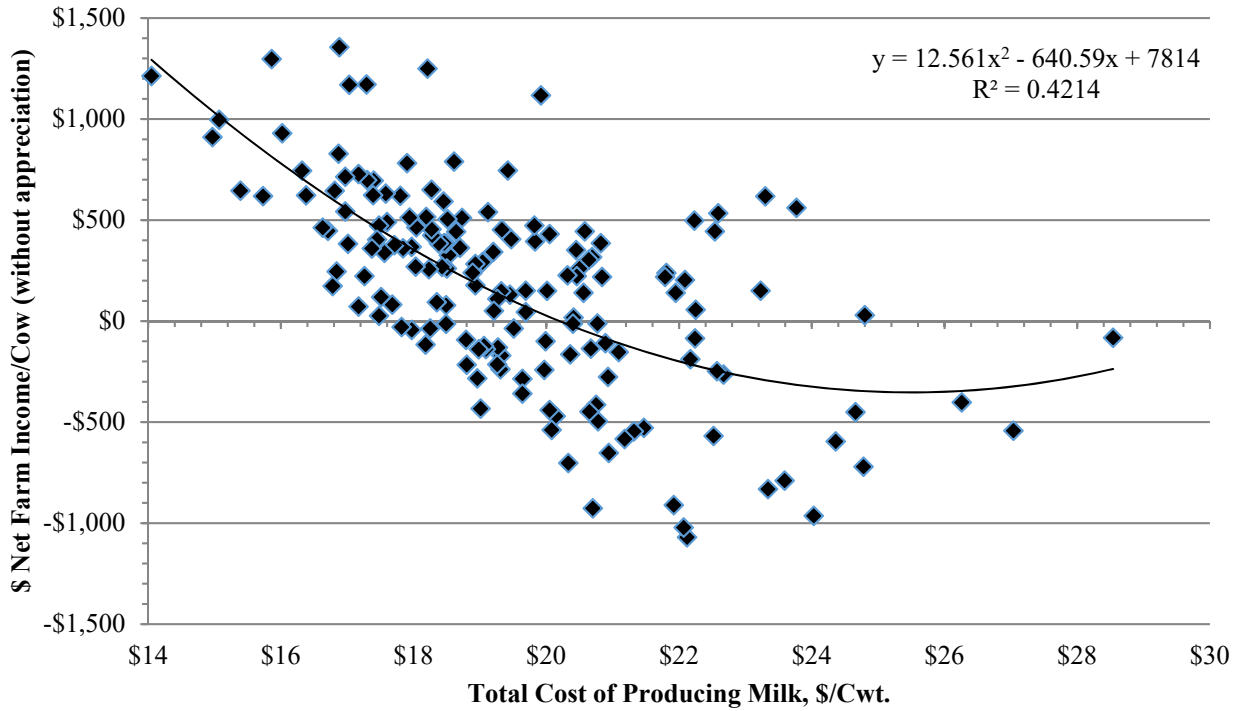
**PRODUCTION COST BY HERD SIZE
167 New York Dairy Farms, 2016**



The importance of cost control and its impact on farm profitability are illustrated in Chart 12. As the total cost of producing milk per hundredweight increased, net farm income per cow fell. The majority of farms with positive net farm income per cow had total costs below \$21 per hundredweight.

Chart 12.

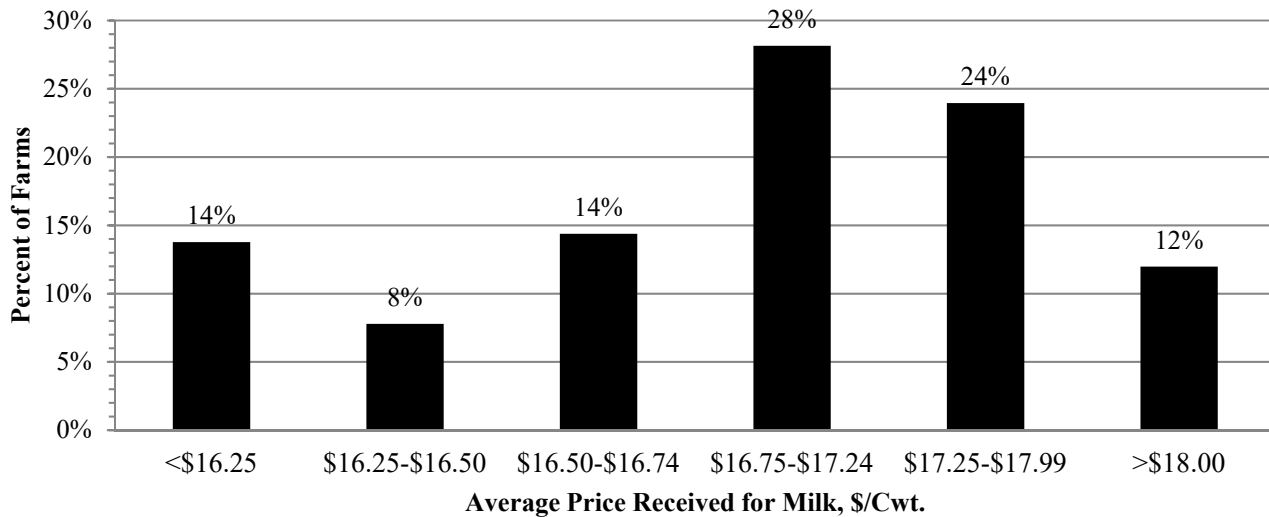
NET FARM INCOME PER COW BY TOTAL COST OF PRODUCING MILK PER HUNDREDWEIGHT
164 New York Dairy Farms, 2016



The average price per hundredweight of milk sold is calculated by dividing gross milk receipts by the total pounds of milk sold. There is considerable variation among the individual farms. The variations in average price received and the distribution of the farms around the mean are shown below.

Chart 13.

VARIATION IN AVERAGE MILK PRICE
167 New York Dairy Farms, 2016



The accrual operating expenses most commonly associated with the dairy enterprise are listed in the table below. Evaluating these costs per unit of production enables an evaluation of the dairy enterprise.

Table 35.

Item	Average 173 Farms	
	Per Cow	Per Cwt.
Purchased dairy grain & concentrate	\$ 1,504	\$ 5.74
Purchased dairy roughage	<u>95</u>	<u>0.36</u>
Total Purchased Dairy Feed	\$ 1,599	\$ 6.11
Purchased grain & concentrate as % of milk receipts		33%
Purchased feed & crop expense	\$ 1,900	\$ 7.26
Purchased feed & crop expense as % of milk receipts		42%
Breeding	\$ 57	\$ 0.22
Veterinary & medicine	167	0.64
Milk marketing	249	0.95
Bedding	97	0.37
Milking supplies	93	0.35
Cattle lease	3	0.01
Custom boarding	110	0.42
bST expense	32	0.12
Livestock professional fees	16	0.06
Other livestock expenses	19	0.07

Feed costs per cow and per hundredweight of milk sold are influenced by a number of factors. These cost measures are affected by the amount of homegrown grains fed, quality, and quantity of the roughage harvested, and the number of young stock. Feed costs are also influenced by the farmer's ability to purchase grains and concentrates at reasonable prices and to balance nutrients fed with energy and protein requirements.

Purchased dairy grain and concentrates per cow is calculated by dividing the total accrual expenses for dairy grains and concentrates purchased by the average number of cows. Because this also included the amount spent for calf and heifer feed, including milk replacer, it actually represents feed cost for one cow and associated replacements being raised.

Purchased feed and crop expense per hundredweight of milk is one of the most useful feed cost measures because it accounts for some of the variations in feeding and cropping programs and milk production between herds. It includes all purchased feeds used on the farm and it includes crop expenses that are associated with feed production. It does not represent total feed costs because machinery, labor, and other costs of producing feed crops are excluded.

Purchased grain and concentrates as percent of milk sales is calculated by dividing feed purchased by milk receipts. This is another useful measure of feed efficiency, although variations in homegrown grains fed, heifers fed, and milk prices can have an impact. Purchased feed and crop expense as percent of milk sales removes much of the variation caused by the feeding of homegrown grains.

Cost control has an important effect on farm profitability. The relationship between purchased feed and crop expense per hundredweight of milk and farm profitability is shown on page 38. Generally, as purchased feed and crop expenses decrease, profits increase. However, this isn't always true; if milk production falls too low, profits may actually decrease. Net milk income over purchased concentrate per cow shows a similar relationship when compared to rate of return on assets without appreciation.

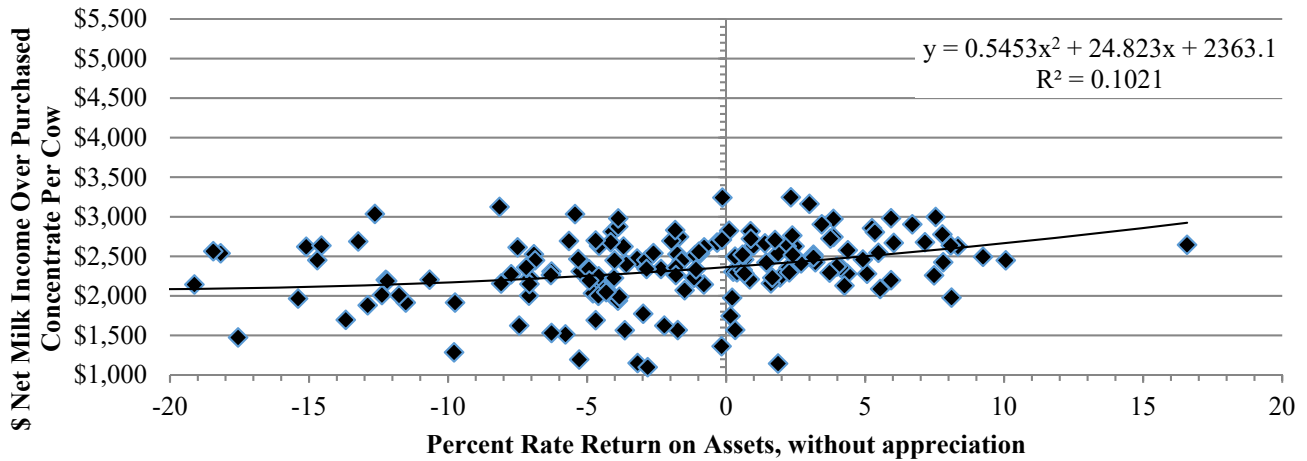
Table 36.

**PURCHASED FEED AND CROP EXPENSE PER HUNDREDWEIGHT
OF MILK AND FARM INCOME MEASURES
173 New York Dairy Farms, 2016**

Feed & Crop Expense Per Cwt. of Milk	Number of Farms	Number of Cows	Forage Dry Matter Harvested Per Cow	Pounds Milk Per Cow	Net Farm Income Without Appreciation	Labor & Management Income Per Operator	Labor & Management Per Operator Per Cow
\$8.50 or more	22	538	6.6	22,585	-\$24,967	-\$157,113	-\$309
8.00 to 8.49	21	917	8.8	25,658	121,510	-110,413	-123
7.50 to 7.99	26	951	8.5	26,087	189,138	-97,372	-142
7.00 to 7.49	44	960	7.7	26,252	56,734	-162,321	-243
6.50 to 6.99	20	791	8.4	25,623	243,073	-59,076	-91
6.00 to 6.49	18	1121	8.4	25,840	354,307	-72,023	-0
Less than 6.00	22	371	9.8	20,060	158,923	-920	-321

Chart 14.

**NET MILK INCOME OVER PURCHASED CONCENTRATE PER COW BY
RETURN ON ASSETS
167 New York Dairy Farms, 2016**



Milk Income and Marketing Expense Breakdown

To examine the breakdown of the gross milk income and the marketing expenses, data is used from farms that filled out a detailed form including all the different sources of income for milk sales and the milk marketing expenses on an accrual basis. This information is reported in Tables 37 and 38. The tables are divided into six different sections, each representing a different area of income or expense. The cumulative total for these six sections is the net price received on farms.

The component value is the portion of the milk check that is generated from the butterfat, protein, and other solids that are produced. All farms are paid the same value per pound of components produced, with the variation in the component portion of the milk price being driven by the percent of component production and when during the year the components were produced.

The PPD (Producer Price Differential) is the location adjustment associated with the federal milk marketing order and is primarily dictated by where the business is located within the state.

Premiums are the additional sources of milk revenue associated with quality premiums, volume, and market premiums.

Deductions are those expenses associated with the sale of milk that are deducted on the milk check. These include milk hauling, stop charges, fuel surcharges, state and federal promotion, cwt program expense, co-op dues, and marketing adjustments.

Marketing Programs is where the net benefit associated with marketing programs associated with utilization of the futures markets or other programs to market milk or manage milk price risk.

Patronage reports the cooperative earnings associated with the sale of milk that was returned to member farms.

Table 37 reports the averages for the farms providing this data. Table 38 contains the quintile averages for each of the individual lines of the report. This table is in a farm business chart format with each item sorted independently and ranked by fifths. Numbers for the different sections will not add to the totals for that quintile or to the net price received because each item is sorted independently. This table shows the range of income and expenses received by farms for all the different sections.

Table 37.

AVERAGE³⁰ MILK INCOME AND MARKETING REPORT
146 New York Dairy Farms, 2016

	Pounds	Percent	Price/Pound	Total	\$/Cwt of Milk
BASE FARM PRICE					
Butterfat	902,009	3.86%	\$2.31	\$2,083,021	\$ 8.91
Protein	733,238	3.11%	\$2.09	\$1,537,932	\$ 6.51
Solids	1,362,039	5.76%	\$0.09	\$124,256	\$ 0.53
Total Component Contribution					\$ 15.95
PPD	23,633,025			\$47,528	\$ 0.22
Base Farm Price					\$ 16.17
Premiums					
Quality				\$64,092	\$ 0.27
Volume				\$56,600	\$ 0.20
Market Premiums				\$55,807	\$ 0.23
Total Premiums					\$ 0.70
BASE FARM PRICE + PREMIUM					\$ 16.87
<hr style="border-top: 1px dashed black;"/>					
Deductions					
Promo				\$35,679	\$ 0.15
Hauling				\$138,885	\$ 0.63
Coop Dues				\$52,958	\$ 0.21
Total Deductions					\$ 0.99
BASE FARM PRICE + PREMIUMS – DEDUCTIONS					\$ 15.88
Marketing Programs					
Futures Contracts, Forward Contracting, Etc.				\$10,215	\$ 0.03
Total Marketing Income					\$ 0.03
Patronage Dividends				\$54,388	\$ 0.23
NET PRICE RECEIVED ON FARM, ALL SOURCES					\$ 16.14
Net Marketing Value (PPD + Total Premiums – Total Deductions), \$ per cwt.					\$ -0.06

³⁰ Each calculation of an average is independent of all others. Therefore, math operations on the detail will not result in the totals. However, detail in the “\$/Cwt of Milk” column will result in the totals.

Capital and Labor Efficiency Analysis

Capital efficiency factors measure how intensively the capital is being used in the farm business. Measures of labor efficiency are key indicators of management's success in generating products per unit of labor input.

Table 39.

CAPITAL EFFICIENCY				
173 New York Dairy Farms, 2016				
Item	Per Worker	Per Cow	Per Tillable Acre	Per Tillable Acre Owned
<u>Average 173 Farms:</u>				
Farm capital	\$ 549,233	\$ 11,905	\$ 6,036	\$ 11,493
Real estate		5,297		5,114
Machinery & equipment	89,859	1,948	987	
<u>Ratios</u>				
Asset turnover ratio	Operating Expense	Interest Expense	Depreciation Expense	
0.45	0.86	0.03	0.08	

Asset turnover ratio measures the relationship between capital investment and farm receipts. It is computed by dividing the year's total farm accrual receipts including appreciation by the average farm assets. The relationship the asset turnover ratio has to farm profitability and other factors is shown in the above table. As a general rule, dairy farmers should aim for an asset turnover ratio of 0.6 or higher. The operational ratios reflect the relationship of expense categories to total farm receipts. The sum of the operating, interest, and depreciation expense ratios expresses total farm expenses per dollar of total farm receipts.

Measures of labor efficiency are key indicators of the work accomplished by an average worker. The average worker includes all hours worked by owners, family members, and hired employees. The average cows per worker is the number of cows taken care of per worker equivalent. Pounds of milk sold per worker equivalent is an important measure of labor efficiency that takes into account both the number of cows and milk production. Table 40 highlights labor efficiency measures. Table 41 lists the different sources of labor hours for the participating farms.

Table 40.

LABOR EFFICIENCY		
173 New York Dairy Farms, 2016		
Labor Efficiency	Total	Per Worker ³²
Cows, average number	820	46
Milk sold, pounds	21,474,336	1,207,667
Tillable acres	1,618	91

³² The method used to calculate worker equivalent incorporates the number of hours actually worked by the owner/operators, instead of using a standard 12 months for each full-time owner/operator of the business. A full-time month is specified to be 230 hours of labor per month.

Table 41.

LABOR FORCE INVENTORY AND ANALYSIS
173 New York Dairy Farms, 2016

Labor Force	Months	Age	Years of Education	Value of Labor & Mgmt.
Operator number 1	12.70	56	14	\$ 69,073
Operator number 2	8.67	52	14	48,681
Operator number 3	4.82	44	15	24,814
Operator number 4	2.18	17	5	10,925
Family paid	1.83			
Family unpaid	1.15			
Hired	<u>180.62</u>			
Total	213.38/	12 = 17.78 Worker Equivalent 2.23 Operator/Manager Equivalent		

Labor Costs	Average 173 Farms		
	Total	Per Cow	Per Cwt.
Value of operator(s) labor (\$2,900/month)	\$ 86,362	\$ 105	\$ 0.40
Family Unpaid (\$2,660/month)	3,059	3.73	0.01
Hired	<u>619,119</u>	<u>755</u>	<u>2.88</u>
Total Labor	\$ 708,540	\$ 864	\$ 3.30
Machinery Cost	<u>674,418</u>	<u>822</u>	<u>3.14</u>
Total Labor & Machinery	\$1,382,958	\$ 1,686	\$ 6.44
Hired labor expenses per hired worker equivalent		\$40,720	
Hired labor expense as % of milk sales		16.9%	

Table 42 shows the relationship between labor efficiency and return on all capital without appreciation. Labor efficiency improvements are one method that is used to allow the business to reward their employees while maintaining their labor costs per hundredweight of milk produced. A second area is improved cost control of day to day activities, which is one reason why some farms can generate higher than average profits while having some of the higher labor costs per hundredweight of milk sold. Chart 15 highlights the relationship between percent hired labor on the farm and hired labor costs per hundredweight. As the percent increases, the cost per hundredweight generally increases. The combination of annual hired cost per worker and labor efficiency has a large impact on what the hired cost per hundredweight will be.

Table 42.

MILK SOLD PER WORKER AND NET FARM INCOME

167 New York Dairy Farms, 2016

Pounds of Milk Sold per Worker	No. of Farms	No. of Cows	Pounds Milk per Cow	Net Farm Income (without Appreciation)	Labor & Management Income per Operator
Under 600,000	13	84	18,134	10,171	-39,969
600,000 to 899,999	20	299	21,245	25,455	-74,782
900,000 to 999,999	23	451	24,105	46,263	-58,777
1,000,000 to 1,099,999	23	890	25,439	115,782	-111,508
1,100,000 to 1,199,999	26	987	26,664	169,938	-131,845
1,200,000 to 1,299,999	19	1,138	26,402	-4,658	-265,565
1,300,000 to 1,399,999	17	1,324	26,741	280,049	-123,090
1,400,000 and Greater	26	1,287	27,290	467,382	-26,751

Chart 15.

**HIRED LABOR EXPENSE PER CWT OF MILK SOLD VERSUS
PERCENT OF LABOR PROVIDED BY HIRED SOURCES
173 New York Dairy Farms, 2016**

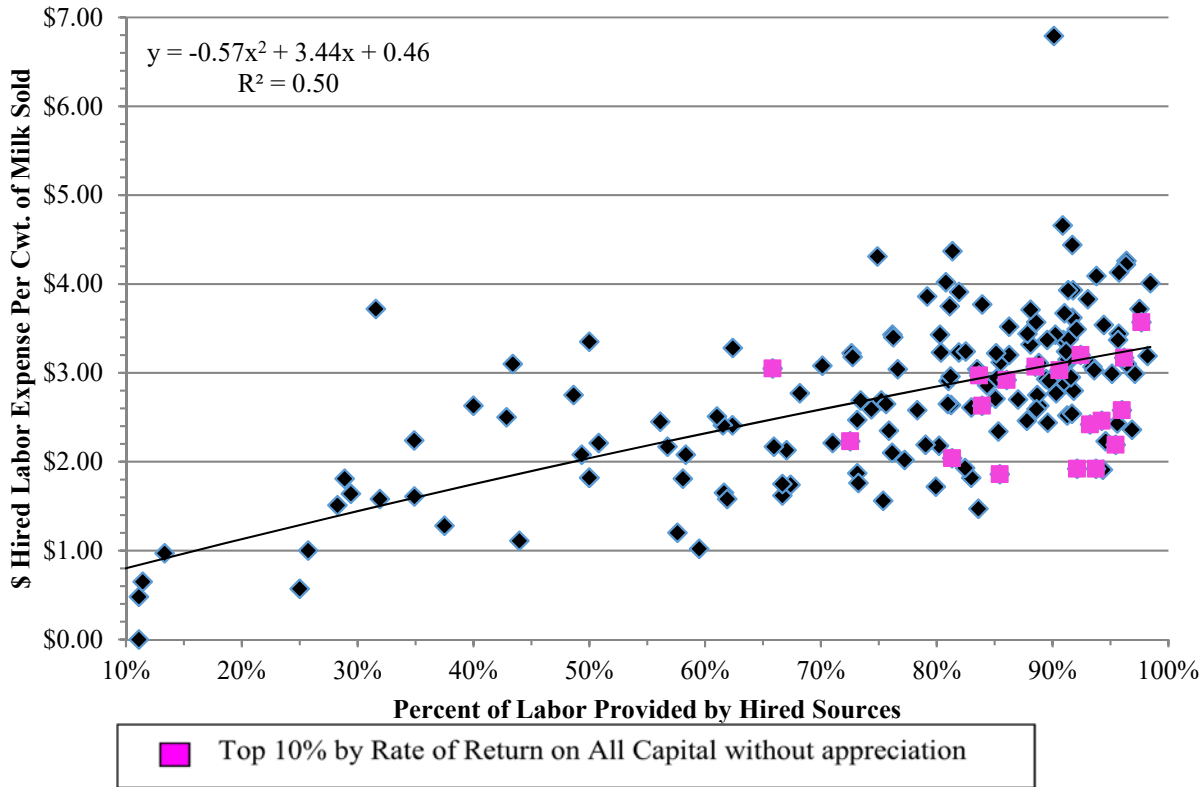


Table 43 below is the business chart for labor costs on a per worker and per hour basis and shows the range of costs for 165 farms. Hired labor expenses are all paid expenses that are associated with labor, including gross wages, workman’s compensation, health, insurance, federal and state employment taxes, and other paid benefits.

Table 43.

**HIRED LABOR EXPENSE BUSINESS CHART
165 New York Dairy Farms with Hired Labor, 2016**

Decile	Percent of Labor from Hired Sources	Hired Labor Expense per Cwt	Hired Labor Expense as % of Milk Sales	Hired Labor Expense per Hired Worker Equivalent	Hired Labor Expense per Hour
Average of Lowest Decile	28%	\$1.14	7%	\$24,149	\$8.75
	55	1.81	11	32,407	11.74
	69	2.17	13	34,823	12.62
	77	2.46	15	36,317	13.16
	82	2.67	16	38,017	13.77
	85	2.94	17	39,704	14.39
	89	3.11	19	41,052	14.87
	91	3.30	19	43,342	15.70
	93	3.59	21	46,476	16.84
Average of Highest Decile	97	4.30	25	55,197	20.00

HERD SIZE BREAKDOWN

With a large variation in herd size, the following section provides information about five different herd size categories: Less than 200 cows, 200 to 549 cows, 550 to 849 cows, 850 to 1,199 cows, and 1,200 cows and greater. This information can be used to look at the performance of farms in the different herd sizes and provides benchmarks for different herd sizes. Management and operating challenges are different across herd sizes and when comparing to industry benchmarks, it can be useful to compare to farms of similar herd sizes.

Table 44 summarizes the 5 herd size groups for selected data and shows what similarities and differences there are between the herd size groups.

For each herd size group, there are 6 tables. The first three report the herd profile for the size group, the next 2 report on the progress of the farm over two years for the farms in that herd size that participated both years. The final table is a business chart for 2016 for the herd size group.

Less than 200 cows:	Tables 45 through 50
200 to 549 cows:	Tables 51 through 56
550 to 849 cows:	Tables 57 through 62
850 to 1,199 cows:	Tables 63 through 68
1,200 cows and greater:	Tables 69 through 74

The herd profile tables are a business management tool that can be utilized to access strengths and weakness of a business. With each row sorted independently and each number representing an average of 20 percent of the farms, the range in any particular category is shown. Please note that each row is sorted independently, so it isn't necessarily the same farms represented in each quintile when looking through the herd profile. By placing a mark for their own business data, a business manager can see how the business compares to these herd profiles. Generally, the higher profit farms tend to have more marks to the left of average, and the farms with lower earnings tend to have more marks to the right of average.

The progress of the farm over last two years shows how the same farms changed from one year to the next for selected production, business, and financial measures along with the income and expenses per cow and per hundredweight. A business manager can look at how their business changed versus these different herd size groups.

The Farm Business Chart is a tool which can be used in analyzing your business in a manner similar to the herd profiles, except the different categories are in columns vs rows. Compare your business by drawing a line through or near the closest figure in each column, that represents your current level of herd performance. The five figures in each column represents the average of each 20 percent or quintile of farms included in the summary. Use this information to identify business areas where more challenging goals are needed.

Table 44.

SELECTED BUSINESS FACTORS FOR FIVE HERD SIZE GROUPS

173 Dairy Farms, New York State, 2016

Item	<200 Cows	200 to 449 Cows	550 to 849 Cows	850 to 1,199 Cows	≥ 1,200 Cows
# of Farms	33	36	36	31	37
Size of Business					
Average Cows	102	347	705	1,040	1,849
Average Heifers	85	302	587	895	1,645
Acres per Cow	3.23	2.29	2.19	1.93	1.84
Number of Worker Equivalents	3.08	8.83	15.45	22.73	37.66
Number of Owner Operators	1.49	2.06	2.42	2.38	2.74
Rates of Production					
Milk Sold per Cow	21,128	24,867	25,567	26,800	26,604
Hay DM per Acre, Tons	2.3	3.0	3.2	3.3	3.2
Corn Silage per Acre, Tons	17.5	18.3	18.3	18.4	16.2
Percent Butterfat	4.00%	3.87%	3.86%	3.79%	3.79%
Percent Protein	3.16%	3.09%	3.11%	3.09%	3.11%
Cull Rate, Percent	26.0%	31.0%	35.0%	31.0%	35.0%
Labor Efficiency					
Cows per Worker	33.2	39.3	45.6	45.8	49.1
Milk Sold per Worker	702,484	977,806	1,167,006	1,226,731	1,305,800
Cost Control					
Dairy Feed & Crop Expense per Cwt. Milk	6.89	7.02	7.60	7.24	7.20
Labor & Machinery Costs per Cow	\$1,873	\$1,887	\$1,690	\$1,707	\$1,628
Hired Labor Cost per Cwt.	\$1.65	\$2.82	\$2.72	\$2.95	\$2.97
Hired Labor Costs per Worker Equivalent	\$33,939	\$38,165	\$38,441	\$40,835	\$42,204
Crop Input Costs per Acre	\$80	\$139	\$164	\$149	\$157
Machinery Costs per Acre	\$263	\$411	\$400	\$437	\$424
Operating Cost of Producing Milk per Cwt.	\$13.93	\$14.82	\$15.09	\$15.20	\$14.43
Purch. Input Cost of Producing Milk per Cwt.	\$15.44	\$16.79	\$16.69	\$16.79	\$16.03
Total Cost of Producing Milk per Cwt.	\$21.17	\$20.01	\$19.09	\$18.89	\$18.11
Operating Expense Ratio	0.81	0.85	0.87	0.87	0.85
Capital Efficiency					
Farm Capital Per Cow	\$13,486	\$12,732	\$11,634	\$12,278	\$11,602
Machinery and Equipment per Cow	\$3,068	\$2,519	\$1,969	\$1,954	\$1,777
Real Estate per Cow	\$5,979	\$5,703	\$5,063	\$5,534	\$5,165
Asset Turnover Ratio	0.31	0.41	0.45	0.44	0.47
Working Capital as % of Tot. Oper. Expense	32%	22%	20%	15%	21%
Profitability					
Labor & Management Income per Operator	-\$19,326	-\$62,297	-\$79,757	-\$137,342	-\$98,775
Rate Return on Equity Capital w/o Apprec.	-4.1%	-2.8%	-1.6%	-1.2%	1.3%
Rate Return on All Capital w/o Apprec.	-2.0%	-0.9%	0.2%	0.6%	2.0%
Financial Summary(based on market value, excluding deferred taxes)					
Debt to Asset Ratio	0.28	0.31	0.36	0.37	0.32
Farm Debt per Cow	\$3,737	\$3,871	\$3,981	\$4,480	\$3,716
Debt Coverage Ratio	0.90	1.06	0.43	0.70	1.34

Table 45.

SELECTED PRODUCTION AND FINANCIAL FACTORS

33 Farms Less Than 200 Cows, New York State, 2016

Item	QUINTILE				
	1	2	3	4	5
Size of Business					
Average Cows	47	66	103	142	170
Average Heifers	30	53	89	117	148
Acres per Cow	1.93	2.56	3.19	4.17	6.66
Number of Worker Equivalents	1.6	2.4	3.2	3.7	4.8
Number of Owner Operators	1.0	1.0	1.2	1.9	2.6
Rates of Production					
Milk Sold per Cow	26,203	24,145	21,524	17,478	13,707
Hay DM per Acre, Tons	3.4	2.6	2.2	2.0	1.2
Corn Silage per Acre, Tons	22.7	19.4	17.9	15.2	6.5
Percent Butterfat	4.2	3.9	2.1	0.0	0.0
Percent Protein	3.2	3.1	1.7	0.0	0.0
Cull Rate, Percent	13.1	22.4	28.6	32.0	37.5
Labor Efficiency					
Cows per Worker	53.0	39.3	31.9	26.7	21.4
Milk Sold per Worker	1,079,837	858,638	673,928	531,501	347,867
Cost Control					
Dairy Feed & Crop Expense per Cwt. Milk	4.63	5.76	6.68	7.94	9.45
Labor & Machinery Costs per Cow	1,456	1,715	1,848	2,153	2,797
Hired Labor Cost per Cwt.	0.02	0.93	1.73	2.20	3.06
Hired Labor Costs per Worker Equivalent	0	13,964	29,043	37,180	55,497
Crop Input Costs per Acre	11	38	84	114	158
Machinery Costs per Acre	125	204	258	336	491
Operating cost of Producing Milk per Cwt.	10.42	12.82	14.04	15.44	17.61
Purch. Input Cost of Producing Milk per Cwt.	12.17	14.54	15.66	17.25	19.25
Total Cost of Producing Milk per Cwt.	17.98	19.99	22.27	24.26	32.15
Operating Expense Ratio	0.67	0.77	0.83	0.87	1.01
Capital Efficiency					
Farm Capital Per Cow	9,652	11,491	13,267	15,290	22,386
Machinery and Equipment per Cow	1,322	2,065	2,636	3,779	6,718
Real Estate per Cow	3,770	5,099	6,123	7,217	11,672
Asset Turnover Ratio	0.44	0.38	0.34	0.27	0.17
Working Capital as % of Tot. Oper. Expense	74	45	34	17	-1
Profitability					
Labor & Management Income per Operator	33,098	2,425	-17,539	-39,608	-85,270
Rate Return on Equity Capital w/o Apprec.	3.34	-1.16	-3.97	-6.76	-15.12
Rate Return on All Capital w/o Apprec.	3.33	0.04	-2.24	-4.31	-8.96
Financial Summary(based on market value, excluding deferred taxes)					
Debt to Asset Ratio	0.02	0.13	0.28	0.39	0.56
Farm Debt per Cow	269	2,001	3,534	5,580	8,143
Debt Coverage Ratio	4.13	1.24	0.87	0.21	-0.22

Table 46.

RECEIPTS AND EXPENSES PER COW
33 Farms Less Than 200 Cows, New York State, 2016

Item	QUINTILE				
	1	2	3	4	5
Average Cows	47	66	103	142	170
Cwt. of Milk Sold	8,269	11,386	21,380	30,323	40,611
<u>Accrual Operating Receipts</u>					
Milk	4,339	4,053	3,716	3,065	2,287
Dairy cattle	527	365	281	198	88
Dairy calves	122	63	40	29	9
Other livestock	71	12	0	0	-16
Crops	414	145	54	-8	-215
Miscellaneous receipts	320	221	136	74	15
Total Receipts	5,204	4,576	4,128	3,687	2,685
<u>Accrual Operating Expenses</u>					
Hired labor	5	181	343	450	662
Dairy grain & concentrates	518	893	1,206	1,323	1,799
Dairy roughage	0	0	0	3	324
Nondairy feed	0	0	0	0	0
Professional nutritional services	0	0	0	0	3
Machinery hire/rent/lease	3	18	35	79	218
Machinery repair & farm vehicle exp.	108	166	218	270	389
Fuel	46	89	127	163	254
Replacement livestock	0	0	0	0	84
Breeding	14	37	55	81	132
Veterinary, medicine & hoof care	30	67	101	132	224
Milk marketing	116	213	245	290	395
Bedding	0	23	67	87	148
Milking supplies	39	60	97	120	217
Cattle lease	0	0	0	0	0
Custom boarding	0	0	0	0	17
rBst expense	0	0	0	0	28
Livestock professional fees	0	2	18	32	48
Other livestock expense	3	33	46	73	149
Fertilizer & lime	11	40	87	151	248
Seeds & plants	12	40	71	118	171
Spray & other crop expenses	0	20	46	58	121
Crop professional fees	0	0	0	1	23
Land, building, fence repair	0	5	34	63	121
Taxes	49	90	117	161	283
Real estate rent/lease	0	9	30	48	108
Insurance	27	52	68	94	142
Utilities	46	83	109	142	177
Interest	9	38	138	218	290
Other professional fees	0	10	18	29	71
Miscellaneous	2	11	19	32	56
Total Farm Operating Costs	2,166	3,132	3,452	3,843	4,662
Expansion livestock	0	0	0	0	26
Extraordinary expenses	0	0	0	0	0
Machinery depreciation	96	181	228	304	535
Building depreciation	7	26	58	97	212
Total farm expense	2,396	3,399	3,804	4,399	4,986
Net Farm Income	1,034	523	361	66	-522

Table 47.

RECEIPTS AND EXPENSES PER CWT. OF MILK SOLD
33 Farms Less Than 200 Cows, New York State, 2016

Item	QUINTILE				
	1	2	3	4	5
Average Cows	47	66	103	142	170
Cwt. of Milk Sold	8,269	11,386	21,380	30,323	40,611
<u>Accrual Operating Receipts</u>					
Milk	19.01	17.60	16.73	16.37	15.68
Dairy cattle	2.84	1.80	1.43	0.97	0.43
Dairy calves	0.61	0.29	0.19	0.15	0.05
Other livestock	0.42	0.05	0.00	0.00	-0.09
Crops	2.02	0.73	0.30	-0.05	-1.03
Miscellaneous receipts	2.02	1.06	0.68	0.33	0.07
Total Receipts	23.77	21.35	19.91	18.41	16.73
<u>Accrual Operating Expenses</u>					
Hired labor	0.02	0.93	1.73	2.20	3.06
Dairy grain & concentrates	3.34	4.68	5.26	6.55	7.67
Dairy roughage	0.00	0.00	0.00	0.01	1.54
Nondairy feed	0.00	0.00	0.00	0.00	0.00
Professional nutritional services	0.00	0.00	0.00	0.00	0.01
Machinery hire/rent/lease	0.02	0.09	0.17	0.44	1.04
Machinery repair & farm vehicle exp.	0.49	0.86	1.08	1.45	2.23
Fuel	0.21	0.48	0.60	0.79	1.44
Replacement livestock	0.00	0.00	0.00	0.00	0.58
Breeding	0.07	0.18	0.27	0.39	0.62
Veterinary, medicine & hoof care	0.16	0.34	0.48	0.65	0.98
Milk marketing	0.66	1.04	1.27	1.46	1.77
Bedding	0.00	0.14	0.33	0.45	0.66
Milking supplies	0.23	0.35	0.47	0.57	0.90
Cattle lease	0.00	0.00	0.00	0.00	0.00
Custom boarding	0.00	0.00	0.00	0.00	0.09
rBst expense	0.00	0.00	0.00	0.00	0.15
Livestock professional fees	0.00	0.01	0.09	0.15	0.24
Other livestock expense	0.01	0.15	0.28	0.40	0.72
Fertilizer & lime	0.06	0.24	0.43	0.62	1.18
Seeds & plants	0.07	0.24	0.37	0.49	0.75
Spray & other crop expenses	0.00	0.11	0.20	0.29	0.60
Crop professional fees	0.00	0.00	0.00	0.00	0.09
Land, building, fence repair	0.00	0.03	0.16	0.30	0.62
Taxes	0.22	0.40	0.60	0.94	1.56
Real estate rent/lease	0.00	0.04	0.13	0.30	0.57
Insurance	0.15	0.24	0.36	0.46	0.68
Utilities	0.27	0.37	0.52	0.72	0.92
Interest	0.05	0.19	0.70	1.04	1.43
Other professional fees	0.00	0.05	0.09	0.14	0.39
Miscellaneous	0.01	0.05	0.10	0.17	0.30
Total Farm Operating Costs	14.09	16.01	16.68	17.97	19.65
Expansion livestock	0.00	0.00	0.00	0.00	0.15
Extraordinary expenses	0.00	0.00	0.00	0.00	0.00
Machinery depreciation	0.50	0.86	1.16	1.67	2.70
Building depreciation	0.04	0.14	0.29	0.45	1.09
Total farm expense	15.44	17.52	18.46	19.49	22.29
Net Farm Income	5.48	2.57	1.73	0.34	-2.45

Table 48.

PROGRESS OF THE FARM BUSINESS			
30 Farms Less Than 200 Cows, New York State, 2015 & 2016, DFBS ³³			
SELECTED FACTORS	Average of 30 Farms		Percent Change
	2015	2016	
<i>Size of Business</i>			
Average number of cows	97	101	4%
Average number of heifers	80	83	4%
Milk sold, pounds	2,008,325	2,124,701	6%
Worker equivalent	3.0	3.0	0%
Total tillable acres	327	332	2%
<i>Rates of Production</i>			
Milk sold per cow, pounds	20,790	20,947	1%
Hay DM per acre, tons	2.3	2.30	0%
Corn silage per acre, tons	17.2	17.80	3%
<i>Labor Efficiency</i>			
Cows per worker	32.7	34.0	4%
Milk sold per worker, pounds	676,204	715,387	6%
<i>Cost Control and Milk Price</i>			
Grain & concentrate per cwt. milk	\$6.22	\$5.48	-12%
Net milk income over purchased grain & conc. per cow	\$2,086	\$2,040	-2%
Dairy feed & crop expense per cwt. milk	\$8.10	\$6.85	-15%
Labor and machinery costs per cow	\$1,953	\$1,888	-3%
Hired labor costs per cwt. milk	\$1.84	\$1.63	-11%
Hired labor costs per worker equivalent	\$33,734	\$36,527	8%
Operating cost of producing milk per cwt.	\$14.90	\$13.88	-7%
Purchased input cost of producing milk per cwt.	\$16.40	\$15.48	-6%
Total cost of producing milk per cwt.	\$22.40	\$21.40	-4%
Net milk price	\$16.80	\$15.75	-6%
<i>Capital Efficiency (average for year)</i>			
Farm capital per cow	\$14,034	\$13,693	-2%
Machinery and equipment per cow	\$3,368	\$3,223	-4%
Asset turnover ratio	0.33	0.30	-9%
<i>Profitability</i>			
Net farm income without appreciation	\$32,535	\$31,343	-4%
Net farm income without appreciation per cow	\$337	\$309	-8%
Net farm income with appreciation	\$44,613	\$39,409	-12%
Net farm income with appreciation per cow	\$462	\$389	-16%
Labor & management income per operator/manager	-\$18,527	-\$19,949	-8%
Rate return on equity capital with appreciation	-2.3%	-3.3%	-43%
Rate return on equity capital without appreciation	-3.4%	-4.1%	-18%
Rate return on all capital with appreciation	-0.8%	-1.6%	-100%
Rate return on all capital without appreciation	-1.7%	-2.1%	-23%
<i>Financial Summary (based on market value, excluding deferred taxes)</i>			
Farm net worth, end year	\$1,042,972	\$1,042,526	0%
Debt to asset ratio	0.24	0.26	8%
Farm debt per cow	\$3,257	\$3,572	10%
Debt coverage ratio	0.68	0.9	32%

³³Farm participating both years

Table 49.

RECEIPTS & EXPENSES PER COW AND PER HUNDREDWEIGHT30 Farms Less Than 200 Cows, New York State, 2015 & 2016, DFBS³³

Item	2015		2016		% Change Per Cwt.
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	
Average number of cows	97		101		4%
Cwt. of milk sold		20,083		21,247	6%
ACCRUAL OPERATING RECEIPTS					
Milk	\$3,746	\$18.02	\$3,552	\$16.96	-6%
Dairy cattle	\$404	\$1.94	\$281	\$1.34	-31%
Dairy calves	\$99	\$0.48	\$50	\$0.24	-50%
Other livestock	\$10	\$0.05	\$6	\$0.03	-40%
Crops	\$145	\$0.70	\$57	\$0.27	-61%
Miscellaneous receipts	<u>\$150</u>	<u>\$0.72</u>	<u>\$140</u>	<u>\$0.67</u>	-7%
Total Operating Receipts	\$4,554	\$21.91	\$4,086	\$19.51	-11%
ACCRUAL OPERATING EXPENSES					
Hired labor	\$383	\$1.84	\$341	\$1.63	-11%
Dairy grain & concentrate	\$1,293	\$6.22	\$1,149	\$5.48	-12%
Dairy roughage	\$50	\$0.24	\$32	\$0.15	-38%
Nondairy feed	\$1	\$0.00	\$0	\$0.00	NA
Professional nutritional services	\$0	\$0.00	\$0	\$0.00	NA
Machine hire, rent & lease	\$97	\$0.47	\$84	\$0.40	-15%
Machine repair & vehicle expense	\$258	\$1.24	\$236	\$1.13	-9%
Fuel, oil & grease	\$152	\$0.73	\$117	\$0.56	-23%
Replacement livestock	\$51	\$0.25	\$13	\$0.06	-76%
Breeding	\$66	\$0.32	\$60	\$0.29	-9%
Veterinary & medicine	\$111	\$0.54	\$113	\$0.54	0%
Milk marketing	\$254	\$1.22	\$253	\$1.21	-1%
Bedding	\$64	\$0.31	\$63	\$0.30	-3%
Milking supplies	\$99	\$0.47	\$106	\$0.51	9%
Cattle lease	\$0	\$0.00	\$0	\$0.00	NA
Custom boarding	\$2	\$0.01	\$2	\$0.01	0%
BST expense	\$11	\$0.05	\$5	\$0.02	-60%
Livestock professional fees	\$25	\$0.12	\$17	\$0.08	-33%
Other livestock expense	\$54	\$0.26	\$45	\$0.22	-15%
Fertilizer & lime	\$122	\$0.59	\$117	\$0.56	-5%
Seeds & plants	\$137	\$0.66	\$85	\$0.41	-38%
Spray & other crop expense	\$77	\$0.37	\$49	\$0.23	-38%
Crop professional fees	\$6	\$0.03	\$3	\$0.01	-67%
Land, building & fence repair	\$53	\$0.25	\$50	\$0.24	-4%
Taxes	\$109	\$0.53	\$122	\$0.58	9%
Real estate rent & lease	\$46	\$0.22	\$37	\$0.17	-23%
Insurance	\$66	\$0.32	\$66	\$0.32	0%
Utilities	\$111	\$0.53	\$99	\$0.47	-11%
Interest paid	\$129	\$0.62	\$125	\$0.60	-3%
Other professional fees	\$24	\$0.11	\$22	\$0.11	0%
Miscellaneous	<u>\$24</u>	<u>\$0.12</u>	<u>\$21</u>	<u>\$0.10</u>	-17%
Total Operating Expenses	\$3,874	\$18.63	\$3,432	\$16.38	-12%
Expansion livestock	\$31	\$0.15	\$9	\$0.04	-73%
Extraordinary expenses	\$2	\$0.01	\$0	\$0.00	-100%
Machinery depreciation	\$245	\$1.18	\$263	\$1.26	7%
Real estate depreciation	<u>\$66</u>	<u>\$0.32</u>	<u>\$73</u>	<u>\$0.35</u>	9%
Total Expenses	\$4,218	\$20.29	\$3,777	\$18.03	-11%
Net Farm Income w/o Appreciation	\$337	\$1.62	\$309	\$1.48	-9%

Table 50.

FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS

33 Farm Less Than 200 Cows, New York State, 2016, DFBS

Size of Business			Rates of Production			Labor Efficiency	
Worker Equivalents	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
(14) ³⁴	(12)	(12)	(12)	(11)	(11)	(14)	(14)
4.8	170	4,061,090	26,203	3.4	22.7	53.0	1,079,837
3.7	142	3,032,254	24,145	2.6	19.4	39.3	858,638
3.2	103	2,137,977	21,524	2.2	17.9	31.9	673,928
2.4	66	1,138,599	17,478	2.0	15.2	26.7	531,501
1.6	47	826,922	13,707	1.2	6.5	21.4	347,867

Cost Control							
Grain Bought per Cow	Grain Bought per Cwt.	% Grain is of Milk Receipts	Machinery Costs per Cow	Labor & Machinery Costs/Cow	Feed & crop Expenses per Cow	Feed & Crop Expenses per Cwt. Milk	Hired Labor Cost per Wkr. Equivalent
(12)	(12)	(12)	(14)	(14)	(12)	(12)	(14)
\$518	\$3.34	20	\$509	\$1,456	\$670	\$4.63	\$0
\$893	\$4.68	28	\$666	\$1,715	\$1,142	\$5.76	\$13,964
\$1,206	\$5.26	31	\$802	\$1,848	\$1,468	\$6.68	\$29,043
\$1,323	\$6.55	37	\$946	\$2,153	\$1,725	\$7.94	\$37,180
\$1,799	\$7.67	45	\$1,370	\$2,797	\$2,222	\$9.45	\$55,497

Value of Production			Profitability				
Milk Receipts Per Cow	Milk Receipts Per Cwt.	Opr. Cost Milk Production per Cwt.	Total Cost Milk Production Per Cwt.	% Rate of Return on All Capital w/o Apprec.	Net Farm Income Without Apprec.	Labor & Management Income per Operator	Change in Net Worth with Apprec.
(12)	(12)	(12)	(12)	(4)	(4)	(4)	(8)
\$4,339	\$19.01	\$10.42	\$17.98	3.3	\$113,785	\$33,098	\$74,192
\$4,053	\$17.60	\$12.82	\$19.99	0.0	\$65,623	\$2,425	\$24,324
\$3,716	\$16.73	\$14.04	\$22.27	-2.2	\$36,355	-\$17,539	\$10,235
\$3,065	\$16.37	\$15.44	\$24.26	-4.3	\$4,176	-\$39,608	-\$8,609
\$2,287	\$15.68	\$17.61	\$32.15	-9.0	-\$44,440	-\$85,270	-\$71,407

Financial Efficiency							
Investment per Cow	Machinery Investment per Cow	Asset Turnover Ratio	Operating Expense Ratio	Debt Coverage Ratio	Planned Debt Payments per Cow	Percent Equity	Working Capital as % of Opr. Expense
(14)	(14)	(14)	(14)	(10)	(12)	(7)	(7)
\$9,652	\$1,322	0.44	0.67	4.13	\$9	99	74
\$11,491	\$2,065	0.38	0.77	1.24	\$206	90	45
\$13,267	\$2,636	0.34	0.83	0.87	\$437	76	34
\$15,290	\$3,779	0.27	0.87	0.21	\$732	63	17
\$22,386	\$6,718	0.17	1.01	-0.22	\$934	46	-1

³⁴ Page number of the participant's DFBS where the factor is located.

Table 51.

SELECTED PRODUCTION AND FINANCIAL FACTORS
36 Farms Between 200 and 549 Cows, New York State, 2016

Item	QUINTILE				
	1	2	3	4	5
Size of Business					
Average Cows	215	284	343	427	485
Average Heifers	185	225	311	376	427
Acres per Cow	1.61	2.02	2.25	2.50	3.04
Number of Worker Equivalents	5.0	6.5	8.7	10.5	14.0
Number of Owner Operators	1.0	1.7	2.0	2.6	3.2
Rates of Production					
Milk Sold per Cow	28,432	26,903	25,720	23,811	18,778
Hay DM per Acre, Tons	5.0	3.9	3.2	2.6	1.6
Corn Silage per Acre, Tons	22.9	20.2	18.6	16.7	12.3
Percent Butterfat	4.1	3.9	3.8	3.8	1.8
Percent Protein	3.2	3.1	3.1	3.0	1.5
Cull Rate, Percent	18.1	28.4	32.1	35.6	42.0
Labor Efficiency					
Cows per Worker	56.4	45.9	39.7	35.1	30.9
Milk Sold per Worker	1,405,540	1,074,763	964,248	903,013	696,976
Cost Control					
Dairy Feed & Crop Expense per Cwt. Milk	5.41	6.76	7.05	7.33	9.15
Labor & Machinery Costs per Cow	1,378	1,748	1,925	2,057	2,329
Hired Labor Cost per Cwt.	1.56	2.32	2.79	3.30	4.42
Hired Labor Costs per Worker Equivalent	30,202	33,876	37,514	42,896	49,736
Crop Input Costs per Acre	80	113	135	168	208
Machinery Costs per Acre	258	355	436	505	602
Operating cost of Producing Milk per Cwt.	12.46	14.00	14.63	15.57	17.37
Purch. Input Cost of Producing Milk per Cwt.	14.91	15.88	16.64	17.45	19.05
Total Cost of Producing Milk per Cwt.	17.65	18.99	20.27	21.32	23.16
Operating Expense Ratio	0.74	0.80	0.85	0.90	0.98
Capital Efficiency					
Farm Capital Per Cow	9,434	11,198	12,036	13,863	17,758
Machinery and Equipment per Cow	1,311	1,939	2,463	2,821	4,166
Real Estate per Cow	3,742	4,371	5,153	6,383	9,535
Asset Turnover Ratio	0.54	0.49	0.42	0.38	0.27
Working Capital as % of Tot. Oper. Expense	44	26	20	14	6
Profitability					
Labor & Management Income per Operator	35,246	-14,788	-38,146	-85,995	-198,621
Rate Return on Equity Capital w/o Apprec.	3.65	0.60	-3.34	-5.01	-10.70
Rate Return on All Capital w/o Apprec.	3.65	1.43	-0.60	-3.00	-5.35
Financial Summary(based on market value, excluding deferred taxes)					
Debt to Asset Ratio	0.09	0.23	0.30	0.39	0.53
Farm Debt per Cow	1,056	2,696	3,743	5,236	6,854
Debt Coverage Ratio	5.52	1.27	0.77	0.26	-0.75

Table 52.

RECEIPTS AND EXPENSES PER COW					
36 Farms Between 200 and 549 Cows, New York State, 2016					
Item	QUINTILE				
	1	2	3	4	5
Average Cows	215	284	343	427	485
Cwt. of Milk Sold	44,072	64,573	89,588	111,742	127,638
<u>Accrual Operating Receipts</u>					
Milk	4,870	4,650	4,357	4,038	3,283
Dairy cattle	597	422	324	253	170
Dairy calves	105	68	53	40	21
Other livestock	39	2	0	0	0
Crops	418	199	90	-3	-184
Miscellaneous receipts	312	192	128	97	48
Total Receipts	5,669	5,304	5,020	4,630	3,886
<u>Accrual Operating Expenses</u>					
Hired labor	357	543	717	838	992
Dairy grain & concentrates	931	1,302	1,434	1,548	1,808
Dairy roughage	0	0	6	64	143
Nondairy feed	0	0	0	0	0
Professional nutritional services	0	0	0	0	9
Machinery hire/rent/lease	6	66	116	204	359
Machinery repair & farm vehicle exp.	125	186	212	260	394
Fuel	85	109	122	131	154
Replacement livestock	0	0	0	0	30
Breeding	21	50	63	84	111
Veterinary, medicine & hoof care	86	129	145	184	242
Milk marketing	134	182	224	272	366
Bedding	30	74	102	133	206
Milking supplies	30	60	91	112	172
Cattle lease	0	0	0	0	0
Custom boarding	0	0	0	0	186
rBst expense	0	0	0	0	83
Livestock professional fees	1	10	18	24	43
Other livestock expense	0	8	24	38	74
Fertilizer & lime	28	70	104	157	263
Seeds & plants	61	97	119	145	215
Spray & other crop expenses	3	36	50	81	155
Crop professional fees	0	0	0	6	36
Land, building, fence repair	6	28	43	68	124
Taxes	41	62	82	101	146
Real estate rent/lease	11	42	65	83	130
Insurance	29	47	62	73	90
Utilities	58	74	93	108	158
Interest	26	94	134	192	263
Other professional fees	4	15	26	37	59
Miscellaneous	6	15	22	26	44
Total Farm Operating Costs	3,248	4,018	4,339	4,604	5,099
Expansion livestock	0	0	0	0	274
Extraordinary expenses	0	0	0	0	0
Machinery depreciation	162	217	302	357	524
Building depreciation	73	120	165	220	307
Total farm expense	3,762	4,660	4,833	5,102	5,633
Net Farm Income	612	350	167	-35	-489

Table 53.

RECEIPTS AND EXPENSES PER CWT. OF MILK SOLD
36 Farms Between 200 and 549 Cows, New York State, 2016

Item	QUINTILE				
	1	2	3	4	5
Average Cows	215	284	343	427	485
Cwt. of Milk Sold	44,072	64,573	89,588	111,742	127,638
<u>Accrual Operating Receipts</u>					
Milk	18.46	17.54	17.13	16.87	16.18
Dairy cattle	2.72	1.76	1.34	1.02	0.66
Dairy calves	0.46	0.29	0.22	0.16	0.08
Other livestock	0.17	0.01	0.00	0.00	0.00
Crops	2.21	0.80	0.34	-0.01	-0.72
Miscellaneous receipts	1.49	0.82	0.53	0.38	0.18
Total Receipts	23.40	20.45	19.94	19.42	17.70
<u>Accrual Operating Expenses</u>					
Hired labor	1.56	2.32	2.79	3.30	4.42
Dairy grain & concentrates	4.05	5.27	5.64	6.07	7.34
Dairy roughage	0.00	0.00	0.02	0.26	0.56
Nondairy feed	0.00	0.00	0.00	0.00	0.00
Professional nutritional services	0.00	0.00	0.00	0.00	0.04
Machinery hire/rent/lease	0.02	0.25	0.49	0.81	1.67
Machinery repair & farm vehicle exp.	0.53	0.74	0.87	1.12	1.50
Fuel	0.37	0.43	0.48	0.54	0.69
Replacement livestock	0.00	0.00	0.00	0.00	0.13
Breeding	0.09	0.20	0.24	0.34	0.44
Veterinary, medicine & hoof care	0.38	0.52	0.58	0.71	0.96
Milk marketing	0.62	0.77	0.91	1.08	1.41
Bedding	0.13	0.32	0.41	0.53	0.80
Milking supplies	0.12	0.23	0.34	0.48	0.85
Cattle lease	0.00	0.00	0.00	0.00	0.00
Custom boarding	0.00	0.00	0.00	0.00	0.70
rBst expense	0.00	0.00	0.00	0.00	0.31
Livestock professional fees	0.00	0.04	0.07	0.10	0.20
Other livestock expense	0.00	0.03	0.09	0.15	0.32
Fertilizer & lime	0.11	0.27	0.41	0.68	1.09
Seeds & plants	0.24	0.40	0.48	0.57	0.88
Spray & other crop expenses	0.01	0.14	0.21	0.33	0.63
Crop professional fees	0.00	0.00	0.00	0.03	0.14
Land, building, fence repair	0.03	0.11	0.17	0.27	0.49
Taxes	0.16	0.24	0.33	0.43	0.78
Real estate rent/lease	0.05	0.17	0.26	0.35	0.59
Insurance	0.12	0.19	0.25	0.30	0.45
Utilities	0.23	0.33	0.39	0.43	0.69
Interest	0.10	0.40	0.58	0.77	1.14
Other professional fees	0.02	0.06	0.10	0.14	0.23
Miscellaneous	0.03	0.06	0.09	0.11	0.17
Total Farm Operating Costs	15.05	16.39	17.14	18.35	20.37
Expansion livestock	0.00	0.00	0.00	0.00	1.28
Extraordinary expenses	0.00	0.00	0.00	0.00	0.00
Machinery depreciation	0.68	0.94	1.23	1.46	2.13
Building depreciation	0.30	0.50	0.71	0.91	1.26
Total farm expense	17.31	18.20	19.49	20.45	23.05
Net Farm Income	2.51	1.61	0.69	-0.15	-1.94

Table 54.

PROGRESS OF THE FARM BUSINESSSame 34 Farms Between 200 and 549 Cows, New York State, 2015 & 2016, DFBS³⁵

SELECTED FACTORS	Average of 34 Farms		Percent Change
	2015	2016	
<i>Size of Business</i>			
Average number of cows	329	344	5%
Average number of heifers	285	299	5%
Milk sold, pounds	8,036,993	8,544,207	6%
Worker equivalent	8.6	8.7	1%
Total tillable acres	777	781	1%
<i>Rates of Production</i>			
Milk sold per cow, pounds	24,459	24,838	2%
Hay DM per acre, tons	3.2	3.10	-3%
Corn silage per acre, tons	18.2	18.50	2%
<i>Labor Efficiency</i>			
Cows per worker	38.2	39.5	3%
Milk sold per worker, pounds	933,449	982,093	5%
<i>Cost Control and Milk Price</i>			
Grain & concentrate per cwt. milk	\$6.21	\$5.55	-11%
Net milk income over purchased grain & conc. per cow	\$2,702	\$2,597	-4%
Dairy feed & crop expense per cwt. milk	\$7.82	\$7.03	-10%
Labor and machinery costs per cow	\$1,950	\$1,888	-3%
Hired labor costs per cwt. milk	\$2.98	\$2.81	-6%
Hired labor costs per worker equivalent	\$38,236	\$38,108	0%
Operating cost of producing milk per cwt.	\$15.33	\$14.71	-4%
Purchased input cost of producing milk per cwt.	\$17.21	\$16.68	-3%
Total cost of producing milk per cwt.	\$20.57	\$19.93	-3%
Net milk price	\$17.47	\$16.21	-7%
<i>Capital Efficiency (average for year)</i>			
Farm capital per cow	\$12,692	\$12,613	-1%
Machinery and equipment per cow	\$2,630	\$2,532	-4%
Asset turnover ratio	0.44	0.41	-7%
<i>Profitability</i>			
Net farm income without appreciation	\$99,531	\$43,474	-56%
Net farm income without appreciation per cow	\$303	\$126	-58%
Net farm income with appreciation	\$163,129	\$125,021	-23%
Net farm income with appreciation per cow	\$496	\$363	-27%
Labor & management income per operator/manager	-\$30,636	-\$58,132	-90%
Rate return on equity capital with appreciation	1.6%	0.2%	-88%
Rate return on equity capital without appreciation	-0.4%	-2.4%	-451%
Rate return on all capital with appreciation	2.1%	1.1%	-48%
Rate return on all capital without appreciation	0.5%	-0.8%	-246%
<i>Financial Summary (based on market value, excluding deferred taxes)</i>			
Farm net worth, end year	\$3,134,217	\$3,142,416	0%
Debt to asset ratio	0.26	0.29	12%
Farm debt per cow	\$3,280	\$3,630	11%
Debt coverage ratio	1.06	0.84	-21%

³⁵ Farm participating both years

Table 55.

RECEIPTS & EXPENSES PER COW AND PER HUNDREDWEIGHTSame 34 Farms Between 200 and 549 Cows, New York State, 2015 & 2016, DFBS³⁵

Item	2015		2016		% Change Per Cwt.
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	
Average number of cows	329		344		5%
Cwt. of milk sold		80,370		85,442	6%
ACCRUAL OPERATING RECEIPTS					
Milk	\$4,513	\$18.45	\$4,269	\$17.19	-7%
Dairy cattle	\$434	\$1.77	\$359	\$1.44	-19%
Dairy calves	\$117	\$0.48	\$54	\$0.22	-54%
Other livestock	\$15	\$0.06	\$10	\$0.04	-33%
Crops	\$112	\$0.46	\$86	\$0.35	-24%
Miscellaneous receipts	<u>\$141</u>	<u>\$0.58</u>	<u>\$151</u>	<u>\$0.61</u>	5%
Total Operating Receipts	\$5,332	\$21.80	\$4,929	\$19.84	-9%
ACCRUAL OPERATING EXPENSES					
Hired labor	\$729	\$2.98	\$699	\$2.81	-6%
Dairy grain & concentrate	\$1,518	\$6.21	\$1,378	\$5.55	-11%
Dairy roughage	\$53	\$0.22	\$46	\$0.18	-18%
Nondairy feed	\$0	\$0.00	\$0	\$0.00	NA
Professional nutritional services	\$1	\$0.00	\$2	\$0.01	NA
Machine hire, rent & lease	\$159	\$0.65	\$160	\$0.65	0%
Machine repair & vehicle expense	\$245	\$1.00	\$235	\$0.95	-5%
Fuel, oil & grease	\$159	\$0.65	\$120	\$0.48	-26%
Replacement livestock	\$5	\$0.02	\$6	\$0.02	0%
Breeding	\$63	\$0.26	\$63	\$0.25	-4%
Veterinary & medicine	\$155	\$0.63	\$157	\$0.63	0%
Milk marketing	\$240	\$0.98	\$242	\$0.98	0%
Bedding	\$112	\$0.46	\$108	\$0.44	-4%
Milking supplies	\$107	\$0.44	\$89	\$0.36	-18%
Cattle lease	\$0	\$0.00	\$0	\$0.00	NA
Custom boarding	\$23	\$0.10	\$22	\$0.09	-10%
BST expense	\$24	\$0.10	\$18	\$0.07	-30%
Livestock professional fees	\$19	\$0.08	\$18	\$0.07	-13%
Other livestock expense	\$30	\$0.12	\$29	\$0.12	0%
Fertilizer & lime	\$123	\$0.50	\$120	\$0.48	-4%
Seeds & plants	\$129	\$0.53	\$128	\$0.52	-2%
Spray & other crop expense	\$76	\$0.31	\$68	\$0.27	-13%
Crop professional fees	\$13	\$0.05	\$8	\$0.03	-40%
Land, building & fence repair	\$55	\$0.23	\$53	\$0.21	-9%
Taxes	\$85	\$0.35	\$81	\$0.33	-6%
Real estate rent & lease	\$72	\$0.29	\$70	\$0.28	-3%
Insurance	\$73	\$0.30	\$60	\$0.24	-20%
Utilities	\$106	\$0.43	\$99	\$0.40	-7%
Interest paid	\$109	\$0.45	\$126	\$0.51	13%
Other professional fees	\$31	\$0.13	\$31	\$0.13	0%
Miscellaneous	<u>\$25</u>	<u>\$0.10</u>	<u>\$22</u>	<u>\$0.09</u>	-10%
Total Operating Expenses	\$4,539	\$18.56	\$4,259	\$17.15	-8%
Expansion livestock	\$30	\$0.12	\$53	\$0.21	75%
Extraordinary expenses	\$8	\$0.03	\$0	\$0.00	-100%
Machinery depreciation	\$287	\$1.17	\$307	\$1.24	6%
Real estate depreciation	<u>\$165</u>	<u>\$0.68</u>	<u>\$183</u>	<u>\$0.74</u>	9%
Total Expenses	\$5,029	\$20.56	\$4,802	\$19.34	-6%
Net Farm Income w/o Appreciation	\$303	\$1.24	\$126	\$0.51	-59%

Table 56.

FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS

36 Farms Between 200 and 549 Cows, New York State, 2016, DFBS

Size of Business			Rates of Production			Labor Efficiency	
Worker Equivalents	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
(14) ³⁶	(12)	(12)	(12)	(11)	(11)	(14)	(14)
14.0	485	12,763,807	28,432	5.0	22.9	56.4	1,405,540
10.5	427	11,174,248	26,903	3.9	20.2	45.9	1,074,763
8.7	343	8,958,774	25,720	3.2	18.6	39.7	964,248
6.5	284	6,457,302	23,811	2.6	16.7	35.1	903,013
5.0	215	4,407,238	18,778	1.6	12.3	30.9	696,976

Cost Control							
Grain Bought per Cow	Grain Bought per Cwt.	% Grain is of Milk Receipts	Machinery Costs per Cow	Labor & Machinery Costs/Cow	Feed & crop Expenses per Cow	Feed & Crop Expenses per Cwt. Milk	Hired Labor Cost per Wkr. Equivalent
(12)	(12)	(12)	(14)	(14)	(12)	(12)	(14)
\$931	\$4.05	24	\$625	\$1,378	\$1,288	\$5.41	\$30,202
\$1,302	\$5.27	30	\$822	\$1,748	\$1,642	\$6.76	\$33,876
\$1,434	\$5.64	33	\$896	\$1,925	\$1,761	\$7.05	\$37,514
\$1,548	\$6.07	35	\$1,054	\$2,057	\$1,927	\$7.33	\$42,896
\$1,808	\$7.34	42	\$1,304	\$2,329	\$2,206	\$9.15	\$49,736

Value of Production			Profitability				
Milk Receipts Per Cow	Milk Receipts Per Cwt.	Opr. Cost Milk Production per Cwt.	Total Cost Milk Production Per Cwt.	% Rate of Return on All Capital w/o Apprec.	Net Farm Income Without Apprec.	Labor & Management Income per Operator	Change in Net Worth with Apprec.
(12)	(12)	(12)	(12)	(4)	(4)	(4)	(8)
\$4,870	\$18.46	\$12.46	\$17.65	3.6	\$245,234	\$35,246	\$329,680
\$4,650	\$17.54	\$14.00	\$18.99	1.4	\$118,644	-\$14,788	\$83,217
\$4,357	\$17.13	\$14.63	\$20.27	-0.6	\$50,513	-\$38,146	-\$3,296
\$4,038	\$16.87	\$15.57	\$21.32	-3.0	-\$10,929	-\$85,995	-\$83,167
\$3,283	\$16.18	\$17.37	\$23.16	-5.4	-\$205,436	-\$198,621	-\$342,517

Financial Efficiency							
Investment per Cow	Machinery Investment per Cow	Asset Turnover Ratio	Operating Expense Ratio	Debt Coverage Ratio	Planned Debt Payments per Cow	Percent Equity	Working Capital as % of Opr. Expense
(14)	(14)	(14)	(14)	(10)	(12)	(7)	(7)
\$9,434	\$1,311	0.54	0.74	5.52	\$91	93	44
\$11,198	\$1,939	0.49	0.80	1.27	\$330	78	26
\$12,036	\$2,463	0.42	0.85	0.77	\$470	71	20
\$13,863	\$2,821	0.38	0.90	0.26	\$660	62	14
\$17,758	\$4,166	0.27	0.98	-0.75	\$928	48	6

³⁶ Page number of the participant's DFBS where the factor is located.

Table 57.

SELECTED PRODUCTION AND FINANCIAL FACTORS

36 Farms Between 550 and 849 Cows, New York State, 2016

Item	QUINTILE				
	1	2	3	4	5
Size of Business					
Average Cows	573	653	718	781	821
Average Heifers	384	551	590	684	757
Acres per Cow	1.16	1.88	2.19	2.45	3.09
Number of Worker Equivalents	10.0	14.1	15.9	17.3	20.8
Number of Owner Operators	1.1	1.8	2.1	2.9	4.4
Rates of Production					
Milk Sold per Cow	29,621	27,292	26,253	24,935	19,698
Hay DM per Acre, Tons	4.6	3.7	3.0	2.5	1.5
Corn Silage per Acre, Tons	23.3	20.6	18.1	15.8	10.3
Percent Butterfat	4.4	3.9	3.8	3.8	3.7
Percent Protein	3.4	3.1	3.1	3.0	3.0
Cull Rate, Percent	26.5	31.4	35.0	38.4	44.1
Labor Efficiency					
Cows per Worker	65.9	50.4	46.6	41.9	36.8
Milk Sold per Worker	1,552,769	1,291,987	1,159,403	1,064,686	921,715
Cost Control					
Dairy Feed & Crop Expense per Cwt. Milk	6.52	7.18	7.57	8.04	9.12
Labor & Machinery Costs per Cow	1,186	1,632	1,823	1,882	2,015
Hired Labor Cost per Cwt.	1.76	2.40	2.78	3.30	3.77
Hired Labor Costs per Worker Equivalent	32,650	36,792	38,436	40,426	44,297
Crop Input Costs per Acre	81	128	162	192	247
Machinery Costs per Acre	188	351	390	447	632
Operating cost of Producing Milk per Cwt.	12.40	14.31	15.50	16.24	18.35
Purch. Input Cost of Producing Milk per Cwt.	14.14	16.08	16.81	17.79	20.16
Total Cost of Producing Milk per Cwt.	16.75	18.40	19.31	20.21	22.62
Operating Expense Ratio	0.76	0.83	0.88	0.93	1.00
Capital Efficiency					
Farm Capital Per Cow	7,333	10,602	12,313	13,538	15,418
Machinery and Equipment per Cow	818	1,573	1,953	2,617	3,120
Real Estate per Cow	2,257	4,017	5,218	6,368	8,210
Asset Turnover Ratio	0.75	0.51	0.45	0.39	0.32
Working Capital as % of Tot. Oper. Expense	52	28	19	11	-10
Profitability					
Labor & Management Income per Operator	111,502	-25,008	-95,858	-161,423	-387,594
Rate Return on Equity Capital w/o Apprec.	5.75	1.26	-1.10	-4.93	-15.07
Rate Return on All Capital w/o Apprec.	5.47	2.08	0.22	-1.43	-4.93
Financial Summary(based on market value, excluding deferred taxes)					
Debt to Asset Ratio	0.11	0.27	0.38	0.49	0.69
Farm Debt per Cow	1,391	3,132	4,158	5,221	6,967
Debt Coverage Ratio	4.77	1.20	0.62	0.12	-1.63

Table 58.

RECEIPTS AND EXPENSES PER COW					
36 Farms Between 550 and 849 Cows, New York State, 2016					
Item	QUINTILE				
	1	2	3	4	5
Average Cows	573	653	718	781	821
Cwt. of Milk Sold	126,714	159,475	179,718	203,860	239,351
<u>Accrual Operating Receipts</u>					
Milk	5,040	4,693	4,455	4,179	3,497
Dairy cattle	597	421	358	285	200
Dairy calves	114	66	52	36	-6
Other livestock	28	0	0	0	-53
Crops	486	221	156	64	-159
Miscellaneous receipts	490	187	139	88	51
Total Receipts	5,963	5,552	5,171	4,892	4,036
<u>Accrual Operating Expenses</u>					
Hired labor	439	593	703	797	968
Dairy grain & concentrates	1,099	1,441	1,554	1,619	1,823
Dairy roughage	3	12	33	74	351
Nondairy feed	0	0	0	0	13
Professional nutritional services	0	0	0	0	6
Machinery hire/rent/lease	22	98	165	231	396
Machinery repair & farm vehicle exp.	104	193	237	280	369
Fuel	61	91	108	127	171
Replacement livestock	0	0	0	0	181
Breeding	16	41	51	68	94
Veterinary, medicine & hoof care	97	151	169	201	242
Milk marketing	155	213	251	301	373
Bedding	38	76	103	139	172
Milking supplies	35	61	88	103	136
Cattle lease	0	0	0	0	7
Custom boarding	0	0	13	151	483
rBst expense	0	0	0	16	118
Livestock professional fees	1	11	16	19	31
Other livestock expense	0	1	11	27	65
Fertilizer & lime	48	90	133	205	264
Seeds & plants	39	93	121	156	192
Spray & other crop expenses	16	46	60	91	144
Crop professional fees	0	0	1	9	17
Land, building, fence repair	21	46	60	77	105
Taxes	15	37	63	80	119
Real estate rent/lease	18	45	66	98	196
Insurance	22	36	48	61	74
Utilities	40	71	92	108	139
Interest	42	99	143	188	296
Other professional fees	12	21	27	34	49
Miscellaneous	8	16	21	31	44
Total Farm Operating Costs	3,546	4,446	4,636	4,801	5,596
Expansion livestock	0	0	0	0	99
Extraordinary expenses	0	0	0	0	0
Machinery depreciation	98	195	275	320	374
Building depreciation	63	131	170	201	273
Total farm expense	3,944	4,846	5,122	5,327	5,952
Net Farm Income	770	354	147	-148	-601

Table 59.

RECEIPTS AND EXPENSES PER CWT. OF MILK SOLD
36 Farms Between 550 and 849 Cows, New York State, 2016

Item	QUINTILE				
	1	2	3	4	5
Average Cows	573	653	718	781	821
Cwt. of Milk Sold	126,714	159,475	179,718	203,860	239,351
<u>Accrual Operating Receipts</u>					
Milk	18.84	17.32	17.05	16.79	16.23
Dairy cattle	2.25	1.62	1.40	1.13	0.86
Dairy calves	0.63	0.25	0.19	0.14	-0.02
Other livestock	0.17	0.00	0.00	0.00	-0.43
Crops	1.83	0.91	0.63	0.26	-0.61
Miscellaneous receipts	2.04	0.73	0.52	0.36	0.22
Total Receipts	22.87	20.91	19.94	19.04	18.21
<u>Accrual Operating Expenses</u>					
Hired labor	1.76	2.40	2.78	3.30	3.77
Dairy grain & concentrates	4.87	5.63	5.96	6.34	6.76
Dairy roughage	0.01	0.05	0.13	0.27	1.61
Nondairy feed	0.00	0.00	0.00	0.00	0.05
Professional nutritional services	0.00	0.00	0.00	0.00	0.02
Machinery hire/rent/lease	0.08	0.40	0.68	0.93	1.58
Machinery repair & farm vehicle exp.	0.46	0.75	0.90	1.08	1.49
Fuel	0.26	0.35	0.42	0.49	0.67
Replacement livestock	0.00	0.00	0.00	0.00	0.69
Breeding	0.07	0.15	0.21	0.26	0.35
Veterinary, medicine & hoof care	0.42	0.58	0.67	0.77	0.90
Milk marketing	0.68	0.84	1.01	1.18	1.39
Bedding	0.17	0.29	0.38	0.54	0.68
Milking supplies	0.15	0.25	0.35	0.40	0.53
Cattle lease	0.00	0.00	0.00	0.00	0.03
Custom boarding	0.00	0.00	0.05	0.57	1.73
rBst expense	0.00	0.00	0.00	0.07	0.42
Livestock professional fees	0.01	0.05	0.06	0.07	0.12
Other livestock expense	0.00	0.00	0.04	0.11	0.28
Fertilizer & lime	0.19	0.33	0.51	0.80	1.31
Seeds & plants	0.17	0.36	0.46	0.57	0.76
Spray & other crop expenses	0.07	0.17	0.23	0.34	0.58
Crop professional fees	0.00	0.00	0.00	0.03	0.08
Land, building, fence repair	0.10	0.17	0.22	0.28	0.42
Taxes	0.06	0.14	0.24	0.31	0.53
Real estate rent/lease	0.07	0.18	0.27	0.39	0.83
Insurance	0.08	0.14	0.20	0.24	0.29
Utilities	0.19	0.30	0.33	0.40	0.51
Interest	0.15	0.41	0.60	0.77	1.15
Other professional fees	0.05	0.08	0.10	0.13	0.20
Miscellaneous	0.03	0.06	0.09	0.12	0.16
Total Farm Operating Costs	15.87	17.09	18.14	19.26	20.63
Expansion livestock	0.00	0.00	0.00	0.00	0.39
Extraordinary expenses	0.00	0.00	0.00	0.00	0.00
Machinery depreciation	0.43	0.75	1.04	1.21	1.53
Building depreciation	0.27	0.53	0.65	0.78	1.13
Total farm expense	17.73	18.81	19.72	20.78	22.48
Net Farm Income	3.06	1.40	0.54	-0.53	-2.57

Table 60.

PROGRESS OF THE FARM BUSINESSSame 34 Farms Between 550 and 849 Cows, New York State, 2015 & 2016, DFBS³⁷

SELECTED FACTORS	Average of 34 Farms		Percent Change
	2015	2016	
<i>Size of Business</i>			
Average number of cows	673	702	4%
Average number of heifers	559	584	4%
Milk sold, pounds	16,708,050	18,039,584	8%
Worker equivalent	15.3	15.4	1%
Total tillable acres	1,424	1,479	4%
<i>Rates of Production</i>			
Milk sold per cow, pounds	24,825	25,682	3%
Hay DM per acre, tons	3.3	3.30	0%
Corn silage per acre, tons	18.4	18.40	0%
<i>Labor Efficiency</i>			
Cows per worker	44.1	45.7	4%
Milk sold per worker, pounds	1,094,892	1,175,217	7%
<i>Cost Control and Milk Price</i>			
Grain & concentrate per cwt. milk	\$6.68	\$5.88	-12%
Net milk income over purchased grain & conc. per cow	\$2,624	\$2,579	-2%
Dairy feed & crop expense per cwt. milk	\$8.56	\$7.55	-12%
Labor and machinery costs per cow	\$1,772	\$1,691	-5%
Hired labor costs per cwt. milk	\$2.92	\$2.73	-6%
Hired labor costs per worker equivalent	\$38,566	\$38,630	0%
Operating cost of producing milk per cwt.	\$16.20	\$15.05	-7%
Purchased input cost of producing milk per cwt.	\$17.78	\$16.65	-6%
Total cost of producing milk per cwt.	\$20.32	\$18.99	-7%
Net milk price	\$17.34	\$16.03	-8%
<i>Capital Efficiency (average for year)</i>			
Farm capital per cow	\$11,653	\$11,571	-1%
Machinery and equipment per cow	\$2,009	\$1,963	-2%
Asset turnover ratio	0.5	0.46	-8%
<i>Profitability</i>			
Net farm income without appreciation	\$90,539	\$69,166	-24%
Net farm income without appreciation per cow	\$135	\$98	-27%
Net farm income with appreciation	\$309,898	\$165,507	-47%
Net farm income with appreciation per cow	\$460	\$236	-49%
Labor & management income per operator/manager	-\$76,012	-\$84,276	-11%
Rate return on equity capital with appreciation	2.9%	0.2%	-93%
Rate return on equity capital without appreciation	-1.2%	-1.7%	-39%
Rate return on all capital with appreciation	3.1%	1.4%	-55%
Rate return on all capital without appreciation	0.3%	0.2%	-22%
<i>Financial Summary (based on market value, excluding deferred taxes)</i>			
Farm net worth, end year	\$5,360,403	\$5,211,200	-3%
Debt to asset ratio	0.33	0.36	9%
Farm debt per cow	\$4,212	\$4,022	-5%
Debt coverage ratio	0.7	0.43	-39%

³⁷ Farm participating both years

Table 61.

RECEIPTS & EXPENSES PER COW AND PER HUNDREDWEIGHTSame 34 Farms Between 550 and 849 Cows, New York State, 2015 & 2016, DFBS³⁷

Item	2015		2016		% Change Per Cwt.
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	
Average number of cows	673		702		4%
Cwt. of milk sold		167,080		180,396	8%
ACCRUAL OPERATING RECEIPTS					
Milk	\$4,548	\$18.32	\$4,375	\$17.04	-7%
Dairy cattle	\$499	\$2.01	\$374	\$1.46	-27%
Dairy calves	\$106	\$0.43	\$51	\$0.20	-53%
Other livestock	\$48	\$0.19	-\$7	-\$0.03	-116%
Crops	\$130	\$0.52	\$165	\$0.64	23%
Miscellaneous receipts	<u>\$172</u>	<u>\$0.69</u>	<u>\$184</u>	<u>\$0.72</u>	4%
Total Operating Receipts	\$5,503	\$22.17	\$5,143	\$20.03	-10%
ACCRUAL OPERATING EXPENSES					
Hired labor	\$725	\$2.92	\$702	\$2.73	-7%
Dairy grain & concentrate	\$1,659	\$6.68	\$1,509	\$5.88	-12%
Dairy roughage	\$89	\$0.36	\$99	\$0.39	8%
Nondairy feed	\$0	\$0.00	\$2	\$0.01	NA
Professional nutritional services	\$2	\$0.01	\$1	\$0.01	0%
Machine hire, rent & lease	\$192	\$0.77	\$177	\$0.69	-10%
Machine repair & vehicle expense	\$246	\$0.99	\$230	\$0.90	-9%
Fuel, oil & grease	\$144	\$0.58	\$110	\$0.43	-26%
Replacement livestock	\$34	\$0.14	\$38	\$0.15	7%
Breeding	\$55	\$0.22	\$53	\$0.21	-5%
Veterinary & medicine	\$167	\$0.67	\$171	\$0.67	0%
Milk marketing	\$244	\$0.98	\$258	\$1.00	2%
Bedding	\$99	\$0.40	\$102	\$0.40	0%
Milking supplies	\$97	\$0.39	\$82	\$0.32	-18%
Cattle lease	\$4	\$0.02	\$2	\$0.01	-50%
Custom boarding	\$159	\$0.64	\$134	\$0.52	-19%
BST expense	\$41	\$0.16	\$30	\$0.12	-25%
Livestock professional fees	\$17	\$0.07	\$15	\$0.06	-14%
Other livestock expense	\$17	\$0.07	\$21	\$0.08	14%
Fertilizer & lime	\$178	\$0.72	\$141	\$0.55	-24%
Seeds & plants	\$123	\$0.50	\$116	\$0.45	-10%
Spray & other crop expense	\$69	\$0.28	\$67	\$0.26	-7%
Crop professional fees	\$7	\$0.03	\$5	\$0.02	-33%
Land, building & fence repair	\$85	\$0.34	\$61	\$0.24	-29%
Taxes	\$62	\$0.25	\$62	\$0.24	-4%
Real estate rent & lease	\$75	\$0.30	\$80	\$0.31	3%
Insurance	\$55	\$0.22	\$45	\$0.18	-18%
Utilities	\$100	\$0.40	\$92	\$0.36	-10%
Interest paid	\$130	\$0.53	\$152	\$0.59	11%
Other professional fees	\$28	\$0.11	\$28	\$0.11	0%
Miscellaneous	<u>\$28</u>	<u>\$0.11</u>	<u>\$24</u>	<u>\$0.09</u>	-18%
Total Operating Expenses	\$4,928	\$19.85	\$4,611	\$17.95	-10%
Expansion livestock	\$48	\$0.19	\$21	\$0.08	-58%
Extraordinary expenses	\$0	\$0.00	\$0	\$0.00	NA
Machinery depreciation	\$234	\$0.94	\$245	\$0.95	1%
Real estate depreciation	<u>\$158</u>	<u>\$0.64</u>	<u>\$168</u>	<u>\$0.65</u>	2%
Total Expenses	\$5,368	\$21.62	\$5,045	\$19.63	-9%
Net Farm Income w/o Appreciation	\$135	\$0.54	\$98	\$0.38	-30%

Table 62.

FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS

36 Farms Between 550 and 849 Cows, New York State, 2016, DFBS

Size of Business			Rates of Production			Labor Efficiency	
Worker Equivalents	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
(14) ³⁸	(12)	(12)	(12)	(11)	(11)	(14)	(14)
20.8	821	23,935,054	29,621	4.6	23.3	65.9	1,552,769
17.3	781	20,386,016	27,292	3.7	20.6	50.4	1,291,987
15.9	718	17,971,827	26,253	3.0	18.1	46.6	1,159,403
14.1	653	15,947,490	24,935	2.5	15.8	41.9	1,064,686
10.0	573	12,671,389	19,698	1.5	10.3	36.8	921,715

Cost Control							
Grain Bought per Cow	Grain Bought per Cwt.	% Grain is of Milk Receipts	Machinery Costs per Cow	Labor & Machinery Costs/Cow	Feed & crop Expenses per Cow	Feed & Crop Expenses per Cwt. Milk	Hired Labor Cost per Wkr. Equivalent
(12)	(12)	(12)	(14)	(14)	(12)	(12)	(14)
\$1,099	\$4.87	28	\$554	\$1,186	\$1,474	\$6.52	\$32,650
\$1,441	\$5.63	33	\$823	\$1,632	\$1,825	\$7.18	\$36,792
\$1,554	\$5.96	35	\$891	\$1,823	\$1,935	\$7.57	\$38,436
\$1,619	\$6.34	37	\$996	\$1,882	\$2,085	\$8.04	\$40,426
\$1,823	\$6.76	39	\$1,121	\$2,015	\$2,377	\$9.12	\$44,297

Value of Production			Profitability				
Milk Receipts Per Cow	Milk Receipts Per Cwt.	Opr. Cost Milk Production per Cwt.	Total Cost Milk Production Per Cwt.	% Rate of Return on All Capital w/o Apprec.	Net Farm Income Without Apprec.	Labor & Management Income per Operator	Change in Net Worth with Apprec.
(12)	(12)	(12)	(12)	(4)	(4)	(4)	(8)
\$5,040	\$18.84	\$12.40	\$16.75	5.5	\$586,963	\$111,502	\$452,614
\$4,693	\$17.32	\$14.31	\$18.40	2.1	\$238,289	-\$25,008	\$161,255
\$4,455	\$17.05	\$15.50	\$19.31	0.2	\$108,688	-\$95,858	-\$101,295
\$4,179	\$16.79	\$16.24	\$20.21	-1.4	-\$111,256	-\$161,423	-\$218,634
\$3,497	\$16.23	\$18.35	\$22.62	-4.9	-\$371,906	-\$387,594	-\$870,479

Financial Efficiency							
Investment per Cow	Machinery Investment per Cow	Asset Turnover Ratio	Operating Expense Ratio	Debt Coverage Ratio	Planned Debt Payments per Cow	Percent Equity	Working Capital as % of Opr. Expense
(14)	(14)	(14)	(14)	(10)	(12)	(7)	(7)
\$7,333	\$818	0.75	0.76	4.77	\$122	90	52
\$10,602	\$1,573	0.51	0.83	1.20	\$349	74	28
\$12,313	\$1,953	0.45	0.88	0.62	\$500	63	19
\$13,538	\$2,617	0.39	0.93	0.12	\$643	53	11
\$15,418	\$3,120	0.32	1.00	-1.63	\$967	33	-10

³⁸ Page number of the participant's DFBS where the factor is located.

Table 63.

SELECTED PRODUCTION AND FINANCIAL FACTORS

31 Farms Between 850 and 1,199 Cows, New York State, 2016

Item	QUINTILE				
	1	2	3	4	5
Size of Business					
Average Cows	891	1,006	1,057	1,102	1,171
Average Heifers	725	827	896	971	1,087
Acres per Cow	1.03	1.67	1.95	2.26	2.59
Number of Worker Equivalents	18.0	20.4	23.0	25.1	27.9
Number of Owner Operators	1.1	1.8	2.0	2.7	4.5
Rates of Production					
Milk Sold per Cow	29,047	27,398	26,814	26,194	24,746
Hay DM per Acre, Tons	4.8	3.7	3.2	3.0	1.9
Corn Silage per Acre, Tons	22.3	20.0	19.0	17.5	11.9
Percent Butterfat	4.0	3.9	3.8	3.7	3.1
Percent Protein	3.2	3.1	3.1	3.1	2.6
Cull Rate, Percent	13.6	28.7	34.5	38.5	45.7
Labor Efficiency					
Cows per Worker	58.3	48.7	45.7	43.3	39.0
Milk Sold per Worker	1,601,136	1,291,430	1,215,059	1,145,350	1,028,181
Cost Control					
Dairy Feed & Crop Expense per Cwt. Milk	6.19	6.79	7.19	7.58	8.54
Labor & Machinery Costs per Cow	1,292	1,656	1,770	1,826	2,075
Hired Labor Cost per Cwt.	1.98	2.65	3.05	3.32	3.94
Hired Labor Costs per Worker Equivalent	33,948	36,596	39,841	43,196	50,193
Crop Input Costs per Acre	88	131	147	167	199
Machinery Costs per Acre	339	380	444	488	679
Operating cost of Producing Milk per Cwt.	13.08	13.94	15.23	16.22	17.98
Purch. Input Cost of Producing Milk per Cwt.	14.57	15.83	16.79	17.70	19.67
Total Cost of Producing Milk per Cwt.	16.75	18.11	18.83	19.96	21.55
Operating Expense Ratio	0.77	0.82	0.86	0.92	1.04
Capital Efficiency					
Farm Capital Per Cow	9,120	10,833	12,707	13,611	15,961
Machinery and Equipment per Cow	855	1,698	2,108	2,445	2,890
Real Estate per Cow	3,473	4,232	5,654	6,354	8,579
Asset Turnover Ratio	0.61	0.50	0.47	0.40	0.34
Working Capital as % of Tot. Oper. Expense	46	26	16	9	-9
Profitability					
Labor & Management Income per Operator	219,259	2,273	-87,149	-336,983	-603,716
Rate Return on Equity Capital w/o Apprec.	7.25	2.55	-0.71	-4.20	-13.67
Rate Return on All Capital w/o Apprec.	5.92	2.99	1.09	-0.93	-6.50
Financial Summary(based on market value, excluding deferred taxes)					
Debt to Asset Ratio	0.17	0.33	0.40	0.45	0.53
Farm Debt per Cow	1,899	3,895	4,753	5,500	7,021
Debt Coverage Ratio	2.19	0.87	0.67	0.23	-0.81

Table 64.

RECEIPTS AND EXPENSES PER COW
31 Farms Between 850 and 1,199 Cows, New York State, 2016

Item	QUINTILE				
	1	2	3	4	5
Average Cows	891	1,006	1,057	1,102	1,171
Cwt. of Milk Sold	230,832	269,800	280,948	300,475	319,966
<u>Accrual Operating Receipts</u>					
Milk	4,944	4,723	4,631	4,456	4,149
Dairy cattle	595	445	385	332	188
Dairy calves	90	67	50	40	11
Other livestock	207	34	1	0	-2
Crops	364	125	40	-45	-209
Miscellaneous receipts	323	197	149	106	66
Total Receipts	5,970	5,534	5,286	4,983	4,620
<u>Accrual Operating Expenses</u>					
Hired labor	539	692	826	875	1,058
Dairy grain & concentrates	1,265	1,493	1,569	1,630	1,838
Dairy roughage	2	25	57	91	339
Nondairy feed	0	0	0	0	1
Professional nutritional services	0	0	0	0	11
Machinery hire/rent/lease	9	41	111	169	353
Machinery repair & farm vehicle exp.	131	189	241	284	333
Fuel	80	101	117	132	191
Replacement livestock	0	0	0	1	38
Breeding	25	43	56	76	119
Veterinary, medicine & hoof care	127	156	176	197	226
Milk marketing	163	211	271	304	366
Bedding	51	83	104	131	196
Milking supplies	56	76	97	118	178
Cattle lease	0	0	0	0	10
Custom boarding	0	0	50	180	419
rBst expense	0	0	0	56	142
Livestock professional fees	5	12	16	21	43
Other livestock expense	0	0	4	15	57
Fertilizer & lime	34	69	100	135	194
Seeds & plants	46	92	118	141	201
Spray & other crop expenses	14	32	57	75	115
Crop professional fees	0	0	2	11	37
Land, building, fence repair	33	59	81	97	156
Taxes	34	47	60	74	101
Real estate rent/lease	25	47	68	104	169
Insurance	31	42	52	63	88
Utilities	60	75	98	126	148
Interest	45	130	170	205	279
Other professional fees	8	19	27	38	52
Miscellaneous	11	20	31	47	99
Total Farm Operating Costs	4,039	4,439	4,718	5,157	5,487
Expansion livestock	0	0	0	2	90
Extraordinary expenses	0	0	0	0	1
Machinery depreciation	122	199	243	299	396
Building depreciation	68	147	199	233	287
Total farm expense	4,467	4,916	5,184	5,560	5,958
Net Farm Income	757	401	151	-157	-702

Table 65.

RECEIPTS AND EXPENSES PER CWT. OF MILK SOLD

31 Farms Between 850 and 1,199 Cows, New York State, 2016

Item	QUINTILE				
	1	2	3	4	5
Average Cows	891	1,006	1,057	1,102	1,171
Cwt. of Milk Sold	230,832	269,800	280,948	300,475	319,966
<u>Accrual Operating Receipts</u>					
Milk	17.97	17.41	17.13	16.84	16.12
Dairy cattle	2.20	1.66	1.40	1.28	0.70
Dairy calves	0.34	0.25	0.19	0.15	0.05
Other livestock	0.77	0.12	0.00	0.00	-0.01
Crops	1.37	0.47	0.15	-0.17	-0.77
Miscellaneous receipts	1.21	0.77	0.57	0.39	0.24
Total Receipts	22.29	20.12	19.32	18.89	17.90
<u>Accrual Operating Expenses</u>					
Hired labor	1.98	2.65	3.05	3.32	3.94
Dairy grain & concentrates	4.90	5.55	5.82	6.17	6.62
Dairy roughage	0.01	0.09	0.21	0.35	1.18
Nondairy feed	0.00	0.00	0.00	0.00	0.00
Professional nutritional services	0.00	0.00	0.00	0.00	0.04
Machinery hire/rent/lease	0.03	0.16	0.41	0.63	1.32
Machinery repair & farm vehicle exp.	0.48	0.71	0.90	1.07	1.25
Fuel	0.29	0.38	0.44	0.51	0.73
Replacement livestock	0.00	0.00	0.00	0.00	0.15
Breeding	0.10	0.15	0.21	0.29	0.46
Veterinary, medicine & hoof care	0.47	0.58	0.66	0.73	0.85
Milk marketing	0.63	0.79	1.01	1.11	1.36
Bedding	0.19	0.32	0.39	0.49	0.71
Milking supplies	0.21	0.29	0.36	0.43	0.66
Cattle lease	0.00	0.00	0.00	0.00	0.04
Custom boarding	0.00	0.00	0.19	0.68	1.57
rBst expense	0.00	0.00	0.00	0.21	0.53
Livestock professional fees	0.02	0.05	0.06	0.08	0.16
Other livestock expense	0.00	0.00	0.02	0.06	0.21
Fertilizer & lime	0.12	0.27	0.38	0.51	0.71
Seeds & plants	0.17	0.35	0.44	0.53	0.76
Spray & other crop expenses	0.05	0.12	0.21	0.29	0.44
Crop professional fees	0.00	0.00	0.01	0.04	0.15
Land, building, fence repair	0.12	0.22	0.29	0.36	0.60
Taxes	0.12	0.17	0.23	0.28	0.38
Real estate rent/lease	0.10	0.18	0.26	0.39	0.62
Insurance	0.11	0.16	0.19	0.24	0.32
Utilities	0.23	0.28	0.36	0.47	0.55
Interest	0.16	0.47	0.64	0.79	1.06
Other professional fees	0.03	0.07	0.11	0.14	0.19
Miscellaneous	0.04	0.08	0.11	0.18	0.38
Total Farm Operating Costs	15.39	16.52	17.84	18.95	20.36
Expansion livestock	0.00	0.00	0.00	0.01	0.35
Extraordinary expenses	0.00	0.00	0.00	0.00	0.00
Machinery depreciation	0.45	0.76	0.90	1.10	1.53
Building depreciation	0.25	0.56	0.72	0.88	1.09
Total farm expense	16.86	18.44	19.49	20.65	22.08
Net Farm Income	2.81	1.50	0.58	-0.58	-2.68

Table 66.

PROGRESS OF THE FARM BUSINESSSame 29 Farms Between 850 and 1,199 Cows, New York State, 2015 & 2016, DFBS³⁹

SELECTED FACTORS	Average of 29 Farms		Percent Change
	2015	2016	
<i>Size of Business</i>			
Average number of cows	1,010	1,045	3%
Average number of heifers	863	897	4%
Milk sold, pounds	26,507,993	28,082,554	6%
Worker equivalent	23.2	22.8	-2%
Total tillable acres	1,962	1,980	1%
<i>Rates of Production</i>			
Milk sold per cow, pounds	26,251	26,865	2%
Hay DM per acre, tons	3.6	3.30	-8%
Corn silage per acre, tons	18.1	18.40	2%
<i>Labor Efficiency</i>			
Cows per worker	43.5	45.8	5%
Milk sold per worker, pounds	1,142,094	1,229,534	8%
<i>Cost Control and Milk Price</i>			
Grain & concentrate per cwt. milk	\$6.62	\$5.78	-13%
Net milk income over purchased grain & conc. per cow	\$2,817	\$2,779	-1%
Dairy feed & crop expense per cwt. milk	\$8.47	\$7.20	-15%
Labor and machinery costs per cow	\$1,797	\$1,717	-4%
Hired labor costs per cwt. milk	\$3.08	\$2.95	-4%
Hired labor costs per worker equivalent	\$39,667	\$41,007	3%
Operating cost of producing milk per cwt.	\$16.12	\$15.11	-6%
Purchased input cost of producing milk per cwt.	\$17.72	\$16.74	-6%
Total cost of producing milk per cwt.	\$19.96	\$18.89	-5%
Net milk price	\$17.37	\$16.15	-7%
<i>Capital Efficiency (average for year)</i>			
Farm capital per cow	\$12,453	\$12,481	0%
Machinery and equipment per cow	\$2,021	\$1,993	-1%
Asset turnover ratio	0.49	0.44	-10%
<i>Profitability</i>			
Net farm income without appreciation	\$168,755	\$108,727	-36%
Net farm income without appreciation per cow	\$167	\$104	-38%
Net farm income with appreciation	\$474,557	\$313,821	-34%
Net farm income with appreciation per cow	\$470	\$300	-36%
Labor & management income per operator/manager	-\$103,935	-\$129,801	-25%
Rate return on equity capital with appreciation	3.6%	1.6%	-56%
Rate return on equity capital without appreciation	-0.1%	-0.9%	-905%
Rate return on all capital with appreciation	3.5%	2.3%	-34%
Rate return on all capital without appreciation	1.1%	0.7%	-32%
<i>Financial Summary (based on market value, excluding deferred taxes)</i>			
Farm net worth, end year	\$8,378,404	\$8,390,280	0%
Debt to asset ratio	0.35	0.36	3%
Farm debt per cow	\$4,402	\$4,493	2%
Debt coverage ratio	0.65	0.7	8%

³⁹ Farm participating both years

Table 67.

RECEIPTS & EXPENSES PER COW AND PER HUNDREDWEIGHTSame 29 Farms Between 850 and 1,199 Cows, New York State, 2015 & 2016, DFBS³⁹

Item	2015		2016		% Change Per Cwt.
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	
Average number of cows	1,010		1,045		3%
Cwt. of milk sold		265,080		280,826	6%
ACCRUAL OPERATING RECEIPTS					
Milk	\$4,819	\$18.36	\$4,601	\$17.13	-7%
Dairy cattle	\$490	\$1.87	\$387	\$1.44	-23%
Dairy calves	\$111	\$0.42	\$52	\$0.19	-55%
Other livestock	\$12	\$0.05	\$42	\$0.15	200%
Crops	\$136	\$0.52	\$44	\$0.16	-69%
Miscellaneous receipts	<u>\$201</u>	<u>\$0.76</u>	<u>\$167</u>	<u>\$0.62</u>	-18%
Total Operating Receipts	\$5,769	\$21.98	\$5,293	\$19.70	-10%
ACCRUAL OPERATING EXPENSES					
Hired labor	\$809	\$3.08	\$793	\$2.95	-4%
Dairy grain & concentrate	\$1,739	\$6.62	\$1,552	\$5.78	-13%
Dairy roughage	\$119	\$0.45	\$98	\$0.36	-20%
Nondairy feed	\$0	\$0.00	\$0	\$0.00	NA
Professional nutritional services	\$1	\$0.00	\$2	\$0.01	NA
Machine hire, rent & lease	\$132	\$0.50	\$134	\$0.50	0%
Machine repair & vehicle expense	\$254	\$0.97	\$231	\$0.86	-11%
Fuel, oil & grease	\$163	\$0.62	\$122	\$0.45	-27%
Replacement livestock	\$7	\$0.03	\$7	\$0.03	0%
Breeding	\$60	\$0.23	\$62	\$0.23	0%
Veterinary & medicine	\$179	\$0.68	\$173	\$0.64	-6%
Milk marketing	\$259	\$0.99	\$262	\$0.98	-1%
Bedding	\$110	\$0.42	\$111	\$0.41	-2%
Milking supplies	\$116	\$0.44	\$101	\$0.38	-14%
Cattle lease	\$2	\$0.01	\$2	\$0.01	0%
Custom boarding	\$128	\$0.49	\$120	\$0.44	-10%
BST expense	\$49	\$0.19	\$41	\$0.15	-21%
Livestock professional fees	\$14	\$0.05	\$17	\$0.06	20%
Other livestock expense	\$19	\$0.07	\$16	\$0.06	-14%
Fertilizer & lime	\$161	\$0.61	\$106	\$0.39	-36%
Seeds & plants	\$137	\$0.52	\$117	\$0.44	-15%
Spray & other crop expense	\$58	\$0.22	\$55	\$0.20	-9%
Crop professional fees	\$9	\$0.03	\$7	\$0.03	0%
Land, building & fence repair	\$105	\$0.40	\$84	\$0.31	-23%
Taxes	\$65	\$0.25	\$63	\$0.24	-4%
Real estate rent & lease	\$87	\$0.33	\$82	\$0.31	-6%
Insurance	\$60	\$0.23	\$54	\$0.20	-13%
Utilities	\$115	\$0.44	\$102	\$0.38	-14%
Interest paid	\$141	\$0.54	\$162	\$0.60	11%
Other professional fees	\$30	\$0.12	\$27	\$0.10	-17%
Miscellaneous	<u>\$37</u>	<u>\$0.14</u>	<u>\$35</u>	<u>\$0.13</u>	-7%
Total Operating Expenses	\$5,165	\$19.67	\$4,738	\$17.64	-10%
Expansion livestock	\$16	\$0.06	\$12	\$0.05	-17%
Extraordinary expenses	\$1	\$0.00	\$0	\$0.00	NA
Machinery depreciation	\$250	\$0.95	\$250	\$0.93	-2%
Real estate depreciation	<u>\$170</u>	<u>\$0.65</u>	<u>\$188</u>	<u>\$0.70</u>	8%
Total Expenses	\$5,602	\$21.33	\$5,188	\$19.32	-9%
Net Farm Income w/o Appreciation	\$167	\$0.64	\$104	\$0.39	-39%

Table 68.

FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS
31 Farms Between 850 and 1,199 Cows, New York State, 2016, DFBS

Size of Business			Rates of Production			Labor Efficiency	
Worker Equivalents	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
(14) ⁴⁰	(12)	(12)	(12)	(11)	(11)	(14)	(14)
27.9	1,171	31,996,624	29,047	4.8	22.3	58.3	1,601,136
25.1	1,102	30,047,501	27,398	3.7	20.0	48.7	1,291,430
23.0	1,057	28,094,816	26,814	3.2	19.0	45.7	1,215,059
20.4	1,006	26,979,997	26,194	3.0	17.5	43.3	1,145,350
18.0	891	23,083,249	24,746	1.9	11.9	39.0	1,028,181

Cost Control							
Grain Bought per Cow	Grain Bought per Cwt.	% Grain is of Milk Receipts	Machinery Costs per Cow	Labor & Machinery Costs/Cow	Feed & crop Expenses per Cow	Feed & Crop Expenses per Cwt. Milk	Hired Labor Cost per Wkr. Equivalent
(12)	(12)	(12)	(14)	(14)	(12)	(12)	(14)
\$1,265	\$4.90	29	\$632	\$1,292	\$1,599	\$6.19	\$33,948
\$1,493	\$5.55	33	\$770	\$1,656	\$1,785	\$6.79	\$36,596
\$1,569	\$5.82	34	\$834	\$1,770	\$1,945	\$7.19	\$39,841
\$1,630	\$6.17	36	\$907	\$1,826	\$2,066	\$7.58	\$43,196
\$1,838	\$6.62	39	\$1,057	\$2,075	\$2,344	\$8.54	\$50,193

Value of Production			Profitability				
Milk Receipts Per Cow	Milk Receipts Per Cwt.	Opr. Cost Milk Production per Cwt.	Total Cost Milk Production Per Cwt.	% Rate of Return on All Capital w/o Apprec.	Net Farm Income Without Apprec.	Labor & Management Income per Operator	Change in Net Worth with Apprec.
(12)	(12)	(12)	(12)	(4)	(4)	(4)	(8)
\$4,944	\$17.97	\$13.08	\$16.75	5.9	\$833,738	\$219,259	\$836,524
\$4,723	\$17.41	\$13.94	\$18.11	3.0	\$423,912	\$2,273	\$328,222
\$4,631	\$17.13	\$15.23	\$18.83	1.1	\$160,420	-\$87,149	\$862
\$4,456	\$16.84	\$16.22	\$19.96	-0.9	-\$164,491	-\$336,983	-\$413,404
\$4,149	\$16.12	\$17.98	\$21.55	-6.5	-\$709,380	-\$603,716	-\$937,958

Financial Efficiency							
Investment per Cow	Machinery Investment per Cow	Asset Turnover Ratio	Operating Expense Ratio	Debt Coverage Ratio	Planned Debt Payments per Cow	Percent Equity	Working Capital as % of Opr. Expense
(14)	(14)	(14)	(14)	(10)	(12)	(7)	(7)
\$9,120	\$855	0.61	0.77	2.19	\$144	85	46
\$10,833	\$1,698	0.50	0.82	0.87	\$467	68	26
\$12,707	\$2,108	0.47	0.86	0.67	\$662	61	16
\$13,611	\$2,445	0.40	0.92	0.23	\$834	56	9
\$15,961	\$2,890	0.34	1.04	-0.81	\$1,023	48	-9

⁴⁰ Page number of the participant's DFBS where the factor is located.

Table 69.

SELECTED PRODUCTION AND FINANCIAL FACTORS

37 Farms Greater Than 1,200 Cows, New York State, 2016

Item	QUINTILE				
	1	2	3	4	5
Size of Business					
Average Cows	1,262	1,405	1,695	2,035	2,995
Average Heifers	1,083	1,305	1,516	1,835	2,616
Acres per Cow	1.02	1.66	1.96	2.19	2.63
Number of Worker Equivalents	24.9	31.1	34.8	41.3	59.0
Number of Owner Operators	1.1	2.1	2.8	3.4	4.7
Rates of Production					
Milk Sold per Cow	28,949	27,629	26,642	25,873	24,575
Hay DM per Acre, Tons	4.5	3.6	3.2	2.8	1.9
Corn Silage per Acre, Tons	21.8	17.7	16.1	14.4	12.6
Percent Butterfat	4.0	3.9	3.8	3.8	3.6
Percent Protein	3.2	3.1	3.1	3.1	3.0
Cull Rate, Percent	27.1	31.8	35.3	37.9	45.4
Labor Efficiency					
Cows per Worker	61.4	54.7	49.6	44.3	40.4
Milk Sold per Worker	1,631,196	1,466,628	1,322,564	1,186,163	1,051,713
Cost Control					
Dairy Feed & Crop Expense per Cwt. Milk	6.21	6.88	7.26	7.59	8.59
Labor & Machinery Costs per Cow	1,305	1,540	1,638	1,776	2,041
Hired Labor Cost per Cwt.	2.11	2.70	3.01	3.19	3.95
Hired Labor Costs per Worker Equivalent	34,674	38,576	40,948	45,572	50,497
Crop Input Costs per Acre	111	140	154	174	215
Machinery Costs per Acre	246	367	415	474	580
Operating cost of Producing Milk per Cwt.	12.15	13.48	14.32	15.10	16.86
Purch. Input Cost of Producing Milk per Cwt.	14.01	15.37	15.98	16.76	18.12
Total Cost of Producing Milk per Cwt.	16.46	17.33	17.99	18.97	20.15
Operating Expense Ratio	0.74	0.80	0.85	0.88	0.96
Capital Efficiency					
Farm Capital Per Cow	8,477	10,210	11,967	13,300	15,964
Machinery and Equipment per Cow	1,002	1,530	1,849	2,301	2,818
Real Estate per Cow	2,949	4,257	5,117	6,196	8,047
Asset Turnover Ratio	0.65	0.54	0.49	0.45	0.34
Working Capital as % of Tot. Oper. Expense	63	27	21	11	4
Profitability					
Labor & Management Income per Operator	341,982	45,420	-47,770	-173,131	-719,770
Rate Return on Equity Capital w/o Apprec.	7.60	4.11	1.84	-0.92	-7.79
Rate Return on All Capital w/o Apprec.	6.51	3.87	2.43	0.48	-2.56
Financial Summary(based on market value, excluding deferred taxes)					
Debt to Asset Ratio	0.07	0.25	0.37	0.45	0.55
Farm Debt per Cow	780	3,041	4,012	4,969	6,297
Debt Coverage Ratio	16.06	2.30	1.41	0.95	-0.09

Table 70.

RECEIPTS AND EXPENSES PER COW
37 Farms Greater Than 1,200 Cows, New York State, 2016

Item	QUINTILE				
	1	2	3	4	5
Average Cows	1,262	1,405	1,695	2,035	2,995
Cwt. of Milk Sold	337,247	384,249	435,207	536,729	803,053
<u>Accrual Operating Receipts</u>					
Milk	4,958	4,680	4,559	4,424	4,159
Dairy cattle	715	484	410	362	254
Dairy calves	101	74	54	40	10
Other livestock	47	0	0	0	-16
Crops	311	144	70	13	-123
Miscellaneous receipts	323	194	138	102	54
Total Receipts	5,956	5,519	5,310	5,058	4,637
<u>Accrual Operating Expenses</u>					
Hired labor	567	705	797	865	1,047
Dairy grain & concentrates	1,241	1,406	1,548	1,655	1,855
Dairy roughage	0	17	47	135	382
Nondairy feed	0	0	0	0	0
Professional nutritional services	0	0	0	0	6
Machinery hire/rent/lease	15	49	77	128	231
Machinery repair & farm vehicle exp.	156	206	240	282	365
Fuel	75	95	106	119	153
Replacement livestock	0	0	0	0	23
Breeding	24	45	55	69	90
Veterinary, medicine & hoof care	97	138	172	204	252
Milk marketing	139	193	254	302	375
Bedding	25	57	90	116	153
Milking supplies	42	64	86	118	142
Cattle lease	0	0	0	0	14
Custom boarding	0	0	3	40	433
rBst expense	0	0	0	32	132
Livestock professional fees	1	11	15	19	29
Other livestock expense	0	0	9	26	62
Fertilizer & lime	39	76	97	123	181
Seeds & plants	63	101	127	148	194
Spray & other crop expenses	12	44	65	83	130
Crop professional fees	0	0	0	6	39
Land, building, fence repair	23	47	68	94	152
Taxes	28	55	62	75	106
Real estate rent/lease	26	45	69	99	151
Insurance	22	35	46	60	87
Utilities	45	64	83	103	122
Interest	19	97	141	164	207
Other professional fees	6	16	23	36	61
Miscellaneous	6	15	23	31	63
Total Farm Operating Costs	3,859	4,226	4,502	4,816	5,251
Expansion livestock	0	0	0	7	173
Extraordinary expenses	0	0	0	0	0
Machinery depreciation	140	197	249	297	402
Building depreciation	102	161	190	241	311
Total farm expense	4,317	4,664	4,971	5,259	5,871
Net Farm Income	887	491	336	79	-265

Table 71.

RECEIPTS AND EXPENSES PER CWT. OF MILK SOLD
37 Farms Greater Than 1,200 Cows, New York State, 2016

Item	QUINTILE				
	1	2	3	4	5
Average Cows	1,262	1,405	1,695	2,035	2,995
Cwt. of Milk Sold	337,247	384,249	435,207	536,729	803,053
<u>Accrual Operating Receipts</u>					
Milk	18.03	17.54	16.88	16.58	16.37
Dairy cattle	2.65	1.81	1.51	1.36	0.98
Dairy calves	0.38	0.27	0.21	0.15	0.04
Other livestock	0.18	0.00	0.00	0.00	-0.06
Crops	1.14	0.56	0.26	0.05	-0.46
Miscellaneous receipts	1.22	0.72	0.52	0.39	0.20
Total Receipts	22.12	20.60	19.69	18.90	18.00
<u>Accrual Operating Expenses</u>					
Hired labor	2.11	2.70	3.01	3.19	3.95
Dairy grain & concentrates	4.89	5.28	5.83	6.16	6.67
Dairy roughage	0.00	0.06	0.17	0.50	1.47
Nondairy feed	0.00	0.00	0.00	0.00	0.00
Professional nutritional services	0.00	0.00	0.00	0.00	0.02
Machinery hire/rent/lease	0.05	0.18	0.28	0.48	0.90
Machinery repair & farm vehicle exp.	0.59	0.75	0.90	1.07	1.41
Fuel	0.28	0.35	0.41	0.44	0.59
Replacement livestock	0.00	0.00	0.00	0.00	0.08
Breeding	0.09	0.17	0.21	0.25	0.34
Veterinary, medicine & hoof care	0.38	0.51	0.65	0.73	0.98
Milk marketing	0.53	0.75	0.96	1.09	1.38
Bedding	0.09	0.21	0.34	0.42	0.59
Milking supplies	0.16	0.23	0.32	0.45	0.54
Cattle lease	0.00	0.00	0.00	0.00	0.05
Custom boarding	0.00	0.00	0.01	0.15	1.62
rBst expense	0.00	0.00	0.00	0.12	0.48
Livestock professional fees	0.01	0.04	0.06	0.07	0.11
Other livestock expense	0.00	0.00	0.03	0.10	0.23
Fertilizer & lime	0.15	0.28	0.37	0.46	0.68
Seeds & plants	0.24	0.38	0.48	0.55	0.74
Spray & other crop expenses	0.04	0.16	0.24	0.33	0.49
Crop professional fees	0.00	0.00	0.00	0.02	0.14
Land, building, fence repair	0.09	0.18	0.26	0.35	0.56
Taxes	0.11	0.21	0.23	0.28	0.39
Real estate rent/lease	0.10	0.17	0.26	0.38	0.56
Insurance	0.09	0.13	0.18	0.22	0.32
Utilities	0.17	0.25	0.31	0.38	0.45
Interest	0.07	0.37	0.54	0.61	0.75
Other professional fees	0.02	0.06	0.08	0.14	0.22
Miscellaneous	0.02	0.06	0.08	0.12	0.24
Total Farm Operating Costs	14.79	16.05	16.66	17.97	19.49
Expansion livestock	0.00	0.00	0.00	0.03	0.65
Extraordinary expenses	0.00	0.00	0.00	0.00	0.00
Machinery depreciation	0.54	0.76	0.92	1.10	1.48
Building depreciation	0.40	0.61	0.73	0.88	1.11
Total farm expense	16.67	17.84	18.44	19.55	21.46
Net Farm Income	3.34	1.88	1.25	0.30	-0.99

Table 72.

PROGRESS OF THE FARM BUSINESSSame 35 Farms Greater Than 1,200 Cows, New York State, 2015 & 2016, DFBS⁴¹

SELECTED FACTORS	Average of 29 Farms		Percent Change
	2015	2016	
<i>Size of Business</i>			
Average number of cows	1,730	1,831	6%
Average number of heifers	1,496	1,620	8%
Milk sold, pounds	44,797,769	48,848,635	9%
Worker equivalent	36.1	37.9	5%
Total tillable acres	3,214	3,455	7%
<i>Rates of Production</i>			
Milk sold per cow, pounds	25,891	26,675	3%
Hay DM per acre, tons	3.4	3.20	-6%
Corn silage per acre, tons	17.6	16.30	-7%
<i>Labor Efficiency</i>			
Cows per worker	48.0	48.3	1%
Milk sold per worker, pounds	1,241,968	1,289,222	4%
<i>Cost Control and Milk Price</i>			
Grain & concentrate per cwt. milk	\$6.70	\$5.77	-14%
Net milk income over purchased grain & conc. per cow	\$2,765	\$2,765	0%
Dairy feed & crop expense per cwt. milk	\$8.20	\$7.26	-11%
Labor and machinery costs per cow	\$1,704	\$1,646	-3%
Hired labor costs per cwt. milk	\$3.09	\$2.99	-3%
Hired labor costs per worker equivalent	\$42,043	\$42,064	0%
Operating cost of producing milk per cwt.	\$15.55	\$14.39	-7%
Purchased input cost of producing milk per cwt.	\$17.22	\$16.03	-7%
Total cost of producing milk per cwt.	\$19.42	\$18.12	-7%
Net milk price	\$17.39	\$16.09	-7%
<i>Capital Efficiency (average for year)</i>			
Farm capital per cow	\$11,623	\$11,703	1%
Machinery and equipment per cow	\$1,862	\$1,835	-1%
Asset turnover ratio	0.5	0.47	-6%
<i>Profitability</i>			
Net farm income without appreciation	\$483,055	\$477,453	-1%
Net farm income without appreciation per cow	\$279	\$261	-6%
Net farm income with appreciation	\$1,061,569	\$975,074	-8%
Net farm income with appreciation per cow	\$614	\$532	-13%
Labor & management income per operator/manager	-\$80,947	-\$92,617	-14%
Rate return on equity capital with appreciation	5.5%	4.7%	-15%
Rate return on equity capital without appreciation	1.5%	1.3%	-9%
Rate return on all capital with appreciation	4.8%	4.3%	-10%
Rate return on all capital without appreciation	1.9%	2.0%	3%
<i>Financial Summary (based on market value, excluding deferred taxes)</i>			
Farm net worth, end year	\$14,307,647	\$14,908,720	4%
Debt to asset ratio	0.3	0.32	7%
Farm debt per cow	\$3,605	\$3,831	6%
Debt coverage ratio	1.01	1.34	33%

⁴¹ Farm participating both years

Table 73.

RECEIPTS & EXPENSES PER COW AND PER HUNDREDWEIGHTSame 35 Farms Greater Than 1,200 Cows, New York State, 2015 & 2016, DFBS⁴¹

Item	2015		2016		% Change Per Cwt.
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	
Average number of cows	1,730		1,831		6%
Cwt. of milk sold		447,978		488,486	9%
ACCRUAL OPERATING RECEIPTS					
Milk	\$4,737	\$18.30	\$4,537	\$17.01	-7%
Dairy cattle	\$480	\$1.85	\$446	\$1.67	-10%
Dairy calves	\$120	\$0.46	\$54	\$0.20	-57%
Other livestock	\$5	\$0.02	\$3	\$0.01	-50%
Crops	\$68	\$0.26	\$66	\$0.25	-4%
Miscellaneous receipts	<u>\$121</u>	<u>\$0.47</u>	<u>\$154</u>	<u>\$0.58</u>	23%
Total Operating Receipts	\$5,532	\$21.37	\$5,260	\$19.72	-8%
ACCRUAL OPERATING EXPENSES					
Hired labor	\$799	\$3.09	\$798	\$2.99	-3%
Dairy grain & concentrate	\$1,736	\$6.70	\$1,538	\$5.77	-14%
Dairy roughage	\$71	\$0.27	\$99	\$0.37	37%
Nondairy feed	\$0	\$0.00	\$0	\$0.00	NA
Professional nutritional services	\$1	\$0.00	\$1	\$0.00	NA
Machine hire, rent & lease	\$103	\$0.40	\$96	\$0.36	-10%
Machine repair & vehicle expense	\$260	\$1.00	\$245	\$0.92	-8%
Fuel, oil & grease	\$143	\$0.55	\$111	\$0.42	-24%
Replacement livestock	\$1	\$0.00	\$4	\$0.02	NA
Breeding	\$53	\$0.20	\$55	\$0.21	5%
Veterinary & medicine	\$180	\$0.69	\$167	\$0.63	-9%
Milk marketing	\$235	\$0.91	\$246	\$0.92	1%
Bedding	\$93	\$0.36	\$85	\$0.32	-11%
Milking supplies	\$94	\$0.36	\$91	\$0.34	-6%
Cattle lease	\$5	\$0.02	\$5	\$0.02	0%
Custom boarding	\$86	\$0.33	\$89	\$0.33	0%
BST expense	\$48	\$0.19	\$32	\$0.12	-37%
Livestock professional fees	\$14	\$0.05	\$14	\$0.05	0%
Other livestock expense	\$25	\$0.10	\$17	\$0.07	-30%
Fertilizer & lime	\$130	\$0.50	\$102	\$0.38	-24%
Seeds & plants	\$123	\$0.47	\$124	\$0.46	-2%
Spray & other crop expense	\$59	\$0.23	\$63	\$0.23	0%
Crop professional fees	\$5	\$0.02	\$11	\$0.04	100%
Land, building & fence repair	\$91	\$0.35	\$77	\$0.29	-17%
Taxes	\$61	\$0.24	\$64	\$0.24	0%
Real estate rent & lease	\$72	\$0.28	\$71	\$0.27	-4%
Insurance	\$57	\$0.22	\$43	\$0.16	-27%
Utilities	\$94	\$0.36	\$81	\$0.31	-14%
Interest paid	\$103	\$0.40	\$123	\$0.46	15%
Other professional fees	\$32	\$0.13	\$27	\$0.10	-23%
Miscellaneous	<u>\$31</u>	<u>\$0.12</u>	<u>\$25</u>	<u>\$0.09</u>	-25%
Total Operating Expenses	\$4,805	\$18.56	\$4,506	\$16.89	-9%
Expansion livestock	\$15	\$0.06	\$53	\$0.20	233%
Extraordinary expenses	\$3	\$0.01	\$0	\$0.00	-100%
Machinery depreciation	\$244	\$0.94	\$244	\$0.91	-3%
Real estate depreciation	<u>\$186</u>	<u>\$0.72</u>	<u>\$196</u>	<u>\$0.73</u>	1%
Total Expenses	\$5,253	\$20.29	\$4,999	\$18.73	-8%
Net Farm Income w/o Appreciation	\$279	\$1.08	\$261	\$0.98	-9%

Table 74.

FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS

37 Farms Greater Than 1,200 Cows, New York State, 2016, DFBS

Size of Business			Rates of Production			Labor Efficiency	
Worker Equivalents	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
(14) ⁴²	(12)	(12)	(12)	(11)	(11)	(14)	(14)
59.0	2,995	80,305,288	28,949	4.5	21.8	61.4	1,631,196
41.3	2,035	53,672,861	27,629	3.6	17.7	54.7	1,466,628
34.8	1,695	43,520,691	26,642	3.2	16.1	49.6	1,322,564
31.1	1,405	38,424,922	25,873	2.8	14.4	44.3	1,186,163
24.9	1,262	33,724,659	24,575	1.9	12.6	40.4	1,051,713

Cost Control							
Grain Bought per Cow	Grain Bought per Cwt.	% Grain is of Milk Receipts	Machinery Costs per Cow	Labor & Machinery Costs/Cow	Feed & crop Expenses per Cow	Feed & Crop Expenses per Cwt. Milk	Hired Labor Cost per Wkr. Equivalent
(12)	(12)	(12)	(14)	(14)	(12)	(12)	(14)
\$1,241	\$4.89	29	\$582	\$1,305	\$1,591	\$6.21	\$34,674
\$1,406	\$5.28	31	\$745	\$1,540	\$1,805	\$6.88	\$38,576
\$1,548	\$5.83	34	\$788	\$1,638	\$1,950	\$7.26	\$40,948
\$1,655	\$6.16	36	\$858	\$1,776	\$2,079	\$7.59	\$45,572
\$1,855	\$6.67	39	\$1,045	\$2,041	\$2,332	\$8.59	\$50,497

Value of Production			Profitability				
Milk Receipts Per Cow	Milk Receipts Per Cwt.	Opr. Cost Milk Production per Cwt.	Total Cost Milk Production Per Cwt.	% Rate of Return on All Capital w/o Apprec.	Net Farm Income Without Apprec.	Labor & Management Income per Operator	Change in Net Worth with Apprec.
(12)	(12)	(12)	(12)	(4)	(4)	(4)	(8)
\$4,958	\$18.03	\$12.15	\$16.46	6.5	\$1,606,040	\$341,982	\$1,388,945
\$4,680	\$17.54	\$13.48	\$17.33	3.9	\$825,767	\$45,420	\$747,714
\$4,559	\$16.88	\$14.32	\$17.99	2.4	\$574,231	-\$47,770	\$373,582
\$4,424	\$16.58	\$15.10	\$18.97	0.5	\$139,294	-\$173,131	\$23,286
\$4,159	\$16.37	\$16.86	\$20.15	-2.6	-\$569,025	-\$719,770	-\$945,761

Financial Efficiency							
Investment per Cow	Machinery Investment per Cow	Asset Turnover Ratio	Operating Expense Ratio	Debt Coverage Ratio	Planned Debt Payments per Cow	Percent Equity	Working Capital as % of Opr. Expense
(14)	(14)	(14)	(14)	(10)	(12)	(7)	(7)
\$8,477	\$1,002	0.65	0.74	16.06	\$52	95	63
\$10,210	\$1,530	0.54	0.80	2.30	\$284	77	27
\$11,967	\$1,849	0.49	0.85	1.41	\$478	66	21
\$13,300	\$2,301	0.45	0.88	0.95	\$607	57	11
\$15,964	\$2,818	0.34	0.96	-0.09	\$829	46	4

⁴² Page number of the participant's DFBS where the factor is located.

Farm Business Charts

The Farm Business Chart is a tool that can be used in analyzing a business by drawing a line through the figure in each column that represents the current level of management performance. The figure at the top of each column is the average of the top 10 percent of the 167 farms for that factor. The other figures in each column are the average for the second 10 percent, third 10 percent, etc. **Each column of the chart is independent of the others.** The farms that are in the top 10 percent for one factor would not necessarily be the same farms that make up the top 10 percent for any other factor.

The cost control factors are ranked from low to high, but the lowest cost is not necessarily the most profitable. In some cases, the "best" management position is somewhere near the middle or average. Many variables affect the level of costs, and must be taken into account when analyzing these factors.

Table 75.

FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS 167 New York Dairy Farms, 2016

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv- alent	No. of Cows	Pounds of Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
48.5	2,427	64,316,032	29,601	5.1	24.1	65.8	1,656,152
31.2	1,470	39,182,473	28,060	4.1	21.6	55.0	1,435,303
25.7	1,168	31,682,980	27,392	3.7	20.2	51.4	1,322,650
21.5	1,003	27,200,830	26,821	3.4	19.4	48.0	1,217,131
18.0	814	21,700,853	26,261	3.1	18.4	45.5	1,161,827

15.0	668	16,608,181	25,723	2.9	17.3	43.2	1,091,372
11.2	493	12,312,808	25,130	2.6	16.5	40.1	1,011,164
7.4	317	7,355,669	23,788	2.3	15.0	37.5	935,414
4.3	172	3,669,270	21,895	2.0	13.8	34.1	793,599
2.4	71	1,360,854	14,991	1.1	7.4	25.5	505,424

Cost Control							
Grain Bought Per Cow	% Grain is of Milk Receipts	Machinery Costs Per Cow	Labor & Machinery Costs Per Cow	Feed & Crop Expenses Per Cow	Feed & Crop Expenses Per Cwt. Milk		
\$660	22%	\$482	\$1,131	\$914	\$5.04		
1,134	28	642	1,428	1,490	6.15		
1,267	30	736	1,569	1,611	6.53		
1,357	31	782	1,665	1,708	6.81		
1,445	33	819	1,762	1,807	7.09		

1,516	34	865	1,808	1,886	7.23		
1,576	35	916	1,877	1,969	7.47		
1,629	37	986	1,968	2,062	7.84		
1,729	38	1,075	2,082	2,166	8.30		
1,923	43	1,274	2,484	2,452	9.59		

The profitability section shows the variation in farm income by decile and enables a dairy producer to determine where he or she ranks by using several measures of farm profitability. Remember that each column is independently established and the farms making up the top decile in the first column will not necessarily be on the top of any other column. The dairy producer who ranks at or near the top of most of these columns is in a very favored position.

Table 75. (continued)

**FARM BUSINESS CHART FOR
FARM MANAGEMENT COOPERATORS
167 New York Dairy Farms, 2016**

Milk Receipts Per Cow	Milk Receipts Per Cwt.	Operating Cost Milk Production Per Cow	Operating Cost Milk Production Per Cwt.	Total Cost Milk Production Per Cow	Total Cost Milk Production Per Cwt.	
\$5,063	\$18.83	\$2,020	\$11.19	\$3,382	\$16.13	
4,787	17.88	2,960	12.74	4,196	17.32	
4,692	17.55	3,285	13.45	4,555	17.96	
4,598	17.29	3,500	13.96	4,712	18.46	
4,487	17.09	3,680	14.25	4,823	19.01	

4,365	16.93	3,834	14.87	4,941	19.56	
4,214	16.72	3,978	15.49	5,108	20.31	
4,011	16.56	4,169	16.06	5,296	20.91	
3,792	16.33	4,447	16.86	5,594	22.22	
2,577	15.80	4,882	18.32	6,164	27.05	

Profitability						
Net Farm Income Without Appreciation			Net Farm Income With Appreciation		Labor & Management Income	
Total	Per Cow	Operations Ratio	Total	Per Cow	Per Farm	Per Operator
\$1,268,337	\$1,001	0.20	\$1,594,887	\$1,261	\$550,363	\$289,623
616,950	626	0.12	932,739	960	121,455	51,193
348,263	479	0.10	593,992	745	17,580	7,004
200,462	388	0.08	371,275	593	-21,302	-11,173
103,505	275	0.06	216,800	442	-58,672	-31,984

49,571	159	0.03	115,091	290	-120,243	-61,679
4,265	11	0.00	54,741	168	-216,353	-103,332
-57,261	-138	-0.03	7,645	12	-356,245	-165,570
-226,253	-352	-0.08	-94,261	-254	-555,307	-297,613
-668,582	-735	-0.17	-505,981	-620	-1,190,743	-665,637

The farm financial analysis chart is designed similarly to the farm business chart and may be used to measure the financial health of the farm business.

Table 76.

FINANCIAL ANALYSIS CHART
167 New York Dairy Farms, 2016

Liquidity/Repayment							
Planned Debt Payments Per Cow	Available for Debt Service Per Cow	Cash Flow Coverage Ratio	Debt Coverage Ratio	Debt Paymt. as Percent of Milk Sales	Debt Per Cow	Working Capital as % of Total Expenses	Current Ratio
\$ 1	\$1,183	21.20	11.78	1%	\$ 248	73%	78.82
116	859	4.34	2.34	6	1,199	45	7.87
263	717	1.96	1.47	9	2,261	33	4.53
364	604	1.31	1.16	11	2,863	27	3.11
450	466	0.95	0.94	13	3,403	23	2.57

537	386	0.75	0.70	15	3,934	18	2.14
645	289	0.58	0.39	18	4,322	14	1.69
719	180	0.34	0.09	20	5,110	10	1.40
861	28	0.11	-0.09	24	5,959	6	1.16
1,066	-459	-0.91	-1.51	37	7,644	-10	0.58
Solvency				Operational Ratios			
Leverage Ratio ⁴³	Percent Equity	Debt/Asset Ratio		Operating Expense Ratio	Interest Expense Ratio	Depreciation Expense Ratio	
		Current & Intermediate	Long Term				
-0.56	98%	0.02	0.00	0.70	0.00	0.04	
0.12	90	0.11	0.01	0.76	0.01	0.05	
0.24	81	0.19	0.09	0.79	0.01	0.06	
0.35	75	0.25	0.19	0.81	0.02	0.07	
0.45	69	0.30	0.26	0.84	0.03	0.08	

0.58	64	0.36	0.32	0.86	0.03	0.09	
0.70	59	0.42	0.40	0.88	0.03	0.10	
0.85	55	0.49	0.48	0.92	0.04	0.11	
1.05	49	0.56	0.57	0.96	0.05	0.12	
1.47	38	0.80	1.13	1.04	0.07	0.16	
Efficiency (Capital)				Profitability			
Asset Turnover (ratio)	Real Estate Investment Per Cow	Machinery Investment Per Cow	Total Farm Assets Per Cow	Change in Net Worth With Appreciation	Percent Rate of Return with Appreciation on:		
					Equity	Investment ⁴⁴	
0.71	\$ 2,502	\$ 747	\$ 7,557	\$ 1,040,390	12%	9%	
0.55	3,589	1,250	9,641	486,223	8	7	
0.51	4,077	1,557	10,321	249,370	5	5	
0.49	4,542	1,765	11,097	95,580	3	3	
0.46	5,027	2,036	11,958	30,226	1	2	

0.41	5,697	2,292	12,702	-9,782	0	1	
0.39	6,229	2,526	13,418	-68,707	-2	0	
0.35	6,808	2,739	14,276	-164,459	-4	-2	
0.31	7,858	3,098	15,669	-354,362	-7	-4	
0.22	10,735	4,948	219,528	-1,181,685	-14	-7	

⁴³Dollars of debt per dollar of equity, computed by dividing total liabilities by total equity.

⁴⁴Return on all farm capital (no deduction for interest paid) divided by total farm assets

GLOSSARY AND LOCATION OF COMMON TERMS

Accounts Payable: Open accounts or bills owed to feed and supply firms, cattle dealers, veterinarians, and other providers of farm services and supplies.

Accounts Receivable: Outstanding receipts from items sold or sales proceeds not yet received such as the payment for December milk sales received in January.

Accrual Accounting: (defined on page 13).

Accrual Expenses: (defined on page 16).

Accrual Receipts: (defined on page 16).

Annual Cash Flow Statement: (defined on page 23).

Appreciation: (defined on page 17).

Asset Turnover Ratio: (defined on page 42).

Available for Debt Service per Cow: Net cash available for debt service after deducting net personal withdrawals for family expenditures, divided by the average number of cows.

Average Top 10% Farms: Average of 18 farms with highest rate of return on all capital (without appreciation).

Balance Sheet: A "snapshot" of the business financial position at a given point in time, usually December 31. The balance sheet equates the value of assets to liabilities plus net worth on a market value basis

Barn Types: Stanchion: cows are confined in a stall by a stanchion or neck chain. Freestall: cows move at will between open stalls and feeding areas. Combination: both stanchion and freestall barns used.

bST Usage: An estimate of percentage of herd that was injected with bovine somatotropin during the year.

Business Records: Account Book: any organized farm record book or ledger. Accounting Service: any hired recordkeeping service. On-Farm Computer: computerized business and financial records entered and kept on the farm. Other: accountant, recordkeeping association or no organized recordkeeping system.

Capital Efficiency: The amount of capital invested per production unit. Relatively high investments per worker with low to moderate investments per cow imply efficient use of capital. (See analysis, page 42).

Capital Investment: Commonly used as substitute term for farm capital or total farm assets.

Cash Flow: The movement of money in and out of the business over a given period of time, e.g. one year. (See Annual Cash Flow Statement, page 23).

Cash Flow Coverage Ratio: (defined on page 24).

Cash From Nonfarm Capital Used in the Business: Transfers of money from nonfarm savings or investments to the farm business where it is used to pay operating expenses, make debt payments and/or capital purchases.

Cash Paid: (defined on page 14).

Cash Receipts: (defined on page 16).

Change in Accounts Payable: (defined on page 16).

Change in Accounts Receivable: (defined under Accrual Receipts on page 16).

Change in Advanced Government Receipts: (defined under Accrual Receipts page 16).

Change in Inventory: (defined on page 14).

Corporation: Business is organized under state corporation law. Corporation is owned, operated, and managed by members of one or more farm families and owner/operators are corporate employees. Corporate accounts are modified to exclude operator wages' and other compensation from operating expenses for DFBS use.

Cost of Producing Milk, Whole Farm Method: A procedure used to calculate costs of producing milk on dairy farms without using enterprise cost accounts. All non-milk receipts are assigned a cost equal to their sale value and deducted from total farm expenses to determine the costs of producing milk. (see page 32).

Cost of Term Debt: A weighted average of the cost of borrowed intermediate and long term capital used on the farm. Calculated by multiplying end of year principal of each loan that is borrowed by the interest rate for each loan at that time. Add up each amount that is calculated for each loan and then divide by total amount of borrowed funds. Does not include accounts payable, operating debt or advanced government receipts. This information is found on pages 8 & 9 of the data entry form.

Culling Rate: Culling rate is calculated by dividing the number of animals that left the herd for culling purposes and that died, by the average number of milking and dry cows for the year

Current (assets and liabilities): Farm inventories and operating capital that usually turnover annually, and the debt expected to be repaid within 12 months.

Current Portion: Principal due in the next year for intermediate and long term debt.

Current Ratio: Measures the extent to which current farm assets, if liquidated, would cover current farm liabilities. Calculated as current farm assets at end year divided by current farm liabilities at end year.

Dairy Cash-Crop (farm): Operating and managing this farm is the full-time occupation of one or more people, cropland is owned but crop sales exceed ten percent of accrual milk receipts.

Dairy Farm Renter: (dairy-renter) - Farm business owner/operator owns no tillable land and commonly rents all other farm real estate.

Dairy Grain and Concentrate: All grains, protein supplements, milk substitutes, minerals, and vitamins purchased and fed to the dairy herd.

Dairy Records: DHI: Dairy Herd Improvement official milk production records. Owner Sampler: weights and samples are taken by farmer but tested by DHI. Other: all other methods used to obtain periodic production data on individual cows. None: no milk production records on individual cows.

Dairy Roughage: All hay, silage, or other fodder purchased and fed to the dairy herd.

Death Rate: The percentage of the average number of milking and dry cows that died during the year.

Debt Coverage Ratio: (defined on page 24)

Debt Per Cow: Total end-of-year debt divided by end-of-year number of cows.

Debt to Asset Ratios: (defined on page 21).

Depreciation Expense Ratio: The percentage of total accrual receipts that is charged to depreciation expense (machinery and building).

Dry Matter: The amount or proportion of dry material that remains after all water is removed. Commonly used to measure dry matter percent and tons of dry matter in feed.

Equity Capital: The farm operator/manager's owned capital or farm net worth.

Expansion Livestock: (defined on page 14).

Farm Business Chart: (see definition and application on page 77).

Farm Capital: Average total farm assets.

Farm Debt Payments as Percent of Milk Sales: Amount of milk income committed to debt repayment, calculated by dividing planned debt payments by total milk receipts. A reliable measure of repayment ability, see page 24.

Farm Debt Payments Per Cow: Planned or scheduled debt payments per cow represent the repayment plan scheduled at the beginning of the year divided by the average number of cows for the year. This measure of repayment ability is used in the Financial Analysis Chart on page 79.

Financial Lease: A long-term non-cancelable contract giving the lessee use of an asset in exchange for a series of lease payments. The term of a financial lease usually covers a major portion of the economic life of the asset. The lease is a substitute for purchase. The lessor retains ownership of the asset.

Hay Crop: All hay land, including new seedings, harvested once or more per year as hay or hay crop silage.

Hay Dry Matter: see Dry Matter.

Heifers: Female dairy replacements of all ages.

Hired Labor (expenses): All wages, non-wage compensation, payroll taxes, benefits, and perquisites paid employees.

Hired Labor Expense as % of Milk Sales: The percentage of the gross milk receipts that is used for labor expense. Divide accrual hired labor expense by accrual milk sales.

Hired Labor Expense per Hired Worker Equivalent: The total cost to the farm per hired worker equivalent. Divide accrual hired labor expense by number of hired plus family paid worker equivalents.

Income Statement: A complete and accurate account of accrual adjusted farm business receipts and expenses used to measure net income over a period of time such as one year or one month.

Intensive Grazing: The dairy herd is on pasture at least three months of the year, changing paddocks at least every three days and percent of forage from pasture is at least 30 percent.

Interest Expense Ratio: The percentage of total accrual receipts that is used for interest expense

Intermediate (assets and liabilities): Farm business property and associated debt that is turned over from one to ten years.

Labor and Management Income: (defined on page 18).

Labor and Management Income Per Operator: (defined on page 18).

Labor Efficiency: Production capacity and output per worker. (See analysis on pages 42 and 43).

Labor Force: Operator(s): Person or persons that run the farm and make the management decisions. An operator does not have to be a farm owner. Family Paid: all family members, excluding operators that are paid for working on the farm. Family Unpaid: all family members, excluding the operators, that are not paid for farm work performed. Hired: All other employees hired by the farm.

Liquidity: Ability of business to generate cash to make debt payments or to convert assets to cash.

Leverage Ratio: (defined on page 21).

Long-Term (assets and liabilities): Farm real estate and associated debt with typical life of ten or more years.

Milk Marketing (expenses): Milk hauling fees and charges, co-op dues, milk advertising and promotion expenses.

Milking Frequency: 2X/day: all cows were milked two times per day for the entire year. 3X/day: all cows were milked three times per day for the entire year. Other: any combination of 2X, 3X, and more frequent milking.

Milking Systems: Bucket and Carry: milk is transferred manually from milking unit to pail to tank. Dumping Station: milk is dumped from milking unit into transfer station and then pumped to tank. Pipeline: milking units are connected directly to milk transfer lines. Herringbone, parallel, parabone, and rotary parlors are identified specifically. Other Parlors would include milking systems such as flat barn parlors and automatic milking systems.

Net Farm Income: (defined on page 17).

Net Farm Income from Operations Ratio: Net farm income (without appreciation) divided by total accrual receipts

Net Milk Income over Purchased Concentrate Per Cow: Milk receipts less milk marketing expense less purchased grain and concentrate expense, all divided by average number of cows.

Net Milk Receipts: The mail box price received by farmers before any farmer authorized assignment or deductions.

Net Worth: The value of assets less liabilities equal net worth. It is the equity the owner has in owned assets.

Nondairy Feed: All grain, concentrates, and roughage purchased and fed to nondairy livestock.

Nonfarm Noncash Capital: (defined on page 16).

Nontillable Pasture: Permanent or semi-permanent pasture land that is not be included in a regular crop rotation.

Operating Costs of Producing Milk: (defined on page 32).

Operating Expense Ratio: The percentage of total accrual receipts that is used for operating expenses, excluding interest and depreciation.

Opportunity Cost: The cost or charge made for using a resource based on its value in its most likely alternative use. The opportunity cost of a farmer's labor and management is the value he/she would receive if employed in his/her most qualified alternative position.

Other Forage: All forage crops harvested but not included as hay crops or corn silage, e.g. oats, barley, and sudan grass harvested as roughage.

Other Livestock Expenses: All other dairy herd and livestock expenses not included in more specific categories. Other livestock expenses include but not limited to; hauling and livestock marketing commissions, ear tags, leg bands, neck bands, hand scrapers.

Owner/Operator Resources Per Hundredweight: The total value of equity, management, and labor contributed to the farm from all owner/operators. This measure is calculated by adding the interest on equity capital to the value of labor and management for all owner/operators and dividing by the hundredweight milk produced during the year.

Part-Time Dairy (farm): Dairy farming is the primary enterprise, cropland is owned but operating and managing this farm is not a full-time occupation for one or more people.

Partnership: Business is owned by two or more individuals who share profits according to their contribution of labor, management, and capital.

Percent of Heifer Inventory Custom Inventory: The percent of current heifer inventory owned by the farm that is being custom raised off the farm.

Percent of Replacements Purchased: The percent of animals in the herd that calved for replacement purposes (not expansion cattle) that were different genetic background than your herd and were purchased.

Personal Withdrawals and Family Expenditures Including Nonfarm Debt Payments: All the money removed from the farm business for personal or nonfarm use including family living expenses, health and life insurance, income taxes, nonfarm debt payments, and investments.

Premium: In milk marketing this typically refers to the amount paid for milk in addition to the minimum regulated price. Premiums may be paid to the producer or cooperative supplier of milk by a buyer depending on a variety of criteria such as milk quality, composition, quantity supplied, or services provided. They may also represent market supply/demand conditions not adequately accounted for in the regulated price.

Prepaid Expenses: (defined on page 15).

Producer Price Differential: Under Federal Order markets with multiple component pricing, it is the residual value (per hundredweight) of the pool after deducting component payments (protein, butterfat, and other solids) to producers. This residual value will vary between market orders and from month-to-month based on the utilization of the various classes and class price. It is possible that the PPD can even be negative at times if, for example, the class III price exceeds the class I price.

Profitability: The return or net income the owner/manager receives for using one or more of his or her resources in the farm business. True "economic profit" is what remains after deducting all costs including the opportunity costs of the owner/manager's labor, management, and equity capital.

Purchased Inputs Costs of Producing Milk: (defined on page 31).

Repayment Analysis: An evaluation of the business' ability to make planned debt payments.

Replacement Livestock: Dairy cattle and other livestock purchased to replace those that were culled or sold from the herd during the year.

Return on Equity Capital: (defined on page 19).

Return Per Hundredweight To Operator's Labor, Management and Capital: Gross Milk receipts less purchased input costs less unpaid family labor, all divided by total hundredweight of milk sold.

Return to all Capital: (defined on page 19).

Sell Rate: The percentage of the average number of milking and dry cows that were sold for culling reasons. Animals that were sold as replacement stock to other dairy farms are not included in this number.

Sole Proprietorship: Business is owned by one individual but there may be more than one operator.

Solvency: The extent or ability of assets to cover or pay liabilities. Debt/asset and leverage ratios are common measures of solvency.

Specialized Dairy Farm: A farm business where dairy farming is the primary enterprise, operating and managing this farm is a full-time occupation for one or more people and cropland is owned.

Statement of Owner Equity (reconciliation): (defined on page 22).

Stocking Rate: (defined on page 28).

Taxes (expenses): Real estate taxes (school, town, and county). Payroll taxes are included as a hired labor expense. Income and self-employment taxes are a personal expense for all non-corporate taxpayers.

Tillable Acres: All acres that are normally cropped including hay land that is pastured. Acres that are doubled cropped are counted once.

Tillable Pasture: Hay crop acreage currently used for grazing that could be tilled in a regular cropping sequence.

Total Costs of Producing Milk: (defined on page 32).

Value of Calf Sold: The average value received for bull and heifer calves sold as calves during the year.

Value of Cow Sold: The average value received for animals that were sold for culling reasons.

Whole Farm Method: A procedure used to calculate costs of producing milk on dairy farms without using enterprise cost accounts. All non-milk receipts are assigned a cost equal to their sale value and deducted from total farm expenses to determine the costs of producing milk.

Worker Equivalent: The number of full-time workers equivalent to all the full and part-time people working throughout the year. Operator and family labor is included. Worker equivalents are determined by converting all work to full-time months (based on a 230 hours per month) and dividing by 12.

Working Capital: A theoretical measure of the amount of funds available to purchase inputs and inventory items after the sale of current farm assets and payment of all current farm liabilities. Calculated as current farm assets at end year less current farm liabilities at end year.

OTHER A.E.M. EXTENSION BULLETINS

EB No	Title	Fee (if applicable)	Author(s)
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2018-04	Approaches to Balancing Solar Expansion and Farmland Preservation: A Comparison across Selected States		Grout, T and J. Ifft
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